your AAOS 2013 Annual Meeting

Connect *with new ideas and old friends*

Meet *your highest educational objectives*

Experience *orthopaedics at its best*

Meeting Dates: March 19-23
Exhibit Dates: March 20-22
Chicago, IL

AAOS
American Academy of Orthopaedic Surgeons

FINAL PROGRAM

DePuy Synthes JOINT RECONSTRUCTION

People inspired™

COMPANIES OF Johnson & Johnson

INSPIRED SOLUTIONS. ON CALL.

DELIVERING THE TECHNOLOGY AND PROCEDURAL SUPPORT FOR KNEE REVISIONS.

DePuy Synthes Joint Reconstruction Revision Knee Portfolio

Revision Knee Solutions from DePuy Synthes Joint Reconstruction address the top reasons for revisions: loosening and instability, through the use of Rotating Platform and Metaphyseal Sleeve technologies. These innovative solutions offer multiple portfolio options with intra-operative flexibility that provide a strong foundation for implant stability.

DePuy Synthes JOINT RECONSTRUCTION

People inspired™

COMPANIES OF Johnson & Johnson

INSPIRED SOLUTIONS. ON CALL.

DELIVERING THE TECHNOLOGY AND PROCEDURAL SUPPORT FOR HIP RECONSTRUCTION.

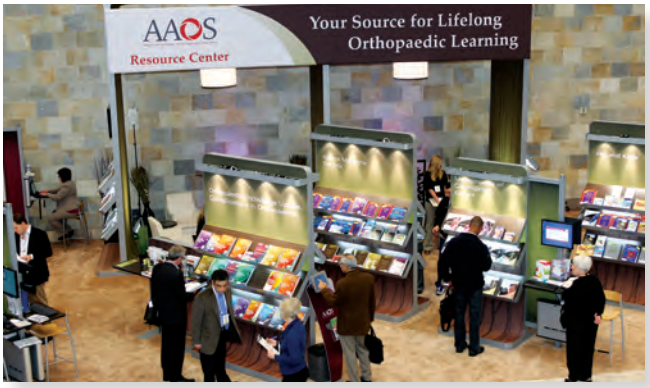
PINNACLE® Acetabular Cup System

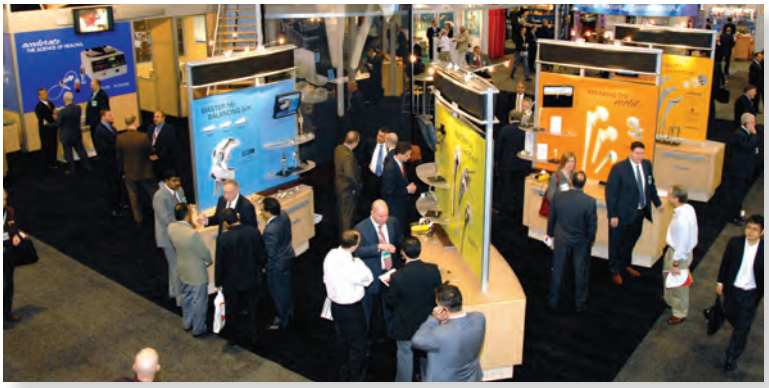
The PINNACLE® Acetabular Cup System was designed with multiple-bearing options to meet the specific needs of each patient. For more than 10 years, the PINNACLE Acetabular Cup System has been one of the most widely used and clinically successful modular acetabular cup systems for hip replacement. The PINNACLE Cup System has been provided for more than one million patients.[1] In addition, the PINNACLE System combined with the CORAIL® Hip Stem showed 95.9% survivorship at 7 years for 54,019 patients across all bearing combinations.[2]

PINNACLE: The Power to Choose without Compromise.

1. Data on file, DePuy Synthes Joint Reconstruction.
2. National Joint Registry for England and Wales, 9th Annual Report, 2012. Retrieved from: http://www.njrcentre.org.uk/njrcentre/Portals/0/Documents/England/Reports/9th_annual_report/NJR%209th%20Annual%20Report%202012.pdf, Table 3.9

Table of Contents

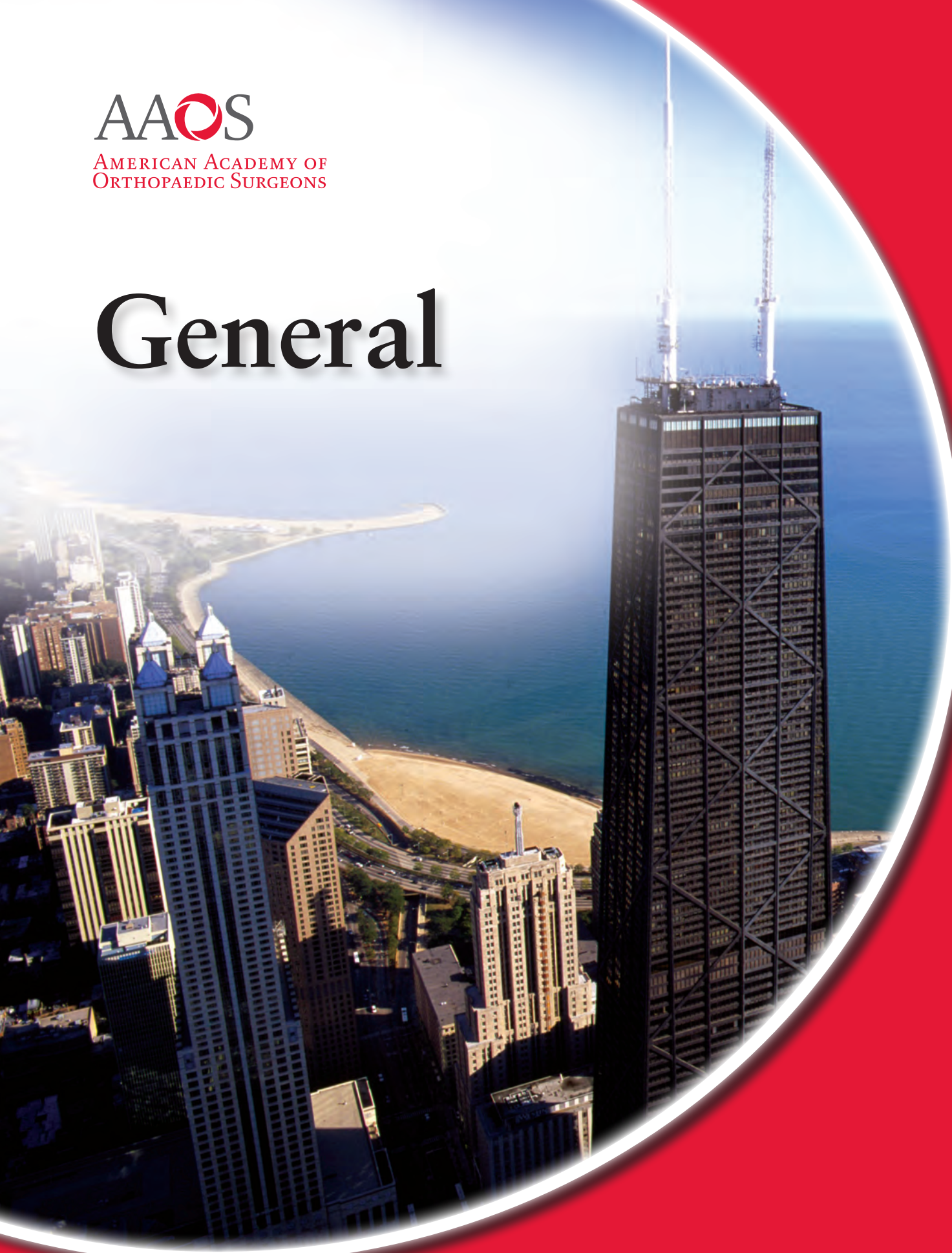




AAOS

American Academy of Orthopaedic Surgeons

General



Special Events McCormick Place, Grand Ballroom

Opening Ceremony

Wednesday, March 20
4:00 – 5:30 PM

John R. Tongue, MD
Presidential Address
"Winds of Change: Meeting the Challenges Together"

- Welcome to Canada as the Guest Nation
- Recognition of Industry Donors
- Chief Executive Officer Report
- Kappa Delta & OREF Awards

Business Meetings:

Thursday, March 21, 9:00 AM

Ceremonial Meeting:

Thursday, March 21, 10:00 AM

Joshua J. Jacobs, MD
Incoming Presidential Address
"Moving Forward: From Curses to Blessings"

Frederick M. Azar, MD
Incoming First Vice Presidential Remarks
"A Standing Call To Action"

- William W. Tipton, Jr., MD, Leadership Award
- Humanitarian Award
- Diversity Award

AAOS Presidential Guest Speakers Alan Simpson and Erskine Bowles

Thursday, March 21, 11:00 AM

America's Debt and Deficit Crisis: Issues and Solutions

Alan K. Simpson and Erskine B. Bowles, Co-Chairs of the 2010 National Commission on Fiscal Responsibility and Reform, will address the 2013 AAOS Annual Meeting in Chicago. Mr. Simpson is a former Republican Senator from Wyoming; Mr. Bowles served as White House Chief of Staff under President Clinton.

Together Mr. Bowles and Mr. Simpson will provide a bipartisan discourse on what America's leaders must do to confront what many see as the largest and most critical economic, social, business, and national security threat that the country faces. This is a presentation you won't want to miss.

Photos courtesy of Choose Chicago

Welcome to Chicago

John R. Tongue, MD

Welcome to Chicago for the American Academy of Orthopaedic Surgeons' 2013 Annual Meeting! Your participation and support is vital to the Academy's success.

Whatever you currently need to learn, it's all here with new energy and deeper connections to your colleagues and faculty. Annual Meeting Committee Chair Chad Price, MD, and his team have created an outstanding program. Along with their respective committees, Central Program Committee Chair Steve Frick, MD, Central Instructional Course Committee Chair Bob Hart, MD, and Exhibits Committee Chair Bill Seitz, MD, have produced an exciting selection of educational opportunities—a commitment to education that includes **28** symposia by the world's experts on exciting and timely topics, **825** papers and **580** posters on the latest scientific and clinical studies, **217** instructional courses presented by world-renowned faculty, more than **88** scientific exhibits on extended studies or complex procedures and to conclude the meeting Specialty Day on Saturday, offers **14** Specialty Society sessions covering the latest news in their area of expertise.

Be sure to visit over **600** technical exhibits displaying the "latest and greatest" in orthopaedic products and services.

Other important Annual Meeting events include the Opening Ceremony on Wednesday, at 4:00 PM, where we kick off the meeting and recognize Canada as this year's Guest Nation. On Thursday, the Ceremonial Meeting incorporates the presentations of the Humanitarian and Diversity Awards, Joshua J. Jacobs, MD incoming president's address, and the presidential guest speakers, Erskine Bowles & Alan Simpson.

On behalf of the Board of Directors, I sincerely want to thank all the supportive volunteers and staff for their continued time and efforts that make this meeting the foremost orthopaedic educational experience.

Enjoy the meeting!

John R. Tongue, MD
President

Mike Schafer, MD

John Sarwark, MD

As the local co-chairs, we are delighted to welcome everyone to "our kind of town." The McCormick facility enables us to provide a wide variety of educational opportunities for everyone.

We feel that Chicago is our "Type of Town." We intend to show you around and bet that you will enjoy it. There is jogging along our beautiful lake front, great shops and dining along the "Magnificent Mile", theaters, art galleries, and museums, many close to the convention center. There are numerous outstanding restaurants in the city that will provide an opportunity for fine dining and small gatherings to get together with friends. You are encouraged to look at *AAOS NOW Daily* for several lists of restaurants that have been provided by a local member of the editorial board of *Now;* as well as, chief residents.

For members and guests arriving early, we hope that you can join us as we build this year's playground at St. Sabina. It is an event that will bring you satisfaction, provide a playground for the community and camaraderie with your fellow orthopaedic surgeons, and guests.

When you leave we know that you will have had the time of your life in Chicago our home town.

Mike Schafer, MD and John Sarwark, MD
Local Co-Chiars

John R. Tongue, MD
President
Tualatin, Oregon

Joshua J. Jacobs, MD
First Vice-President
Chicago, Illinois

Frederick M. Azar, MD
Second Vice-President
Memphis, Tennessee

Andrew N. Pollak, MD
Treasurer
Baltimore, Maryland

Daniel J. Berry, MD
Past-President
Rochester, Minnesota

Fred C. Redfern, MD
Chair
Board of Councilors
Henderson, Nevada

Wilford K. Gibson, MD
Chair-Elect
Board of Councilors
Virginia Beach, Virginia

John J. McGraw, MD
Secretary
Board of Councilors
Jefferson City, Tennessee

Gregory A. Mencio, MD
Chair
Board of Specialty Societies
Nashville, Tennessee

Steven D.K. Ross, MD
Chair-Elect
Board of Specialty Societies
Orange, California

David C. Templeman, MD
Secretary
Board of Specialty Societies
Minneapolis, Minnesota

William J. Best
Lay Member
Jackson, Wyoming

Annunziato Amendola, MD
Member-at-Large
Iowa City, Iowa

Matthew B. Dobbs, MD
Member-at-Large
Saint Louis, Missouri

Mininder S. Kocher, MD, MPH
Member-at-Large
Boston, Massachusetts

Naomi N. Shields, MD
Member-at-Large
Wichita, Kansas

Karen L. Hackett, FACHE, CAE
Chief Executive Officer (Ex-Officio)
Rosemont, Illinois

About our Board of Directors

The Board of Directors manages the affairs of the ACADEMY and the ASSOCIATION. It is the administrative authority of the ACADEMY and the ASSOCIATION and considers all of its activities and determines its policies.

STATE OF ILLINOIS
OFFICE OF THE GOVERNOR
SPRINGFIELD, ILLINOIS 62706

Pat Quinn
GOVERNOR

March 19, 2013

Greetings!

As Governor of the State of Illinois, I am pleased to welcome everyone gathered for the American Academy of Orthopaedic Surgeons (AAOS) 2013 Annual Meeting.

Since 1933, your organization has worked diligently to establish the world's largest medical association of musculoskeletal specialists. Your annual meetings present a wonderful opportunity for medical professionals across the state to come together with the common goal of advancing medical education.

I commend the American Academy of Orthopaedic Surgeons on your remarkable accomplishments over the years. During this event, I encourage you to continue in your mission of empowering families and communities through your various medical endeavors. I also encourage everyone present to continue lending your support to this worthy organization, so that they may continue to provide valuable programs that expand throughout this great state.

On behalf of the people of Illinois, I offer my best wishes for a productive and memorable event.

Sincerely,

Pat Quinn

Pat Quinn
Governor

RAHM EMANUEL
MAYOR

OFFICE OF THE MAYOR
CITY OF CHICAGO

Dear Attendees:

As Mayor and on behalf of the City of Chicago, I am pleased to offer warmest greetings to those attending the 2013 Annual Meeting of the American Academy of Orthopaedic Surgeons.

Established in 1933, the American Academy of Orthopaedic Surgeons (AAOS) has always been dedicated to providing excellent musculoskeletal education to orthopaedic surgeons and others throughout the world. Now, 80 years later, the AAOS has grown into the world's largest medical association of musculoskeletal specialists. This event presents a wonderful opportunity to come together and continue pioneering medical education.

The American Academy of Orthopaedic Surgeons has been headquartered in Chicago since its founding. This city is also home to some of the world's finest physicians and preeminent medical institutions. The multifaceted research, projects and initiatives of AAOS impacts the global community. I commend the American Academy of Orthopaedic Surgeons for enhancing the medical scope of our city and for dynamic work in bettering the lives of the world's citizens.

It is my hope that after coming together and discussing the latest in musculoskeletal research, you will take the time to explore and take advantage of everything Chicago has to offer. An exciting variety of restaurants, nightlife, great universities and world-class museums accented by our iconic skyline and incredible lakefront make Chicago one of the world's greatest cities.

On behalf of the people of Chicago, I hope you have an enjoyable and productive meeting. Best wishes for much continued success.

Sincerely,

Rahm Emanuel

Mayor

Annual Business Meetings

All Fellows are urged to attend the Annual Business Meetings held in the Grand Ballroom of McCormick Place. The business meetings will be held on Thursday, March 21, 2013, at 9:00 AM. There will be one business meeting for the American Academy of Orthopaedic Surgeons ("Academy"), the 501(c)(3) organization, immediately followed by the business meeting of the American Association of Orthopaedic Surgeons ("Association"), the 501(c)(6) organization. All registrants are welcome to attend, but only Active, Inactive, and Emeritus Fellows may vote.

Agenda for the Business Meeting of the American Academy of Orthopaedic Surgeons

Thursday, March 21 at 9:00 AM
McCormick Place, Grand Ballroom
John R. Tongue, MD, Presiding

1. Call to Order and Appointments
2. Report of the Treasurer
3. Report of the Academy Education Enhancement Fund (AEEF)
4. Report of the Orthopaedic Research and Education Foundation (OREF)
5. Report of the Resolutions Committee [DISCUSSION]
6. Adjournment

Agenda for the Business Meeting of the American Association of Orthopaedic Surgeons

Thursday, March 21 at 9:20 AM
McCormick Place, Grand Ballroom
John R. Tongue, MD, Presiding

1. Call to Order and Appointments
2. Nominations for the 2014 Nominating Committee. Those ineligible to serve on the 2014 Nominating Committee, pursuant to Article XII, Paragraph 12.2 of the Association Bylaws, are Inactive Fellows, Emeritus Fellows, current members of the Board of Directors, and:
   James R. Andrews, MD ('12)
   Champ L. Baker, Jr., MD ('12)
   James H. Beaty, MD ('11)
   John A. Bergfeld, MD ('13)
   Louis C. Bigliani, MD ('11 and elected 3-plus terms)
   David S. Bradford, MD (elected 3-plus terms)
   Robert W. Bucholz, MD ('13)
   S. Terry Canale, MD ('12)
   Michael W. Chapman, MD (elected 3-plus terms)
   Robert D. D'Ambrosia, MD (elected 3-plus terms)
   Kenneth E. DeHaven, MD (elected 3-plus terms)
   Lawrence D. Dorr, MD ('12)
   Charles H. Epps, Jr., MD (elected 3-plus terms)
   Freddie H. Fu, MD ('11 and elected 3-plus terms)
   Christopher D. Harner, MD ('12)
   James D. Heckman, MD ('13)
   James H. Herndon, MD ('13)
   Joseph P. Iannotti, MD ('11 and elected 3-plus terms)
   Douglas W. Jackson, Jr., MD (elected 3-plus terms)
   Frank B. Kelly, MD ('11)
   Mark D. Miller, MD ('13)
   E. Anthony Rankin, MD ('12)
   Charles A. Rockwood, Jr., MD (elected 3-plus terms)
   Felix (Buddy) H. Savoie, III, MD ('11)
   Marc F. Swiontkowski, MD (elected 3-plus terms)
   Roby C. Thompson, Jr., MD (elected 3-plus terms)
   Laura L. Tosi, MD ('11)
   James R. Urbaniak, MD (elected 3-plus terms)
   Russell F. Warren, MD (elected 3-plus years)
   Augustus A. White, III, MD ('13 and elected 3-plus terms)
   Robert A. Winquist, MD (elected 3-plus years)
   Ken Yamaguchi, MD ('12)
3. Report of the Political Action Committee of the American Association of Orthopaedic Surgeons (Orthopaedic PAC)
4. Report of the Resolutions Committee [DISCUSSION]
5. Report of the Election of AAOS Officer and Other Positions
6. Recognition of Retiring Members of the Board of the American Academy of Orthopaedic Surgeons and the American Association of Orthopaedic Surgeons
7. Recognition of New Members of the Board of the American Academy of Orthopaedic Surgeons and the American Association of Orthopaedic Surgeons
8. Adjournment

Agenda for the Ceremonial Meeting

Thursday, March 21, 10:00 AM
McCormick Place, Grand Ballroom
John R. Tongue, MD, Presiding

1. Call to Order
2. Introduction of Board of Directors, Council/Cabinet Chairs and Annual Meeting Chairs
3. Presentation of Awards
   A. William W. Tipton, Jr., MD, Leadership Award
   B. Humanitarian Award
   C. Diversity Award
4. Introduction of Frederick M. Azar, MD, Incoming First Vice-President
5. Incoming First Vice-Presidential Remarks – Frederick M. Azar, MD
6. Introduction of Joshua J. Jacobs, MD, Incoming President
7. Incoming Presidential Address – Joshua J. Jacobs, MD
8. Recognition of Past President John R. Tongue, MD, and Presentation of Past President's Pin, Gavel, and Silver Seal
9. Adjournment

Resolutions Committee

The members of the 2013 Resolutions Committee are:

Michael L. Parks, MD, Chair
M. Scott Beall, Jr., MD
Mark E. Fahey, MD
Thomas M. Green, MD
Mark D. Perry, MD
Todd A. Schmidt, MD
Edward A. Toriello, MD

The Resolutions Committee will conduct an Open Hearing on the two new duly proposed resolutions and the seven resolutions undergoing their five-year review on Wednesday, March 20,

beginning at 1:00 PM in Room S101B of McCormick Place. During the Open Hearing, all Fellows are invited to discuss the resolutions under consideration. At the business meetings on March 21, the Resolutions Committee will present its recommendations regarding each resolution under consideration. Shortly after the Annual Meeting, these recommendations will be voted on by the Fellowship. To be adopted, a resolution requires that at least twenty percent of the eligible Fellows vote on the resolution and that of those voting, at least fifty percent vote to adopt the resolution as AAOS policy.

Bylaws Committee

The members of the 2013 Bylaws Committee are:

George T. Shybut, MD, Chair
Russell J. Crider, MD
James H. Herndon, MD
Alan H. Morris, MD
William M. Strassberg, MD

As there are no proposed bylaw amendments or proposed or revised Standards of Professionalism (SOPs) to be considered at the 2013 Annual Meeting, the Bylaws Committee will not be meeting.

2013 Nominating Committee

In May, the Fellowship by ballot elected six members of the 2013 Nominating Committee. The Board of Directors appointed the Chair of the Nominating Committee in February. The members of the 2013 Nominating Committee are:

Joseph D. Zuckerman, MD (NY), Chair
John A. Bergfeld, MD (OH)
Robert W. Bucholz, MD (TX)
James D. Heckman, MD (VT)
James H. Herndon, MD (MA)
Mark D. Miller, MD (VA)
Augustus A. White, III, MD (MA)

By February 21, the AAOS will prepare a ballot and information regarding all candidates nominated to serve in the office of Second Vice-President, At-large members of the Board of Directors (one no age designation, one under age 45), member of the National Membership Committee, and four nominees to the American Board of Orthopaedic Surgery (ABOS).

Beginning on March 6 and through 1:00 pm on March 20, Fellows will be asked to vote electronically on this ballot. The results of the balloting will be announced by the President during the Association business meeting on Thursday, March 21.

Nominations for the 2014 Nominating Committee

At the business meeting of the American Association of Orthopaedic Surgeons on Thursday, March 21, an unlimited number of nominations will be accepted for individuals to serve on the Nominating Committee; Inactive or Emeritus Fellows or Active Fellows who have been elected to serve on the Nominating Committee more than three terms are not eligible for election. All persons nominated will be sent a notification and a form containing a statement for them to sign regarding their willingness to serve on this Nominating Committee. A ballot containing a list of these nominated and willing to serve will be sent to all Fellows.

Award Presentations at the Annual Meeting

Join the American Academy of Orthopaedic Surgeons as we recognize the 2013 Kappa Delta and OREF Clinical Research Award Winners

Wednesday, March 20, 4:00-5:30 PM, McCormick Place, Grand Ballroom

2013 Kappa Delta Young Investigator Award
Control of Bone Healing by Mechanical Factors
Elise Morgan, PhD
Boston University

2013 Kappa Delta Ann Doner Vaughn Award
The Biology of ACL Injury and Repair
Martha Murray, MD
Co-Author: Braden C. Fleming, PhD
Boston Children's Hospital

2013 Kappa Delta Elizabeth Winston Lanier Award
Design of Human Skeletal Muscles: Implications For Orthopaedic Surgery
Rick Lieber, PhD
Co-Authors: Samuel R. Ward, PT, PhD; Jan Friden, MD, PhD
University of California, San Diego

2013 OREF Clinical Research Award
Improving Outcomes for Posterolateral Knee Injuries
Running Title: he Posterolateral Corner of the Knee
Robert LaPrade, MD, PhD
Co-Authors: Steinar Johansen, MD; Lars Engebretsen, MD, PhD; Chad J, Griffith, MD / Benjamin R. Coobs, MD; Andrew G. Geeslin, MD
Steadman Philippon Research Institute

TUESDAY, MARCH 19

Education	Location – McCormick Place	Time
Nursing and Allied Health Courses – NUR1 & NUR2	Lakeside, Room E450a	7:30 AM – 12:00 PM 1:30 – 6:00 PM
Instructional Courses	See Schedule or pages 56–202 for room numbers	8:00 – 10:00 AM 8:00 – 11:00 AM 10:30 AM – 12:30 PM 1:30 – 3:30 PM 1:30 – 4:30 PM 1:30 – 6:00 PM 4:00 – 6:00 PM
Symposia & Paper Presentations	See pages 56–202 for room numbers	8:00 – 10:00 AM 10:30 AM – 12:30 PM 1:30 – 3:30 PM 4:00 – 6:00 PM
Posters, Scientific Exhibits, Orthopaedic Video Theater	Academy Hall B	8:00 AM – 6:00 PM
Basics of Coding for Starting Your Practice #150	Lakeside, Room E354a	8:00 – 11:00 AM
Practice Management Symposium for Practicing Orthopaedic Surgeons #152	Room S102	9:00 AM – 5:00 PM
Practice Management Symposium for Orthopaedic Residents #151	Lakeside, Room E354a	12:00 – 5:30 PM
The Top 10 Coding Errors Made by Practicing Orthopaedic Surgeons #153	Room N228	1:30 – 4:30 PM
Community Orthopaedic Surgeon Workshop #154	Room N227b	1:30 – 5:30 PM
General	**Location – McCormick Place**	**Time**
Ready Rooms	Rooms S401, N226, Lakeside E253c	6:30 AM – 6:00 PM
Registration – Physician	Academy Hall B & South Lobby	7:00 AM – 6:00 PM
Registration – Social Program	Academy Hall B	7:00 AM – 6:00 PM
Playground Build	Shuttles depart every 30 minutes from Gate 21	7:30 AM – 2:00 PM
Job Placement Center	Academy Hall B	8:00 AM – 6:00 PM
Resource Center	Academy Hall B	8:00 AM – 6:00 PM
Guest Nation Booth – Canada	Academy Hall B	8:00 AM – 6:00 PM
American Board of Orthopaedic Surgery Booth	Academy Hall B	8:00 AM – 6:00 PM
American Joint Replacement Surgery Booth	Academy Hall B	8:00 AM – 6:00 PM
Orthopaedic Research & Education Foundation Booth	Academy Hall B	8:00 AM – 6:00 PM

WEDNESDAY, MARCH 20

Education	Location – McCormick Place	Time
Instructional Courses	See Schedule or pages 56–202 for room numbers	7:00 – 10:00 AM 8:00 – 10:00 AM 8:00 – 11:00 AM 10:30 AM – 12:30 PM 1:30 – 3:30 PM 1:30 – 4:30 PM 4:00 – 6:00 PM
Posters, Scientific Exhibits, Orthopaedic Video Theater	Academy Hall B	7:00 AM – 6:00 PM
Nursing and Allied Health Courses – NUR3 & NUR4	Lakeside, Room E450a	7:30 AM – 12:00 PM 1:30 – 6:00 PM
Symposia & Paper Presentations	See pages 56–202 for room numbers	8:00 – 10:00 AM 10:30 AM – 12:30 PM 1:30 – 3:30 PM 4:00 – 6:00 PM
Exhibit Hall	**Location – McCormick Place**	**Time**
Technical Exhibits	Hall A	9:00 AM – 5:00 PM
AAOS Advocacy Booth	Hall A, Booth 1600	9:00 AM – 5:00 PM
AAOS Exhibit Hall Resource Center	Hall A, Booth 1265	9:00 AM – 5:00 PM
Orthopaedic Learning Center Booth	Hall A, Booth 1602	9:00 AM – 5:00 PM

Ask an Expert Sessions	Hall A, Booth 465 See page 341 for schedule	9:30 AM – 4:15 PM
Electronic Skills Pavilion	Hall A, Booth 5236 See page 340 for schedule	9:30 AM – 4:15 PM
Unopposed Exhibit Time*	Hall A	12:30 – 1:30 PM
Complimentary Beverage Break	Hall A	3:30 – 4:00 PM
General	**Location - McCormick**	**Time**
Ready Rooms	Rooms S401, N226, Lakeside E253c	6:30 AM – 6:00 PM
Job Placement Center	Academy Hall B	7:00 AM – 6:00 PM
Registration – Physician	Academy Hall B & South Lobby	7:00 AM – 6:00 PM
Registration – Social Program	Academy Hall B	7:00 AM – 6:00 PM
Resource Center	Academy Hall B	7:00 AM – 6:00 PM
Guest Nation Booth – Canada	Academy Hall B	7:00 AM – 6:00 PM
American Board of Orthopaedic Surgery Booth	Academy Hall B	7:00 AM – 6:00 PM
American Joint Replacement Surgery Booth	Academy Hall B	7:00 AM – 6:00 PM
Orthopaedic Research & Education Foundation Booth	Academy Hall B	7:00 AM – 6:00 PM
American Joint Replacement Registry Informational Session	Room S405	9:00 – 11:00 AM
Resolutions Committee Open Hearing	Room S101b	1:00 PM
Opening Ceremony	Grand Ballroom	4:00 – 5:30 PM

**No other educational activities are scheduled.*

THURSDAY, MARCH 21

Education	**Location – McCormick Place**	**Time**
Instructional Courses	See Schedule or pages 56–202 for room numbers	7:00 – 10:00 AM 8:00 – 10:00 AM 8:00 – 11:00 AM 10:30 AM – 12:30 PM 1:30 – 3:30 PM 1:30 – 4:30 PM 4:00 – 6:00 PM
Posters, Scientific Exhibits, Orthopaedic Video Theater	Academy Hall B	7:00 AM – 6:00 PM
Symposia & Paper Presentations	See pages 56–202 for room numbers	8:00 – 10:00 AM 10:30 AM – 12:30 PM 1:30 – 3:30 PM 4:00 – 6:00 PM
Nursing and Allied Health Course – CAST1	Lakeside, Room E451b	8:15 AM – 5:45 PM
Exhibit Hall	**Location – McCormick Place**	**Time**
Technical Exhibits	Hall A	9:00 AM – 5:00 PM
AAOS Advocacy Booth	Hall A, Booth 1600	9:00 AM – 5:00 PM
AAOS Exhibit Hall Resource Center	Hall A, Booth 1265	9:00 AM – 5:00 PM
Orthopaedic Learning Center Booth	Hall A, Booth 1602	9:00 AM – 5:00 PM
Ask an Expert Sessions	Hall A, Booth 465 See page 341 for schedule	9:30 AM – 4:15 PM
Electronic Skills Pavilion	Hall A, Booth 5236 See page 340 for schedule	9:30 AM – 4:15 PM
Unopposed Exhibit Time*	Hall A	12:30 – 1:30 PM
Complimentary Beverage Break	Hall A	3:30 – 4:00 PM
General	**Location – McCormick Place**	**Time**
Ready Rooms	Rooms S401, N226, Lakeside E253c	6:30 AM – 6:00 PM
Job Placement Center	Academy Hall B	7:00 AM – 6:00 PM
Registration – Physician	Academy Hall B & South Lobby	7:00 AM – 6:00 PM
Registration – Social Program	Academy Hall B	7:00 AM – 6:00 PM

Resource Center	Academy Hall B	7:00 AM – 6:00 PM
Guest Nation Booth – Canada	Academy Hall B	7:00 AM – 6:00 PM
American Board of Orthopaedic Surgery Booth	Academy Hall B	7:00 AM – 6:00 PM
American Joint Replacement Surgery Booth	Academy Hall B	7:00 AM – 6:00 PM
Orthopaedic Research & Education Foundation Booth	Academy Hall B	7:00 AM – 6:00 PM
Business Meetings	Grand Ballroom	9:00 AM
Ceremonial Meeting	Grand Ballroom	10:00 AM
Forum for Young Orthopaedic Surgeons	Room S101b	10:30 AM – 12:30 PM
Presidential Guest Speakers Erskine Bowles & Alan Simpson	Grand Ballroom	11:00 AM

**No other educational activities are scheduled.*

FRIDAY, MARCH 22

Education	Location – McCormick Place	Time
Instructional Courses	See Schedule or pages 56–202 for room numbers	7:00 – 10:00 AM 8:00 – 10:00 AM 8:00 – 11:00 AM 10:30 AM – 12:30 PM 1:30 – 3:30 PM 1:30 – 4:30 PM 4:00 – 6:00 PM
Posters, Scientific Exhibits, Orthopaedic Video Theater	Academy Hall B	7:00 AM – 6:00 PM
Symposia & Paper Presentations	See pages 56–202 for room numbers	8:00 – 10:00 AM 10:30 AM – 12:30 PM 1:30 – 3:30 PM 4:00 – 6:00 PM
Orthopaedic Review Course	Lakeside, Room E354a	8:00 AM – 5:35 PM
Nursing and Allied Health Course – CAST2	Lakeside, Room E451b	8:15 AM – 5:45 PM
Exhibit Hall	**Location – McCormick Place**	**Time**
Technical Exhibits	Hall A	9:00 AM – 4:00 PM
AAOS Advocacy Booth	Hall A, Booth 1600	9:00 AM – 4:00 PM
AAOS Exhibit Hall Resource Center	Hall A, Booth 1265	9:00 AM – 4:00 PM
Orthopaedic Learning Center Booth	Hall A, Booth 1602	9:00 AM – 4:00 PM
Ask an Expert Sessions	Hall A, Booth 465 See page 341 for schedule	9:30 AM – 3:15 PM
Electronic Skills Pavilion	Hall A, Booth 5236 See page 340 for schedule	9:30 AM – 3:15 PM
Complimentary Beverage Break	Hall A	10:00 – 10:30 AM
Complimentary AAOS Souvenir Photo	Hall A	10:00 AM – 2:00 PM
Unopposed Exhibit Time*	Hall A	12:30 – 1:30 PM
Ice Cream Social	Hall A	2:00 – 3:30 PM
General	**Location – McCormick Place**	**Time**
Ready Rooms	Rooms S401, N226, Lakeside E253c	6:30 AM – 6:00 PM
Job Placement Center	Academy Hall B	7:00 AM – 6:00 PM
Registration – Physician	Academy Hall B & South Lobby	7:00 AM – 6:00 PM
Registration – Social Program	Academy Hall B	7:00 AM – 6:00 PM
Resource Center	Academy Hall B	7:00 AM – 6:00 PM
Guest Nation Booth – Canada	Academy Hall B	7:00 AM – 6:00 PM
American Board of Orthopaedic Surgery Booth	Academy Hall B	7:00 AM – 6:00 PM
American Joint Replacement Surgery Booth	Academy Hall B	7:00 AM – 6:00 PM
Orthopaedic Research & Education Foundation Booth	Academy Hall B	7:00 AM – 6:00 PM

**No other educational activities are scheduled.*

SATURDAY, MARCH 23

Education	Location – McCormick Place	Time
Specialty Day	See page 37	Times vary
Posters, Scientific Exhibits, Orthopaedic Video Theater	Academy Hall B	7:00 AM – 5:30 PM
General	**Location – McCormick Place**	**Time**
Ready Rooms	Rooms S401, N226, Lakeside E253c	6:00 AM – 5:30 PM
Job Placement Center	Academy Hall B	7:00 AM – 5:30 PM
Registration – Physician	Academy Hall B & South Lobby	7:00 AM – 5:30 PM
Registration – Social Program	Academy Hall B	7:00 AM – 12:00 PM
Resource Center	Academy Hall B	7:00 AM – 5:30 PM
Guest Nation Booth – Canada	Academy Hall B	7:00 AM – 5:30 PM
American Board of Orthopaedic Surgery Booth	Academy Hall B	7:00 AM – 5:30 PM
American Joint Replacement Surgery Booth	Academy Hall B	7:00 AM – 5:30 PM
Orthopaedic Research & Education Foundation Booth	Academy Hall B	7:00 AM – 5:30 PM

Accreditation

The American Academy of Orthopaedic Surgeons is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CME Credit

U.S. Physicians: The AAOS designates this live activity for a maximum of ***38.5 AMA PRA Category 1 Credits™***. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

International Physicians: The AMA has determined that physicians not licensed in the United States but who participate in this CME activity are eligible for ***AMA PRA Category 1 Credits™***.

Allied Health Professionals: The AAOS is not accredited to offer credit for nurses and other allied health professionals. To determine if activities offering ***AMA PRA Category 1 Credits™*** are acceptable for your licensing or certification needs please contact the relevant organizations directly.

IMPORTANT – It is important for you to check in as soon as you arrive. The AAOS transcript system will not allow you to claim CME credit for any educational activities you participated in before you officially check in to the meeting. For instance, if you arrive at the meeting on Wednesday but do not check in until Thursday, you will not be able to claim CME credits for your Wednesday attendance. The CME credit system is an honor system. You should claim only the number of credits for the learning activities at the Annual Meeting in which you actively participated. For example, if you attend only on Wednesday and Thursday, the maximum amount you may claim is 20 credits. The grid below outlines the number of credit hours available per day:

Checked In OR Register at the Meeting on:	Maximum Daily Credit	Maximum Meeting Credits
Tuesday, March 19	Up to 9 Credits	38.5 Credits
Wednesday, March 20	Up to 10 Credits	29.5 Credits
Thursday, March 21	Up to 10 Credits	19.5 Credits
Friday, March 22	Up to 9.5 Credits	9.5 Credits

CME Certificates

The AAOS transcript system will not allow you to claim available CME credit before you officially check in to the meeting. Therefore it is important to check in as soon as you arrive. Physicians should claim only the number of credits for the learning activities at the Annual Meeting in which they actively participated.

The grid below outlines the types of activities that are available at the Annual Meeting and notes which qualify for ***AMA PRA Category 1 Credit™:***

Activity	Date	Time(s)	CME Credit Available
Instructional Courses	Tuesday, March 19 Wednesday – Friday, March 20-22	8:00 AM – 12:30 PM 1:30 PM – 6:00 PM 7:00 AM – 12:30 PM 1:30 PM – 6:00 PM	Yes
Symposia/ Paper Presentations	Tuesday – Friday, March 19 – 22	8:00 AM – 10:00 AM 10:30 AM – 12:30 PM 1:30 PM – 3:30 PM 4:00 PM – 6:00 PM	Yes
Posters and Scientific Exhibits	Wednesday – Friday, March 20 – 22 (only when the presenter is required to be present)	11:30 AM – 12:30 PM	Yes
Orthopaedic Video Theater (formerly known as the Multimedia Education Center (MEC))	Tuesday, March 19 Wednesday – Friday, March 20 – 22 Saturday, March 23	8:00 AM – 6:00 PM 7:00 AM – 6:00 PM 7:00 AM – 5:30 PM	Yes
Opening Ceremony	Wednesday, March 20	4:00 PM	No
Business Meetings	Thursday, March 21	9:00 AM	No
Ceremonial Meeting	Thursday, March 21	10:00 AM	No
Electronic Skills Pavilion	Wednesday – Thursday, March 20 – 21 Friday, March 22	9:00 AM – 5:00 PM 9:00 AM – 4:00 PM	No
Technical Exhibits	Wednesday – Thursday, March 20 – 21 Friday, March 22	9:00 AM – 5:00 PM 9:00 AM – 4:00 PM	No
Specialty Day	Saturday, March 23	Varies by society	Yes

Specialty Day CME

Listed below are the Specialty Societies designations of ***AMA PRA Category 1 Credits™***. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

American Orthopaedic Foot and Ankle Society – 9 credits

American Orthopaedic Society for Sports Medicine – 5.75 credits

American Shoulder and Elbow Surgeons – 8 credits

American Society of Surgery of the Hand/ American Association for Hand Surgery – 8 credits

Arthroscopy Association of North America – 5.75 credits

Federation of Spine Associations – 8.25 credits

Hip Society/American Association of Hip and Knee Surgeons – 7 credits

Knee Society/American Association of Hip and Knee Surgeons – 7 credits

Limb Lengthening and Reconstruction Society – 8 credits

Musculoskeletal Tumor Society – 7.5 credits

Orthopaedic Trauma Association – 8 credits

Pediatric Orthopaedic Society of North America – 7 credits

Disclaimer

The material presented at the Annual Meeting has been made available by the American Academy of Orthopaedic Surgeons for educational purposes only. This material is not intended to represent the only, nor necessarily best, method or procedure appropriate for the medical situations discussed, but rather is intended to present an approach, view, statement or opinion of the faculty which may be helpful to others who face similar situations. The AAOS disclaims any and all liability for injury or other damages resulting to any individual attending a session and for all claims which may arise out of the use of the techniques demonstrated therein by such individuals, whether these claims shall be asserted by a physician or any other person.

No reproductions of any kind, including audiotapes and videotape, may be made of the presentation at the Academy's Annual Meeting. The Academy reserves all of its rights to such material, and commercial reproduction is specifically prohibited.

FDA Statement

Some drugs or medical devices demonstrated at the Annual Meeting have been cleared by the FDA for specific purposes only or have not been cleared by the FDA. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical devices he or she wishes to use in clinical practice. Academy policy provides that "off label" uses of a drug or medical device may be described in the Academy's CME activities so long as the "off label" use of the drug or medical device is also specifically disclosed (i.e. it must be disclosed that the FDA has not cleared the drug or device for the described purpose). Any drug or medical device is being used "off label" if the described use is not set forth on the products approval label.

2013 Annual Meeting Objectives

Global Objectives

- Develop and refine a perspective on the broad range of orthopaedic knowledge, care and surgical practice
- Expand and integrate an understanding of the scientific and clinical tenets of orthopaedic surgery to better treat and prevent musculoskeletal disease.
- Develop an understanding of economic and practice management challenges that can lead to strategies that protect continued access to care for patients and viability of the profession.
- Provide a forum to strengthen professional relationships and develop networks that lead to better patient care, individual surgeon career satisfaction, and a more robust profession as a whole.

Instructional Objectives

- To facilitate a personalized educational experience through a comprehensive offering of instructional courses, symposia, scientific presentations and surgical skills courses.
- Support a forum for discussion of current issues in orthopaedics including patient safety, advocacy, practice management, and culturally competent care.
- Offer complementing formats to facilitate career-long education that meets the expectations of patients, colleagues and Maintenance of Certification.
- To provide a forum for the presentation of basic and clinical research with current as well as future potential applications in the management of patients with musculoskeletal disease or injury.

Learner Objectives

- Synthesize a basis for the practice of delivering evidence-based, cost effective orthopaedic care
- Integrate current basic science, translational research, and state-of-the art procedures and technology into clinical practice.
- Become more informed and involved in advocacy issues related to orthopaedics
- To provide a forum for resident education on current clinical practice, relevant basic science, practice management, and advocacy issues in preparation for careers as competent and ethical orthopaedic surgeons.

Private Meeting

The AAOS 2013 Annual Meeting is a private meeting. The AAOS reserves the right to control space and ask people to leave the meeting who are not qualified to attend.

Technology at the Annual Meeting

AAOS Mobile Meeting Guide

The AAOS Mobile Meeting Guide application is available free from the App Store or Google Play. View, search and schedule scientific programming – including all AAOS educational opportunities – Technical Exhibitor information, Social Program, Committee and Affiliate Meetings, and Special Events. You may even add personal events to your schedule.

A mapping program for meeting room location and exhibiting companies within McCormick Place is also included. Need some assistance? Visit the help desk located in the Resource Center, Academy Hall B.

Audience Response System

Selected Instructional Courses will make use of Smartphone technology as part of an Audience Response System.

Electronic Skills Pavilion - Hall A, Booth 5236

Presentations that showcase current technology, products, and applications that are developed for the orthopaedic surgeon take place here. Handouts and evaluations will be accessible electronically through QR codes available on-site at the Electronic Skills Pavilion.

Evaluations

Instructional Courses and Symposia evaluations can be accessed through the AAOS Mobile Meeting Guide available for your Smartphone or internet connected device.

Event Touch Digital Signage

LCD touch screens are available at the Welcome and Information Booths located throughout McCormick Place and will function as an interactive "You Are Here." This technology allows you to engage directly with the display, assisting with a visual directional to meeting rooms / educational sessions, technical exhibits, Academy Hall and special events.

iPosters and *New!* iScientific Exhibits New Academy Hall B

iPosters and iScientific Exhibits provides a digital version of the poster or scientific exhibit at the Annual Meeting. The audio recorded by the presenter will be a narrative of the poster or scientific exhibit and offered on playback by Smartphone and tablets as the attendee views the poster and scientific exhibit. A blog will allow viewers to question the authors creating an ongoing dialog. Kiosks are available within Academy Hall B where attendees can view, hear the audio, and also decide whether or not to view the actual poster or scientific exhibit. The iPosters and iScientific Exhibits create an excellent post meeting opportunity to view this important research in your office or home.

Proceedings

Be sure to get your copy of the Annual Meeting Proceedings CD-ROM. Pick up your CD at the bins located in registration. An ebook will be available for download to your tablet at www.aaos.org/proceedings.

Webcasting

View over 20 symposia webcasts as they are simulcast live from the Annual Meeting. Choose from a variety of topics addressing joint replacement procedures including shoulder, hip, and sports. Did you miss the live simulcasts? View the webcasts free anytime 24 hours after the start of the symposium during the Annual Meeting. Both the AAOS.org website and the Meeting App "AAOS Mobile Meeting Guide" provide access links for the webcasts for both meeting attendees and virtual participants.

On April 1, the webcasts become available for purchase and download from the AAOS Website Store www.aaos.org/webcast.

1 **ACME Hotel Company Chicago** (formerly Comfort Inn & Suites) 15 E Ohio St
2 **Allegro Chicago, A Kimpton Hotel** 171 W Randolph St
3 **Allerton Hotel** 701 N Michigan Ave
4 **Amalfi Chicago** 20 W Kinzie St
5 **Avenue Crowne Plaza Hotel Chicago** 160 E Huron St
6 **Chicago Marriott Downtown Magnificent Mile** 540 N Michigan Ave
7 **Conrad Chicago** 521 N Rush St
8 **Courtyard by Marriott Chicago Downtown/River North** 30 E Hubbard St
9 **Courtyard by Marriott Magnificent Mile** 165 E Ontario St
10 **Doubletree Chicago Magnificent Mile** 300 E Ohio St
11 **Drake Hotel, The** 140 E Walton Pl
12 **Embassy Suites Chicago** 600 N State St
13 **Embassy Suites Chicago Downtown - Lakefront** 511 N Columbus Dr
14 **Fairmont Chicago, Millennium Park** 200 N Columbus Dr
15 **Four Seasons Chicago** 120 E Delaware Pl
16 **Hard Rock Hotel Chicago** 230 N Michigan Ave
17 **Hilton Chicago** 720 S Michigan Ave
18 **Hilton Garden Inn Chicago Downtown/Magnificent Mile** 10 E Grand Ave
19 **Hilton Suites Chicago / Magnificent Mile** 198 E Delaware Pl
20 **Hotel 71** 71 E Wacker Dr
21 **Hotel Burnham, A Kimpton Hotel** 1 W Washington St
22 **Hyatt Chicago Magnificent Mile** (formerly Wyndham Chicago) 633 N St Clair St
23 **Hyatt Regency Chicago** 151 E Wacker Dr
24 **Hyatt Regency McCormick Place** 2233 S Martin Luther King Dr
25 **Inn of Chicago Magnificent Mile** 162 E Ohio St
26 **InterContinental Chicago Magnificent Mile** 505 N Michigan Ave
27 **Millennium Knickerbocker Hotel** 163 E Walton Pl
28 **Monaco Chicago, A Kimpton Hotel** 225 N Wabash Ave
29 **Omni Chicago Hotel** 676 N Michigan Ave
30 **Palmer House Hilton** 17 E Monroe St
31 **Palomar Chicago, A Kimpton Hotel** 505 N State St
32 **Park Hyatt Chicago** 800 N Michigan Ave
33 **Peninsula Chicago, The** 108 E Superior St
34 **Radisson Blu Aqua Hotel Chicago** 221 North Columbus Dr
35 **Renaissance Blackstone Chicago Hotel** 636 S Michigan Ave
36 **Renaissance Chicago Downtown Hotel** 1 W Wacker Dr
37 **Residence Inn Chicago Downtown River North** 410 N Dearborn St
38 **Ritz-Carlton Chicago, The (A Four Seasons Hotel)** 160 E Pearson St
39 **Sax Chicago - A Thompson Hotel** 333 N Dearborn St
40 **Sheraton Chicago Hotel & Towers** 301 E North Water St
41 **Sofitel Chicago Water Tower** 20 E Chestnut St
42 **SpringHill Suites Chicago Downtown** 410 N Dearborn St
43 **Swissôtel Chicago** 323 E Wacker Dr
44 **The Silversmith Hotel & Suites** 10 S Wabash Ave
45 **theWit - A Doubletree Hotel by Hilton** 201 N State St
46 **W Chicago - Lakeshore** 644 N Lake Shore Dr
47 **Westin Chicago River North** 320 N Dearborn St
48 **Westin Michigan Avenue Chicago** 909 N Michigan Ave

Map used to indicate approximate locations only.

HOTEL SHUTTLE

Hours of Operation:
Monday .....2:00 PM – 6:30 PM *(Limited Service)*
Tuesday-Friday.....6:30 AM – 6:30 PM
Saturday.....6:30 AM – 6:00 PM

ADA Requests: (415)926-2529

AIRPORT SHUTTLE

Departs: Gate 3 – South // Gate 27 – North *(Upon Request)*

Hours of Operation:
Tuesday–Saturday .....8:00 AM – 6:30 PM

Group Code: AAOS
Phone: (888)284-3826

ROUTE #	HOTEL	GATE – BUILDING @ McCormick Place	BOARDING LOCATION @ Hotel
Route 3	ACME Hotel Chicago	2 – South	@ Chicago Marriott Downtown (Ohio & Rush)
Route 6	Allegro Hotel	27 – North	Randolph Street Entrance
Route 4	Allerton	1 – South	@ Omni of Chicago (Rush & Huron, Northwest Corner)
Route 3	Amalfi	2 – South	@ Westin River North (Kinzie & Dearborn, Southeast Corner)
Route 4	Avenue Crowne Plaza	1 – South	@ Omni of Chicago (Rush & Huron, Northwest Corner)
Route 3	Chicago Marriott Downtown	2 – South	Ohio & Rush
Route 3	Conrad Chicago	2 – South	@ Chicago Marriott Downtown (Ohio & Rush)
Route 3	Courtyard Marriott - River North	2 – South	@ Westin River North (Kinzie & Dearborn, Southeast Corner)
Route 4	Courtyard Marriott – Magnificent Mile	1 – South	@ Omni of Chicago (Rush & Huron, Northwest Corner)
Route 2	Doubletree Magnificent Mile	3 – South	@Sheraton Chicago (Convention Entrance – off Columbus Drive)
Route 4	Drake	1 – South	@ Westin Michigan Avenue (Delaware & Michigan, Southeast Corner)
Route 3	Embassy Suites Downtown	2 – South	@ Chicago Marriott Downtown (Ohio & Rush)
Route 2	Embassy Suites Lakefront	3 – South	@Sheraton Chicago (Convention Entrance – off Columbus Drive)
Route 5	Fairmont Chicago	1 – South	@ Hyatt Regency Chicago (East Wacker Drive & Stetson)
Route 4	Four Seasons	1 – South	Michigan & Delaware (West Side of Street)
Route 6	Hard Rock Hotel	27 – North	@ Renaissance Downtown (Wacker Drive Entrance)
Route 1	Hilton Chicago	26 – North	8th Street Entrance
Route 3	Hilton Garden Inn – Magnificent Mile	2 – South	@ Chicago Marriott Downtown (Ohio & Rush)
Route 4	Hilton Suites	1 – South	@ Westin Michigan Avenue (Delaware & Michigan, Southeast Corner)
Route 6	Hotel 71	27 – North	@ Renaissance Downtown (Wacker Drive Entrance)
Route 1	Hotel Burnham	26 – North	@ Palmer House Hilton (Wabash & Monroe)
Route 6	Hotel Monaco	27 – North	@ Renaissance Downtown (Wacker Drive Entrance)
Route 4	Hyatt Chicago Magnificent Mile	1 – South	@ Omni of Chicago (Rush & Huron, Northwest Corner)
No Service	Hyatt McCormick Place	Walk	Adjacent to Convention Center
Route 5	Hyatt Regency Chicago	1 – South	East Wacker Drive & Stetson
Route 3	Inn of Chicago	2 – South	@ Chicago Marriott Downtown (Ohio & Rush)
Route 3	Intercontinental	2 – South	@ Chicago Marriott Downtown (Ohio & Rush)
Route 4	Knickerbocker	1 – South	@ Westin Michigan Avenue (Delaware & Michigan, Southeast Corner)

ROUTE #	HOTEL	GATE – BUILDING @ McCormick Place	BOARDING LOCATION @ Hotel
Route 4	Omni of Chicago	1 – South	Rush & Huron, Northwest Corner
Route 1	Palmer House Hilton	26 – North	Wabash Entrance
Route 3	Palomar Chicago	2 – South	@ Chicago Marriott Downtown (Ohio & Rush)
Route 4	Park Hyatt	1 – South	@ Omni of Chicago (Rush & Huron, Northwest Corner)
Route 4	Peninsula	1 – South	@ Omni of Chicago (Rush & Huron, Northwest Corner)
Route 5	Radisson Blue Aqua	1 – South	@ Hyatt Regency Chicago (East Wacker Drive & Stetson)
Route 1	Renaissance Blackstone	26 – North	@ Hilton Chicago (8th Street & Michigan Avenue)
Route 6	Renaissance Downtown	27 – North	Wacker Drive Entrance
Route 3	Residence Inn – River North	2 – South	@ Westin River North (Kinzie & Dearborn, Southeast Corner)
Route 4	Ritz Carlton	1 – South	Pearson & Mies Van Der Rohe
Route 3	Sax Chicago	2 – South	@ Westin River North (Kinzie & Dearborn, Southeast Corner)
Route 2	Sheraton Chicago	3 – South	Convention Entrance (off Columbus Drive)
Route 1	Silversmith Hotel & Suites	26 – North	@ Palmer House Hilton (Wabash & Monroe)
Route 4	Sofitel	1 – South	@ Four Seasons (Michigan & Delaware, West Side of Street)
Route 3	Springhill Suites	2 – South	@ Westin River North (Kinzie & Dearborn, Southeast Corner)
Route 5	Swissotel	1 – South	@ Hyatt Regency Chicago (East Wacker Drive & Stetson)
Route 6	The Wit	27 – North	@ Renaissance Downtown (Wacker Drive Entrance)
Route 2	W Lakeshore	3 – South	Ontario at Fairbanks Street
Route 4	Westin Michigan Avenue	1 – South	Delaware & Michigan, Southeast Corner
Route 3	Westin River North	2 – South	Kinzie & Dearborn Streets (Southeast Corner)

"The price of apathy towards public affairs is to be ruled by evil men."
—Plato

Understanding the legislative issues that affect you as an orthopaedic surgeon is a critical first step in becoming more politically active. Political advocacy covers a wide range of activities, including voting in elections, lobbying a Member of Congress, or contributing to the Political Action Committee of the American Association of Orthopaedic Surgeons (Orthopaedic PAC). Formed in 1999, the Orthopaedic PAC works to advance issues that face orthopaedic surgeons.

The Orthopaedic PAC supports candidates for Federal office who advocate for the issues that you as orthopaedic surgeons face on a daily basis. It is the only national political action committee in Washington, D.C. representing orthopaedic surgeons before Congress. The Orthopaedic PAC works to build a coalition of pro physician members in Congress who will fight for legislation that supports the practice of medicine.

The Orthopaedic PAC also enhances other advocacy activities of the AAOS, such as the National Orthopaedic Leadership Conference (NOLC), Research Capitol Hill Day, and grassroots outreach programs such as the Washington Health Policy Fellowship.

The Orthopaedic PAC concluded the 2011-2012 election cycle with another strong showing. In total, the Orthopaedic PAC was involved in 252 congressional races and had an 86% success rate in supporting candidates. The Orthopaedic PAC also dispersed $3,082,254—more than any other health professional PAC—to elect candidates who understand and support physician issues.

Learn more about AAOS' legislative and regulatory activities and the Orthopaedic PAC at the AAOS Advocacy Booth located in McCormick Place, Hall A, Booth 1600.

www.aaos.org/PAC

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American Association of
Orthopaedic Surgeons

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The Academy would like to thank the Annual Meeting Committee for their hard work and contributions to the 2013 Annual Meeting

Safety

Emergency Numbers

Fire/Police Emergency: In case of an Emergency please use any house phone located throughout McCormick Place and dial extension 6060.
McCormick Place Security Control (24 hours): (312) 791-6060
City Police Emergency: 911
City Police Non-Emergency: 311
Poison Control: (800) 222-1222 (Nationwide)

Nearest Hospitals

Mercy Hospital & Medical Center
2525 South Michigan Ave, (312) 567-2000 — 0.3 miles

Northwestern Memorial Hospital
251 East Huron Street, (312) 926-2000 — 4.5 miles

University of Illinois Hospital
1740 West Taylor Street, (312) 355-4000 — 4.7 miles

Rush University Medical Center
1653 West Congress Pkwy, (312) 942-5000 — 5.3 miles

For Your Safety -When you are outside you should:

- Get directions before leaving the hotel or restaurant.
- Take taxis or shuttles you recognize.
- Walk with another person. Single targets are the most likely victims of crime.
- Do not wear your badges or carry conference bags. Both identify out-of-towners.
- Avoid dark, isolated areas, such as closed plazas and apparent shortcuts back to the hotel.

First Aid - McCormick Place - (312) 791-6060

South Level 2.5 *(near the FedEx Office)*
Lakeside Level 1 *(near the Arie Crown Theater dressing room)*
These stations are fully equipped and staffed by a licensed medical professional and include automated external defibrillators for reviving heart attack victims.

- **Hours of Operation:**
  Tuesday – Saturday.....7:00 AM – 6:00 PM

Drug Stores

CVS, 2545 Martin Luther King Drive, (312) 842-5700
- **Hours of Operation:**
  Monday – Friday..... 9:00 AM – 7:00 PM
  Saturday..... 9:00 AM – 5:00 PM
- **Pharmacy Hours:**
  Monday – Friday..... 9:00 AM – 7:00 PM
  Saturday..... 9:00 AM – 5:00 PM

Walgreens, 316 W Cermak Rd, (312) 791-0392
- **Hours of Operation:**
  Monday – Saturday..... 8:00 AM – 10:00 PM
- **Pharmacy Hours:**
  Monday – Friday..... 8:00 AM – 10:00 PM
  Saturday..... 9:00 AM – 6:00 PM

Drug Stores *continued*

Walgreens, 2 E Roosevelt Rd, (312) 212-1583
- **Hours of Operation:**
  Monday – Saturday..... 7:00 AM – 12:00 Midnight
- Pharmacy Hours:
  Monday – Friday..... 8:00 AM – 10:00 PM
  Saturday..... 9:00 AM – 5:00 PM

AAOS 2013 Annual Meeting Sunrise 5K Run

Due to Daylight Savings Time, the Academy will not be hosting the Sunrise 5K in Chicago.

AAOS Now

The Daily Edition of *AAOS Now,* the official newspaper of the AAOS Annual Meeting, is published Tuesday through Friday. Pick up a copy from the newspaper racks located throughout the convention center and on the shuttle buses. Each issue contains coverage of events and scientific presentations, news items, and reports on guest speakers and award winners, along with late-breaking news. It's your source for news during the Annual Meeting!

AAOS Privacy Policy – Use of Personal Information

Annual Meeting registration lists, including the medical registrant's name, postal mailing address, and phone number, are available for sale to exhibitors in advance of and after the Annual Meeting. In addition, certain personal information, including the medical registrant's name, postal mailing address, phone number, hospital affiliation, and practice focus, is available at the Annual Meeting to exhibitors through a "lead retrieval system" mechanism.

For additional information, please refer to the entire AAOS Privacy Policy by visiting www.aaos.org/privacy.

Academy Lounges

McCormick Place, Exhibit Hall A and Academy Hall B
Need a comfortable place to surf the web, catch up with a colleague, and keep up with the Annual Meeting Twitter feed? Relax with your colleagues in the Academy Lounge.

ADA Needs

McCormick Place is ADA compliant. In accordance with the ADA, they are responsible for permanent premises access accommodations, such as, but not limited to, elevator standards, door width standards and restroom accessibility. It is the group's responsibility to provide non-permanent accessibility requirements, such as, but not limited to, hearing-assisted or visually-assisted devices, and temporary seating accessibility and/or interpreters. Wheelchairs are available through the following company:

Scoot-Around Mobility Solutions
(888) 441-7575 or
www.scootaround.com/rentals/m/mccormickplace

Advocacy Booth

McCormick Place, Hall A, Booth 1600

Learn more about AAOS' legislative and regulatory activities and the Orthopaedic PAC.

- **Hours of Operation:**
  Wednesday – Thursday.....9:00 AM – 5:00 PM
  Friday .....9:00 AM – 4:00 PM

Airline Information

If you need to make, change or reconfirm your reservation, please contact the airline direct. Toll-free numbers for major airlines and CorpTrav are listed below. Change fees may apply and will be charged according to the airline's policy at the time the change is made.

American Airlines .....(800) 433-7300
Continental .....(800) 523-3273
Delta .....(800) 221-1212
United Airlines .....(800) 864-8331
CorpTrav .....(800) 318-3846

Airport Shuttle Booths

McCormick Place, South Level 1 Lobby and North Level 1 Lobby

Go Airport Express will provide door-to-door transportation service between O'Hare (ORD) and Midway (MDW) Airports and downtown hotels or McCormick Place in shared ride vans that make multiple stops. Telephone reservations can be made at (888) 284-3826. Use Group Code: AAOS.

- **Hours of Operation:**
  Tuesday – Saturday.....8:00 AM – 6:30 PM

Pricing	O'Hare Airport	Midway Airport
1 Person – One Way	$29	$24
1 Person – Round Trip	$53	$44
2 People – One Way	$20	$16
2 People – Round Trip	$37	$29
3+ People – One Way	$15	$13
3+ People – Round Trip	$29	$24
Private Van	$135	$117

Allied Organization Displays

McCormick Place, Hall A

The booths will be staffed during the following hours:
Wednesday – Thursday .....9:00 AM – 5:00 PM
Friday .....9:00 AM – 4:00 PM

American Orthopaedic Society for Sports Medicine / STOP Sports Injuries Campaign .....Booth 406B
American Society of Orthopaedic Physician's Assistants - ASOPA ..... Booth 505A
Asociacion Argentina de Ortopedia y Traumatologia Booth 706B
Chinese Orthopaedic Association.....Booth 604B
Eastern, Southern & Western Orthopaedic Associations ..... Booth 704A
European Federation of National Associations of Orthopaedics and Traumatology - EFORT..... Booth 604A
Federacion de Sociedades de Ortopedia y Traumatologia de America Latina - SLAOT Federacion..... Booth 705A
Indonesian Orthopaedic Association - IOA..... Booth 506B
International Cartilage Repair Society - ICRS ..... Booth 606A
International Congress for Joint Reconstruction ..... Booth 406A
Mercy Ships. ..... Booth 404A
National Association of Orthopaedic Technologists - NAOT ..... Booth 405B
Operation Walk USA ..... Booth 605B
Orthopaedic Research Society..... Booth 706A
Orthopaedics Overseas ..... Booth 506A
SICOT ..... Booth 505B
SIGN Fracture Care International..... Booth 504B
Sociedad Colombiana de Cirugia Ortopedica y Traumatolgia – Grupo Corporativo - SCCOT..... Booth 605A
Sociedad Espanola de Cirugia Ortopedica y Traumatologia - SECOT..... Booth 504A
Sociedade Brasileira de Ortopedia e Traumatologia - SBOT ..... Booth 404B
The Perry Initiative ..... Booth 606B
The Society of Military Orthopaedic Surgeons - SOMOS..... Booth 704B
United States Bone and Joint Initiative..... Booth 405A

Please note the different locations and hours for the following booths:

American Board of Orthopaedic Surgery .....Academy Hall B
American Joint Replacement Registry.....Academy Hall B
These booths will be staffed during the following hours:
Tuesday .....8:00 AM – 6:00 PM
Wednesday – Friday.....7:00 AM – 6:00 PM
Saturday .....7:00 AM – 5:30 PM

Orthopaedic Learning Center..... Hall A, Booth 1602
The booth will be staffed during the following hours:
Wednesday – Thursday.....9:00 AM – 5:00 PM
Friday .....9:00 AM – 4:00 PM

Audio Sales

McCormick Place, Academy Hall B

Digital audio downloads of selected sessions may be ordered for post meeting delivery. Orders may be placed at the sales desk. Most educational sessions are recorded.

- **Hours of Operation:**
  Tuesday .....8:00 AM – 6:00 PM
  Wednesday – Friday.....7:00 AM – 6:00 PM
  Saturday .....7:00 AM – 5:30 PM

Badge Information

Everyone who attends the AAOS Annual Meeting must register. Badges are required for entrance to the Exhibit Hall and to attend all other official AAOS sessions. The following badge holder and badge stock colors have been issued:

Badge Holders

Yellow.....AAOS Fellow
Tan.....AAOS Members, Resident/Candidate Member, International Members
Blue.....Non-Member Physician, International Attendee, and U.S. Residency/U.S. Fellowship
Gray.....U.S. Allied Health

Clear .....Social Program
Black .....AAOS Staff
Pink.....Press

Badge Stock Colors

Lavender ....Social Program
Orange.....Commercial Representative
Green .....Technical Exhibitor

Business Centers – FedEx Offices - (312) 949-2100

McCormick Place, South Level 2.5 and Lakeside Level 2

McCormick Place provides full service business needs for your convenience from photocopying, faxing, computer workstations with Internet access, printing services, and shipping. Shipping services are provided by FedEx. Office supplies are also available for purchase. VISA, MasterCard, and American Express are accepted.

• Hours of Operation:	South	Lakeside
Tuesday	8:00 AM – 5:00 PM	8:30 AM – 5:00 PM
Wednesday –Thursday	8:00 AM – 5:30 PM	8:30 AM – 5:00 PM
Friday	8:00 AM – 6:00 PM	8:30 AM – 5:00 PM
Saturday	8:00 AM – 5:00 PM	8:30 AM – 5:00 PM

Cash Station/ATM

McCormick Place

- South Level 2.5 in the Convenience Center
- North Level 2 near McDonalds
- Lakeside Level 2 near the Arie Crown Theater box office

Charging Stations

Stop by the electrical plug-in stations to recharge your cell phones, laptops, and tablets.

McCormick Place, Academy Hall B

- **Hours of Operation:**
  Tuesday .....8:00 AM – 6:00 PM
  Wednesday – Friday.....7:00 AM – 6:00 PM
  Saturday .....7:00 AM – 5:30 PM

McCormick Place, Hall A, Booths 1870 and 5433

- **Hours of Operation:**
  Wednesday – Thursday.....9:00 AM – 5:00 PM
  Friday .....9:00 AM – 4:00 PM

Children

The following guidelines have been approved for the Annual Meeting. Only children 16 or over will be admitted to the educational programs, including the exhibit hall.

Children and individuals of any age, providing they are not disruptive to the meeting, are welcome in the following activities:

- Opening Ceremony
- Posters
- Scientific Exhibits

Children under the age of 16 are not permitted in the following areas of the meeting:

- Technical Exhibit Hall
- Educational Sessions (paper presentations, symposia, instructional courses)
- Business Meetings
- Ceremonial Meeting
- Guest Speaker Presentation

The Academy does provide a Social Program which is open to all spouse, family members and guests accompanying members and attendees to the meeting. Tours and events are offered daily during the meeting.

Please see the Social Program on page 32 for family friendly events.

CME Kiosks

McCormick Place, Academy Hall B, South Level 1, and North Level 1

Print your CME certificate for the Annual Meeting and participating Specialty Societies

- **Hours of Operation:**
  Tuesday .....8:00 AM – 6:00 PM
  Wednesday – Friday.....7:00 AM – 6:00 PM
  Saturday .....7:00 AM – 5:30 PM

Coat and Luggage Check

McCormick Place, North Level 1 and Room S101a

For identification, please leave a business card in your pocket.

- **Hours of Operation:**
  Tuesday – Saturday.....6:30 AM – 6:30 PM

E-Mail Stations

McCormick Place

- **Concourse Level 2.5**
- **Academy Hall B**
- **South Levels 1, 4, and 5**

Access your email and connect to the internet. These convenient stations provide you with a computer and printer.

- **Hours of Operation:**
  Tuesday .....8:00 AM – 6:00 PM
  Wednesday – Friday.....7:00 AM – 6:00 PM
  Saturday .....7:00 AM – 5:30 PM

McCormick Place, Hall A, Booths 1670 and 5433

- **Hours of Operation:**
  Wednesday – Thursday.....9:00 AM – 5:00 PM
  Friday .....9:00 AM – 4:00 PM

Food Service

McCormick Place has ample food and beverage concession areas to satisfy any appetite. Food and beverage schedule is subject to change. Detailed menu and location information is available at the Welcome & Information Booths located throughout McCormick Place.

New: AAOS Bistro located in Hall A with an all-inclusive buffet lunch and available table reservations, Wednesday – Friday, from 11:00 AM – 2:30 PM. Tickets can be purchased in Academy Hall B.

Guest Nation - Canada

Help us welcome Canada as the Guest Nation for the AAOS 2013 Annual Meeting. Look for special events and activities that will focus on Canada and the issues facing the Canadian orthopaedic community, including 10 special posters from Canada, and a speech by the President of the Canadian Orthopaedic Association (COA) during the opening ceremony. Please stop by the Guest Nation exhibit, located in Academy Hall B, to learn more.

Handout Sales

Resource Center, McCormick Place, Academy Hall B
Selected Instructional Course handout CDs and flash drives will be available for purchase.

- **Hours of Operation:**
  Tuesday .....8:00 AM – 6:00 PM
  Wednesday – Friday.....7:00 AM – 6:00 PM
  Saturday .....7:00 AM – 5:30 PM

Hotel Shuttle Bus Routes

Complimentary shuttle service will run between AAOS hotels and McCormick Place.

- **Hours of Operation:**
  Monday..... 2:00 PM – 6:30 PM
  Tuesday – Friday.....6:30 AM – 6:30 PM
  Saturday .....6:30 AM – 6:00 PM

Items left on the shuttles will be turned in to the Academy Headquarters Office in Room N231.

For the complete details on the Shuttle Schedule and Hotel Map, see pages 19–21.

Hotel without shuttle service (walking distance):
Hyatt Regency McCormick Place

For wheelchair-accessible vehicles please call (415) 926-2529. Please allow two hour notice for this service.

Hotel Reservations – 2014 Annual Meeting

McCormick Place, Academy Hall B
AAOS Members attending this year's Annual Meeting can make hotel reservations for the 2014 Annual Meeting in New Orleans. Stop by the 2014 Member Housing counters today.

Housing Help Desk

McCormick Place, Academy Hall B
The official housing bureau, Wyndham Jade, provides housing assistance to all attendees during the meeting. If you have a problem with your reservation or need to change hotels, please go to the Housing Help Desk.

- **Hours of Operation:**
  Monday..... 2:00 PM – 6:00 PM
  Tuesday – Friday.....7:00 AM – 6:00 PM
  Saturday .....7:00 AM – 5:30 PM

Image Capture

The Academy is videotaping certain portions of the Annual Meeting. The tapes will be used for educational purposes and/or may be sold alone or in connection with other AAOS products. Please note that by attending the Annual Meeting, your image **and/or** voice may be captured and included if you take part in one of these events.

Instructional Course Ticket Exchange

McCormick Place, Academy Hall B

Tickets purchased in advance may be exchanged at the Ticket Exchange counter. The registrant must pay the difference between the advance purchase price and the onsite purchase price in order to exchange a ticket. The difference for the Orthopaedic Review Course is $100. No exchanges after the start of a course.

International Business Office and Surgeons Lounge

McCormick Place, Room N229
Academy staff are available in the International Business Office to help assist you with any issues. Registration inquiries will be handled at registration in Academy Hall B.

We invite International Surgeons to join AAOS at the International Surgeons Lounge for refreshments (coffee, tea and water), to relax, meet with other international colleagues and browse information on AAOS international activities.

- **Hours of Operation:**
  Tuesday .....8:00 AM – 6:00 PM
  Wednesday – Friday.....7:00 AM – 6:00 PM
  Saturday .....7:00 AM – 5:30 PM

International Groups Department

McCormick Place, Academy Hall B
Hotel and registration assistance is available to international guests who used this service.

Job Placement Center

McCormick Place, Academy Hall B
The Academy's job placement service, providing a list of employment opportunities and candidates, is available during the Annual Meeting.

- **Hours of Operation:**
  Tuesday .....8:00 AM – 6:00 PM
  Wednesday – Friday.....7:00 AM – 6:00 PM
  Saturday .....7:00 AM – 5:30 PM

Participants
The Job Placement Center has been established for the benefit of the Academy membership. In addition, hospital or practice administrators and medical staff personnel are permitted to access the Job Placement Center. All participants must have an active listing. Professional recruiters are not allowed to participate in this service. This policy is strictly upheld by the Academy. Due to space limitations, we ask that you limit attendance to 2 representatives per company.

Registration Fees/Check-In
All participants MUST register for the Annual Meeting to gain entry to the Job Placement Center. On-site registration fee is $250 per person.

All participants must check-in at the on-site Job Placement Center in order for your practice opportunity or Job Seekers listing to be advertised in the on-site booklets. Listings checked-in before 3:00 PM will appear in the next day's books.

The listings of Job Seekers and Practice Opportunities, represented at the meeting, will be available Tuesday at 8:00 AM and Wednesday through Saturday at 7:30 AM.

New Listings
You can submit a new ad for an employment opportunity on-site for a fee. There is no fee to orthopaedic surgeons looking for employment. Listings can be submitted or edited directly from the AAOS website: www.aaos.org/placement.

Bulletin Boards
*All participants **must** check-in prior to posting their ad on the bulletin board.* An active listing is required in order to post your ad on-site. Only orthopaedic surgery opportunities will be posted.

Posted items should NOT exceed 8.5" x 11". Due to space limitations, only one poster per practice is allowed.

Interview Booths
The Job Placement Center may be used to conduct on-site interviews. Private interview space may be reserved on-site at the Job Placement Center. Booths are not intended to be used as exhibit space nor may they be occupied by a candidate or employer for an extended period of time.

Lost and Found

Academy Headquarters Office, McCormick Place, Room N231

- **Hours of Operation:**

Monday.....7:00 AM – 7:00 PM
Tuesday .....6:30 AM – 6:00 PM
Wednesday – Saturday.....6:30 AM – 6:00 PM

AAOS Mobile Meeting Guide - *Available free in the App Store or Google Play*

View and search scientific programming, technical exhibitor information, and other data for use during the meeting. The Mobile Meeting Guide is easy to navigate and includes links to webcasts, session evaluations, iPosters, and iScientic Exhibits. Search capabilities are also available for all education including program participants, key words, special events, and exhibitors. A mapping program for meeting room location and exhibiting companies within McCormick Place is also included. Need some assistance? Visit the Technology Support Booth located in the Resource Center, McCormick Place, Academy Hall B.

Non-Smoking Policy

The AAOS Annual Meeting is a non-smoking meeting. Smoking is banned within 20 feet of business entrances or in restaurants, bars, public offices, parks, beaches, transit stations or bus stop shelters, taxis, movie theaters, concerts, ATMs, sporting events, hotel rooms and lobbies, McCormick Place, Midway International Airport, and O'Hare International Airport except where designated.

Nursing and Allied Health Program

McCormick Place, Lakeside, Rooms E450a and E451b
The American Academy of Orthopaedic Surgeons (AAOS), the National Association of Orthopaedic Nurses (NAON) and the National Association of Orthopaedic Technologists (NAOT) have collaborated to develop the Nursing and Allied Health Program. The program consists of six courses (NUR1, NUR2, NUR3, NUR4, CAST1 and CAST2) designed for registered and licensed practical nurses, physician assistants, orthopaedic technologists, and physical and occupational therapists. In addition, applications have been made to the orthopaedic technologists, physician assistants, and the American Nursing Credentialing Center in order to provide multiple types of contact hours for the aforementioned courses.

To attend any of the Nursing and Allied Health courses, you need to register for the AAOS Annual Meeting and purchase a ticket for each course. The Annual Meeting on-site registration fee is $250.

Tickets for NUR courses are $140 per course. Tickets for the CAST1 and CAST2 courses are $220. A complete listing of the courses can be found on pages 287-290.

Offices

McCormick Place

Academy Headquarters	Room N231	(312) 808-2012
Exhibits Office	Room S400b	(312) 791-6600
International Business Office	Room N229	(312) 808-2023
Media Briefing	Room N132	
Newspaper Office	Room N136	(312) 808-2027
Press Office	Room N137	(312) 808-2032
Ready Rooms	Room S401	(312) 791-6605
	Room N226	(312) 808-2007
	Lakeside, E253c	(312) 949-3201

Parking

McCormick Place Chicago is located at 2301 S. Lake Shore Drive, Chicago, IL 60616. There are three main parking lots on the McCormick Place campus. All are in close proximity and walking distance to the convention complex. Events in Lakeside Center designate Lot C as the primary parking location, while events in the North and South Buildings designate Lot A or B.

Lot A (8' h clearance) is a six level garage with 2,100 parking spaces and is located on Martin Luther King Drive, adjacent to the West Building. Covered walkways from Lot A leading directly into McCormick Place and the Hyatt Regency McCormick Place Hotel also provide added convenience. The parking rate is $19 for up to 16 hours and $30 from 16 to 24 hours. There are no in-and-out privileges. Overnight parking is available in Lot A only. Lost tickets will pay the $30 (overnight) fee per day.

Lot B (also known as 31st Street Lot) is an outdoor surface parking lot located at 31st Street near Lake Shore Drive South and Moe Drive. It holds over 1,800 vehicles. The parking rate is a flat fee of **$14 per day** with no in-and-out privileges. This parking lot is open throughout event hours. Overnight parking is not available.

Lot C (6'4" h clearance) is an underground garage with 1,900 parking spaces and is located on Ft. Dearborn Drive, adjacent to the Lakeside Center. The parking rate is a flat fee of $19 per day with no in-and-out privileges. This parking lot is open throughout event hours. Overnight parking is not available. Parking fees can be paid by cash or credit card; VISA, MasterCard and American Express are accepted

Planning Committees

2013 Central Program Committee
Steven L. Frick, MD, Orlando, FL, Chair
Annunziato Amendola, MD, Iowa City, IA
Brian J. Cole, MD, Chicago, IL
William M. Mihalko, MD, PhD, Memphis, TN
Michael J. Stuart, MD, Rochester, MN

2013 Central Instructional Course Committee
Robert A. Hart, MD, Portland, OR, Chair
Craig J. Della Valle, MD, Chicago, IL
Mark W. Pagnano, MD, Rochester, MN
Thomas W. Throckmorton, MD, Germantown, TN
Paul Tornetta III, MD, Boston, MA
Dempsey S. Springfield, MD, Boston, MA, Ex-Officio

2013 Exhibits Committee
William H. Seitz Jr, MD, Cleveland, OH, Chair
George W. Balfour, MD, Van Nuys, CA
Dennis B. Brooks, MD, Pepper Pike, OH

Benjamin Goldberg, MD, Chicago, IL
Steven M. Kurtz, PhD, Philadelphia, PA
Donald H. Lee, MD, Nashville, TN
Pekka A. Mooar, MD, Philadelphia, PA
Joseph T. Moskal, MD, Roanoke, VA
James V. Nepola, MD, Iowa City, IA
Rick F. Papandrea, MD, Waukesha, WI
John R. Tenny, MD, Red Oak, TX
Scott D. Weiner, MD, Akron, OH

2013 Multimedia Education Center Committee
Kevin D. Plancher, MD, New York, NY, Chair
Joseph A. Abboud, MD, Philadelphia, PA
Stephen Barton, MD, Detroit, MI
James M. Bennett, MD, Houston, TX
Eric W. Edmonds, MD, San Diego, CA
J. Mark Evans, MD, Mechanicsville, VA
Michael L. Granberry, MD, Mobile, AL
Peter B. Maurus, MD, Coralville, IA
Russell D. Meldrum, MD, Zionsville, IN
Ronald A. Navarro, MD, Rolling Hills, CA
Mark W. Zawadsky, MD, Washington, DC

Playground Shuttle

AAOS Safe and Accessible Playground Build
Buses depart every 30 minutes from McCormick Place, Gate 21

Tuesday.....7:30 AM – 2:00 PM

Private Meeting

The AAOS 2013 Annual Meeting is a private meeting. The AAOS reserves the right to control space and ask people to leave the meeting who are not qualified to attend.

Proceedings

Be sure to get your copy of the Annual Meeting Proceedings CD-ROM. Pick up your CD at the bins located in registration. An ebook will be available for download on your tablet at www.aaos.org/prceedings.

Public Transportation

O'Hare - The CTA Blue Line provides 24-hour rapid transit train service between Chicago-O'Hare International Airport and downtown Chicago. The normal travel time on the Blue Line from O'Hare to downtown is 40-45 minutes.

Midway - The CTA Orange Line provides rapid transit train service between Midway International Airport and downtown Chicago between the hours of 5:00 AM – 12:00 midnight. Travel time on the Orange Line from Midway to downtown is 25-30 minutes.

Chicago is full of places to go and buses, trains and trolleys make travel accessible and economical. For more information about service and destinations, go to the Chicago Transit Authority home page - **www.transitchicago.com**.

Ready Rooms

McCormick Place, Rooms S401, N226, and Lakeside E253c

- **Hours of Operation:**

Monday (Room N226 Only)..... 2:00 PM – 6:00 PM
Tuesday – Friday.....6:30 AM – 6:00 PM
Saturday .....6:00 AM – 5:30 PM

Redemption Centers

McCormick Place, Hall A, Booths 365, 3275, and 5409
All registered medical attendees will receive coupons in their registration packet that can only be redeemed at AAOS Redemption Centers located in the exhibit hall. A complimentary tote bag will be given to all attendees who turn in their coupon. On Thursday and Friday, drop off your coupons to enter the drawings for free airfare, hotel rooms for next year's Annual Meeting, iPads, and other items.

- **Hours of Operation:**

Wednesday – Thursday.....9:00 AM – 5:00 PM
Friday .....9:00 AM – 4:00 PM

Refund Policy

The Academy will not issue refunds on-site during the meeting. All requests for refunds (registration and/or instructional courses) must have been received in the Academy office on or before February 8, 2013.

Registration On-Site

McCormick Place, Academy Hall B
Registration Fees (On-Site)
AAOS Fellows, Members, Resident/Candidate Members in good standing, and International Affiliate Members $150
International Resident Members $150
AAOS Official Participants .....No Fee
U.S. Non-Member Physician or Attendee.....$1,000
Non-Member International Medical Attendees – Including Canada.....$800
U.S. Fellowship/U.S. Residency $150
U.S. Allied Health is limited to individuals directly employed by a hospital, Healthcare network, University, or freestanding facility administering to patients (i.e. RN, OPA, PA, OTC, ATC, PT, office staff) $250

- **Hours of Operation:**

Monday..... 2:00 PM – 6:00 PM
Tuesday – Friday.....7:00 AM – 6:00 PM
Saturday .....7:00 AM – 5:30 PM

Rental Cars

AAOS has negotiated special rates for rental cars during the meeting. Car reservations can be made via CorpTrav, your travel agent, or direct with the rental car companies. Call the number below and mention the discount code listed.

Car Company	Meeting Code	Phone	Internet
Hertz	CV# 02KS0018	(800) 654-2240	www.hertz.com

Follow the AAOS Annual Meeting:


www.facebook.com/AAOSannual


www.twitter.com/AAOS2013

Resource Center

McCormick Place, Academy Hall B

Experience a hands-on showcase of Academy publications, e-books, digital media, and interactive multimedia programs that build your clinical skills and challenge your problem solving aptitude. Stop by to experience the future of surgical skills training – a knee arthroscopy virtual reality simulator. Discover the Academy's complete line of educational and practice management resources. Browse the Academy's collection of educational materials or ask AAOS staff for assistance. Regardless of your practice profile, you'll find something of interest at the AAOS Resource Center.

Instructional Course handout CDs and flash drives are available for purchase in the Resource Center.

Exhibit Hall Resource Center

McCormick Place, Hall A, Booth 1265

For your convenience, when you are in the Exhibit Hall, stop by the AAOS Exhibit Hall Resource Center located in Publishers' Row.

Hours:	Resource Center	Exhibit Hall Booth
Tuesday	8:00 AM – 6:00 PM	Closed
Wednesday – Thursday	7:00 AM – 6:00 PM	9:00 AM – 5:00 PM
Friday	7:00 AM – 6:00 PM	9:00 AM – 4:00 PM
Saturday	7:00 AM – 5:30 PM	Closed

The Resource Center Theater

McCormick Place, Academy Hall B

Tuesday – Friday, 8:00 AM – 5:30 PM

View and participate in a variety of live and recorded programming unique to the 2013 Annual Meeting. Take advantage of this free opportunity to observe:

- Presentations by authors of many peer-reviewed videos demonstrated in the Orthopaedic Video Theater
- Explanation and preview of the upcoming ICD-10 transition
- How the AAOS Member Advantage Programs can improve your practice's efficiency and revenue
- Tips and advice from the ABOS for Maintenance of Certification

The complete Resource Center Theater schedule is listed beginning on page 34.

Restaurant Reservations

McCormick Place, Academy Hall B

Dining experts with contacts to the city's finest dining are providing this complimentary service.

- **Hours of Operation:**
  Tuesday – Friday.....8:00 AM – 6:00 PM
  Saturday .....8:00 AM – 1:00 PM

Ribbons

If you did not receive your participant/volunteer ribbon(s) in advance, please stop by the Ribbon Counter located in McCormick Place, Academy Hall B. Committee members and Board of Councilors will receive their ribbons from their liaisons.

Social Program

McCormick Place, Academy Hall B

Tour and seminar information is listed on page 32.

Specialty Day

Saturday, March 23, McCormick Place

Specialty Day is a day set aside for scientific programs presented by organizations that are members of the Board of Specialty Societies (BOS). Refer to the listing on page 37.

Taxi Service

Taxicabs are available on a first come, first serve basis from the lower level curb front of all airport terminals. Shared ride service is available. Expect to spend approximately $40 to $50 for a taxicab ride to downtown Chicago from O'Hare and $30 to $40 from Midway (*depending on traffic*).

Technical Exhibits

McCormick Place, Hall A

- **Hours of Operation:**
  Wednesday – Thursday.....9:00 AM – 5:00 PM
  Friday .....9:00 AM – 4:00 PM

Admission

Admission to the exhibit hall is by badge only. Individuals under the age of 16 are not permitted in the exhibit hall.

Ask an Expert Sessions

Hall A, Booth 465

Here's an interactive opportunity for you to present a perplexing case to an expert in orthopaedics. Audience participation is encouraged to complement the exchange of ideas. Case review sessions will take place exclusively in Hall A, Booth 465. The schedule of topics and the expert leaders is listed on page 341.

- **Hours of Operation:**
  Wednesday - Thursday .....9:30 AM – 4:15 PM
  Friday .....9:30 AM – 3:15 PM

Beverage Breaks

Hall A, Booths 262, 3475, and 4604

Complimentary beverage stations will be provided in the exhibit hall each afternoon at 3:30 PM Wednesday and Thursday and on Friday morning at 10:00 AM.

Electronic Skills Pavilion – It's Free!

Hall A, Booth 5236

Presentations that showcase current technology, products, and applications that are developed for the orthopaedic surgeon will take place in the Electronic Skills Pavilion. A schedule of the dates and times of presentations can be found on page 340, in the daily edition of *AAOS Now* and at Booth 5236.

- **Hours of Operation:**
  Wednesday – Thursday.....9:30 AM – 4:15 PM
  Friday .....9:30 AM – 3:15 PM

Exhibitor Directory Kiosk

Stop at an Exhibitor Directory kiosk located at the exhibit hall entrances to view a listing of all exhibitors, their contact and product information, and create and print your personal My Expo Plan.

Lead System

There's no need to tote a bulging bag or cram papers in your suitcase when you leave. Simply present your badge to exhibitors whose literature you want to receive. After scanning the bar code, exhibitors will be able to mail materials directly to you after the meeting, enabling you to spend more time in face-to-face discussions with exhibitors.

NEW! Ice Cream Social
Booths 262, 3475, and 4604
Friday, 2:00 - 3:30 PM
Complimentary, make-your-own sundae or other treat. Your ticket to attend is in your on-site registration bag.

NEW! Photo Shoot
Create a memory of the AAOS 2013 Annual Meeting with a complimentary photo taken for you by a professional photographer against a backdrop of the AAOS logo in the exhibit hall on Friday from 10:00 AM to 2:00 PM.

Unopposed Exhibit Time
One hour of unopposed exhibit time will be provided each exhibit day from 12:30 to 1:30 PM.

You Are Here Floor Plan and Exhibitor Listing
To assist you in navigating the exhibit hall, pick up an updated floor plan and exhibitor listing at the You Are Here signs located in the lobbies and in the exhibit hall. These signs and maps are color coded to help you find your way around the exhibit hall.

Webcasting

View over 20 symposia webcasts as they are simulcast live from the Annual Meeting. Choose from a variety of topics addressing joint replacement procedures including shoulder, hip, and sports. Did you miss the live simulcasts? View the webcasts free anytime 24 hours after the start of the symposium during the Annual Meeting. Both the AAOS.org website and the Meeting App "AAOS Mobile Meeting Guide" provide access links for the webcasts for both meeting attendees and virtual participants. On April 1, they become available for purchase and download from the AAOS Website Store.

Wi-Fi

McCormick Place
Wireless Internet access – at no charge – will be available throughout the McCormick Place Lobbies, Meeting Rooms, Academy Hall B, and the Electronic Skills Pavilion.

Academy Executive Staff

Chief Executive Officer ..... Karen L. Hackett, FACHE, CAE
Chief Operating Officer/
Chief Financial Officer ..... Richard J. Stewart, CPA, MBA
Chief Education Officer ..... Constance M. Filling
General Counsel, Corporate Secretary .... Richard N. Peterson, JD
Medical Director ..... William R. Martin III, MD
Chief Technology Officer ..... William C. Bruce, MBA

Academy Senior Staff

Director, Convention and Meeting Services ..... Susan A. McSorley
Director, Electronic Media, Evaluation Programs,
Course Operations and Practice Management .... Howard Mevis
Director, Facilities Management ..... Joel A. Datz
Director, Finance ..... Tina D. Slager
Director, Human Resources ..... Marita A. Powell, M.Ed., SPHR
Director, Information Services and
Member Services & Customer Relations ..... James A. Ogle
Director, International ..... Lynne Dowling
Director, Office of Government Relations ..... Graham Newson
Director, Public Relations ..... Sandra R. Gordon
Director, Publications ..... Hans J. Koelsch, PhD
Director, Research and
Scientific Affairs ..... Deborah S. Cummins, PhD
Director, Society Relations ..... Jennifer Wolff Jones

Convention and Meeting Services Staff

On-site Area of Responsibility
Board of Directors ..... Kristy Glass
Education ..... Kathie Niesen, CMP, April Holmes, Scottie Rangel
Exhibits ..... Patricia Whitaker, Kathy Fornelli, Jason Raymond
Headquarters Office ..... Sue Leicht
Housing and Shuttle ..... Anita Cooper, CMP
Operations ..... Lynn Mondack, Jeri Busch
Registration ..... Lynn Haase, Kierstin Noack
Social Program ..... Tara Long

The Social Program is open to all participants registered for the AAOS 2013 Annual Meeting and their families.

Registration

Visit us online at **www.aaos.org/tours** or on-site at McCormick Place, Academy Hall B to register for Social Program tours and seminars.

Registration Hours:

Monday .....2:00 PM – 6:00 PM
Tuesday-Friday .....7:00 AM – 6:00 PM
Saturday.....7:00 AM – 12:00 PM

Badges and Tickets

All pre-registered badges and tickets will be available for pick up on-site at the Social Program desk at McCormick Place starting Monday, March 18 at 2:00 PM. **Badges and Tickets will not be mailed.**

Stop by any time prior to your first tour. (See Social Program Desk hours above). You or your spouse will need to provide an ID and confirmation letter to pick up your badge and tickets.

Social Program registrants (categorized as "Spouse") will receive a name badge. As a spouse you cannot purchase Instructional Course tickets and, no CME credits or verification of attendance will be issued to anyone registered in the "Spouse" category.

Co-workers and associates accompanying a registered attendee cannot register through the Social Program. They will need to go to on-site Registration.

Family badges will be available to non-medical spouses or immediate family onsite during registration hours. Family Badge counters will be located in Academy Hall B.

Cancellations and Refunds

You may cancel any website ticket purchase up until February 8, 2013. Refunds will not be given after this date.

Participant illness, changes in travel, inclement weather, and late arrival to the tour departure area are beyond the Academy's control and will not be considered a reason for providing a refund.

Ticket Resale

Participants wishing to buy sold-out tickets or sell tickets are encouraged to use the Ticket Resale counter on-site at Social Program Registration.

Attire

Comfortable walking shoes and layered clothing are recommended for all tours. Tours will not be cancelled due to inclement weather, so please plan accordingly.

Tours

All Social Program tours will depart from McCormick Place.

Please plan to board the tour bus 15 minutes prior to the posted departure time on your ticket.

Tuesday, March 19

9:00 AM - 1:00 PM	My Kind of Town	$70
9:30 AM - 12:30 PM	Merchandise Mart	$90
10:30 AM - 1:30 PM	Frank Lloyd Wright Home & Studio	$95
11:00 AM - 1:00 PM	Jazz, Blues and Beyond	$90
11:30 AM - 3:30 PM	Taste of Chicago Tour	$165
1:30 PM - 6:00 PM	Planning for Life after Orthopaedics	$180
2:00 PM - 5:00 PM	Chicago Chocolate Tour	$130

Wednesday, March 20

9:00 AM - 1:00 PM	My Kind of Town	$70
10:00 AM - 12:00 PM	Tiffany Treasures	$80
10:00 AM - 11:30 AM	Identity Theft	$40
10:30 AM - 2:30 PM	Journey Through the Gardens	$150
12:00 PM - 3:00 PM	A "Slice" of Chicago	$125
1:00 PM - 3:30 PM	Canvas & Cocktails	$155
1:30 PM - 4:30 PM	Wines Around the World	$150
2:00 PM - 5:00 PM	Chicago Distillery Tour	$90

Thursday, March 21

8:30 AM - 11:30 AM	Frank Lloyd Wright Home & Studio	$95
9:30 AM - 12:30 PM	Windy City Behind the Scenes	$90
10:00 AM - 12:00 PM	Poker, Politics and Prohibition	$55
10:30 AM - 2:30 PM	Journey Through the Gardens	$150
11:30 AM - 2:30 PM	Hands-on Gourmet Cooking	$240
1:00 PM - 3:30 PM	Canvas & Cocktails	$155
1:30 PM - 3:30 PM	Jazz, Blues and Beyond	$90

Friday, March 22

9:00 AM - 12:00 PM	Merchandise Mart	$90
9:30 AM - 12:30 PM	"See the Light" Blues Brothers	$90
11:00 AM - 3:00 PM	Taste of Chicago Tour	$165
12:30 PM - 3:30 PM	A "Slice" of Chicago	$125
1:00 PM - 4:00 PM	Wines Around the World	$150
1:30 PM - 4:30 PM	High Tea at the Drake	$125
2:30 PM – 5:30 PM	Chicago Chocolate Tour	$130
2:30 PM - 5:30 PM	Chicago Distillery Tour	$90

Saturday, March 23

9:00 AM - 12:00 PM	"See the Light" Blues Brothers	$90
10:00 AM -12:00 PM	Behind the Ivy	$150

FIND IT at the AAOS Resource Center

Your Source for Lifelong Orthopaedic Learning

SAVE 10% ON ORDERS OF $300 OR MORE

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Patient Education

The AAOS Resource Center
McCormick Place North, Academy Hall B

CONVENIENT HOURS

Tuesday	8:00 AM – 6:00 PM
Wednesday – Friday	7:00 AM – 6:00 PM
Saturday	7:00 AM – 5:30 PM

www.aaos.org/store

Resource Center Theater Schedule

McCormick Place, Academy Hall B

The *Resource Center Theater* will offer Annual Meeting participants the opportunity to view surgical demonstration videos and meet with authors, who will be available to answer questions regarding their area of interest and provide insights into their own techniques. Principal authors will share their views on why their topic is important to them and to the field of orthopaedics. Additionally, you will have the opportunity to learn about important issues, including Maintenance of Certification, ICD-10, and marketing your practice. AAOS resources—Orthoportal, ebooks, CodeX, Member Advantage Programs, and the Learning Portfolio—will be demonstrated throughout the week.

Tuesday, March 19

11:15 AM **AAOS OrthoPortal, E-books, and Patient Education**
Jane Baque, AAOS Senior Manager, Publications Websites

11:45 AM **AAOS Learning Portfolio: Helping You Manage the MOC Process**
James Ogle, AAOS Director, Information Services

2:15 PM **Index Finger Ray Resection – Award Program**
Robert Orfaly, MD

3:15 PM **Treatment of Patellar Cartilage Defects with OATS System**
Rafael Calvo, MD, David Figueroa, MD, Paulina De La Fuente, MD, Alex Vaisman, MD

4:15 PM **Anatomic ACL Reconstruction All Comers**
Mark D. Miller, MD, Joseph Hart, PhD, ATC, Gregory Kurkis, Medical Student

5:15 PM **See the Power of the X…Orthopaedic CodeX**
Howard Mevis, AAOS Director, Electronic Media, Evaluation Programs, Course Operations and Practice Management Group

Wednesday, March 20

8:15 AM **Arthroscopic Technique for Biological Augmentation of AC Joint Instability**
Peter J. Millett, MD, MSc, Frank Martetschlager, MD

Autograft Reconstruction for Sternoclavicular (SC) Joint Instability
Peter J. Millett, MD, MSc, Frank Martetschlager, MD

9:15 AM **Stoppa Approach for Removal of the Intrapelvic Cup for Acetabular Revision – Award Porgram**
Francisco Chana, MD, PhD, Manuel Villanueva, MD, PhD, José M. Rojo-Manaute, MD, PhD, Maria Pérez-Diaz, MD, José Fernandez-Marino, MD, PhD, Javier Vaquero-Martin, MD, PhD

10:15 AM **Surgical Technique for Articulating Spacers with Stem Extensions to Treat the Infected TKA Award Program**
Stephen J. Incavo, MD, Azim Karim, MD, Brian Dominques, BA

Surgical Technique For The Removal Of The Infected Primary TKA and 2nd Stage Revision
Stephen J. Incavo, MD, Azim Karim, MD, Brian Dominques, BA

11:15 AM **See the Power of the X…Orthopaedic CodeX**
Howard Mevis, AAOS Director, Electronic Media, Evaluation Programs, Course Operations and Practice Management Group

11:45 AM **AAOS Learning Portfolio: Helping You Manage the MOC Process**
James Ogle, AAOS Director, Information Services

12:15 PM **Acetabular Retrograde Drilling: A New Arthroscopic Technique for the Treatment of Chondral Lesions in FAI**
Dante Parodi, MD, Javier Besomi, MD, Pablo Mococain-Mac Iver, MD, Carlos Tobar, MD, Juanjose Valderrama, MD, Jaime Lopez, MD, Joaquin Lara, MD

1:15 PM **Making Sense of MOC**
Shepard R. Hurwitz, MD, ABOS Executive Director

1:45 PM **Saving Members $$$: AAOS Member Advantage Program**
Tom Grogan, MD, Chair, AAOS Practice Management Committee

2:15 PM **Midfoot Anatomy, Pathology and Physical Examination - Award Program**
Matthias Vanhees, MD, Saskia Van Bouwel, MD, Francis van Glabbeek, PhD, Geoffroy S. Vandeputte, MD

3:15 PM **Correction of Foot Deformities by Triple Arthrodesis**
Francesco Turturro, MD, Antonello Montanaro, MD, Luca Labianca, MD, Vincenzo Di Sanzo, MD, PhD, Cosma Calderaro, MD, Andrea Ferretti, MD

4:15 PM **Minimal Invasive, Navigated Implantation of a Total Knee Replacement**
Jean-Yves Jenny, MD

5:15 PM **AAOS OrthoPortal, E-books, and Patient Education**
Jane Baque, AAOS Senior Manager, Publications Websites

Thursday, March 21

8:15 AM **Evaluation and Management of a Young Athlete with Impingement: A Case-Based Approach**
Anil S. Ranawat, MD, Caroline Park, David deForest Keys, Bruno Kavanagh, Abraham Varghese, David Hook

9:15 AM **Instability After Total Knee Arthroplasty. Limits Of Constraint – Award Program**
Manuel Villanueva, MD, PhD, Francisco Chana, MD, PhD, Javier Pereiro, MD, Antonio Ríos-Luna, MD, PhD, José M. Rojo-Manaute, MD, PhD, Felipe Benito Del Carmen, MD, Homid Fahandez-Saddi, MD, Antonio J. Perez-Caballer, MD

10:15 AM **Arthroscopic Treatment of Femoroacetabluar Impingement: The Adult Hip 5**
Dean K. Matsuda, MD

11:15 AM **Preparing for ICD-10: Tips and Strategies**
David Cannon, MD, Member, AAOS Practice Management Committee

12:15 PM **Aseptic Both Bone Forearm Nonunion Treated by Plate and Opposite Allograft Strut – Award Program**
Cesare Faldini, MD, Mohammadreza Chehrassan, MD, Matteo Nanni, MD, Maria Teresa Miscione, MD, Michele D'Amato, MD, Raffaele Borghi, MD, Alberto Di Martino, MD, Alice Bondi, MD, Costantino Errani, MD, Antonio Mazzotti, MD

Open Reduction In Missed Irreducible Congenital Dislocation Of The Hip – Award Program
Cesare Faldini, MD, Mohammadreza Chehrassan, MD, Francesco Traina, MD, Francesco Acri, MD, Camilla Pungetti, MD, Daniele Fabbri, MD, Marcello De Fine, MD, Alberto Di Martino, MD, Alice Bondi, MD

Minimally Invasive Technique for Curettage of Benign Bone Tumors using Endoscopic Technique
Costantino Errani, MD, Mohammadreza Chehrassan, MD, Angelo Toscano, MD, Mori, Matteo Nanni, MD, Alice Bondi, MD, Marcello De Fine, MD, Salvatore Calderone, MD, Francesco Traina, MD, Jennifer Kreshak, MD, Cesare Faldini, MD

1:15 PM **Treatment Of Recurrent Anterior Glenohumeral Instability: J-plasty Procedure**
Giacomo Marchi, MD, Celeste Bertone, MD, Dario Petriccioli, MD

2:15 PM **Patellar Tendon Augmentation with Hamstring Tendon Autograft**
Laith M. Jazrawi, MD, Guy Maoz, MD, Bhavesh B. Joshi, DO, Ankit Bansal, BS, Abiola Atanda, MD, Mathew Hamula, BA, BS

3:15 PM **Making Sense of MOC**
Shepard R. Hurwitz, MD, ABOS Executive Director

3:45 PM **AAOS Learning Portfolio: Helping You Manage the MOC Process**
James Ogle, AAOS Director, Information Services

4:15 PM **Technique For Removal of Structured Titanium Cementless Total Knee Replacement**
Ira H. Kirschenbaum, MD, Pawel Hanulewicz, MD

5:15 PM **The Circumferential Compression Stitch for Meniscus Repair**
Justin D. Saliman, MD

Friday March 22

8:15 AM **Safe and Accurate Utilization of Patient Specific Instrumentation in Total Knee Arthroplasty**
Anay R. Patel, MD, Mark A. Yaffe, MD, Raju S. Ghate, MD, S. D. Stulberg, MD

9:15 AM **Reverse Total Shoulder Arthroplasty Technical Note and Results**
Thomas W. Wright, MD, Gonzalo Samitier Solis, MD, Aimee Struk, MEd, MBA, ATC

ACL Anatomic Single Bundle Reconstruction Technical Note and Results
Michael W. Moser, MD, Gonzalo Samitier Solis, MD, Terese L. Chmielewski, PT, PhD, Trevor Lentz, PT

10:15 AM **Selective Exposures in Orthopaedic Surgery: The Knee 2nd Edition**
Henry C. Clarke, MD

11:15 AM **See the Power of the X…Orthopaedic CodeX**
Howard Mevis, AAOS Director, Electronic Media, Evaluation Programs, Course Operations and Practice Management Group

11:45 AM **Saving Members $$$: AAOS Member Advantage Program**
Tom Grogan, MD, Chair, AAOS Practice Management Committee

12:15 PM **Biceps Tenodesis: Open Subpectoral and Arthroscopic Technique**
Adam B. Yanke, MD, Peter N. Chalmers, MD, Anthony A. Romeo, MD, Nikhil N. Verma, MD

1:15 PM **Hip Capsulotomies Should be Routinely Repaired: A Demonstration of Arthroscopic Capsular Plication**
Benjamin Domb, MD, Itamar Botser, MD, Anthony P. Trenga

2:15 PM **Making Sense of MOC**
Shepard R. Hurwitz, MD, ABOS Executive Director

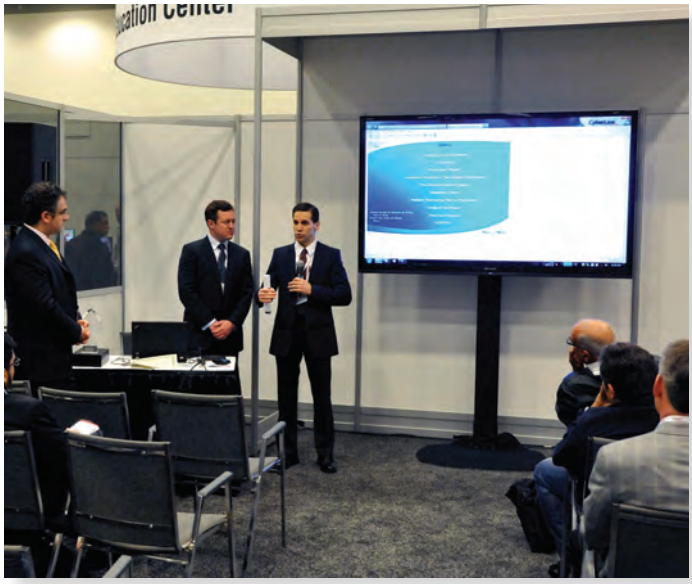
2:45 PM **Marketing Your Practice with AAOS Public Relations Materials**
Leon Benson, MD

3:15 PM **Five Minute Fifteen Point Diagnostic Arthroscopic Knee Exam**
Randy R. Clark, MD, Mark H. Getelman, MD

Heel Pain Treatment: Surgical Indications, Technique for Endoscopic Plantar Fascia Release
Randy R. Clark, MD, Richard D. Ferkel, MD

4:15 PM **Total Knee Arthroplasty Utilizing Surgical Navigation with an Automated Robotic Cutting Guide**
Louis Keppler, MD, Timothy McTighe, Dr. H.S. (hc)

5:15 PM **AAOS OrthoPortal, E-books, and Patient Education**
Jane Baque, AAOS Senior Manager, Publications Websites



2013 GUEST NATION Canada

Help us welcome Canada as the Guest Nation for the Chicago meeting. Please stop by the Guest Nation exhibit located in Academy Hall B to learn about the accomplishments of the Canadian orthopaedic community.

Look for special activities that focus on issues facing our colleagues in Canada, including 10 special educational posters, a speech and video by the President of the Canadian Orthopaedic Association during the Opening Ceremony, and the following ICLs with special guest lecturers from Canada:

- ICL 144 - Legg Clave Perthes Disease: The Beginning and the End: Tuesday, 1:30PM - 3:30PM
- ICL 221 - Optimizing Patient Function After Total Hip Replacement: Wednesday 10:30AM - 12:30PM

Inaugurated in 2005, the AAOS Guest Nation program was established to foster greater recognition and awareness of the contributions made to the practice of Orthopaedics from the many nations of the world, and to further enhance the robust international flavor and excitement of the AAOS Annual Meeting. AAOS is honored to welcome Canada as the 2013 Guest Nation.

Visit the AAOS Physician Job Placement Center

If you are a doctor looking for a new practice opportunity or if you are expanding your orthopaedic staff, the Placement Service is designed to help you in your search.
Located in Academy Hall B

Convenient Hours:

Tuesday.....8:00 AM – 6:00 PM
Wednesday - Friday.....7:00 AM – 6:00 PM
Saturday.....7:00 AM – 5:30 PM

Browse or post openings on the job boards, meet with potential candidates and schedule on-site interviews.

Your search starts here

Your search for outstanding, qualified candidates can start at the AAOS Annual Meeting and continue throughout the entire year. Visit the online Job Placement Service at www.aaos.org/placement

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Placement Service

SATURDAY, MARCH 23

Specialty Day is a day set aside for scientific programs presented by organizations that are members of the Board of Specialty Societies (BOS). Each society has its own educational program within the Specialty Day Program. The final programs for each society are available at the individual meeting rooms on Specialty Day.

American Orthopaedic Foot & Ankle Society
McCormick Place, Lakeside, Room E450
7:00 AM – 5:05 PM
9 AMA PRA Category 1 Credits™

Arthroscopy Association of North America
McCormick Place, Lakeside, Room E354a
7:50 AM – 5:10 PM
5.75 AMA PRA Category 1 Credits™
2 AMA PRA Category 1 Credits™
(Joint AANA/AOSSM session)

American Orthopaedic Society for Sports Medicine
McCormick Place, Lakeside, Room E354b
7:30 AM – 5:10 PM
5.75 AMA PRA Category 1 Credits™
2 AMA PRA Category 1 Credits™
(Joint AANA/AOSSM session)

American Shoulder and Elbow Surgeons
McCormick Place, Lakeside, Room E353
7:25 AM – 5:00 PM
8 AMA PRA Category 1 Credits™

American Society for Surgery of the Hand/ American Association for Hand Surgery
McCormick Place, Room S105
7:30 AM – 5:00 PM
8 AMA PRA Category 1 Credits™

Federation of Spine Associations
- American Spinal Injury Association
- Cervical Spine Research Society
- North American Spine Society
- Scoliosis Research Society

McCormick Place, Room S102
8:00 AM – 5:00 PM
8.25 AMA PRA Category 1 Credits™

The Hip Society/American Association of Hip and Knee Surgeons
McCormick Place, Room S100a
7:55 AM – 5:10 PM
7 AMA PRA Category 1 Credits™

The Knee Society/American Association of Hip and Knee Surgeons
McCormick Place, Room S100b
7:55 AM – 5:15 PM
7 AMA PRA Category 1 Credits™

Musculoskeletal Tumor Society
McCormick Place, Room S104
8:00 AM – 3:45 PM
7.5 AMA PRA Category 1 Credits™

Orthopaedic Trauma Association
McCormick Place, Lakeside, Room E451
7:30 AM – 5:05 PM
8 AMA PRA Category 1 Credits™

Pediatric Orthopaedic Society of North America
McCormick Place, Room S103b
8:00 AM – 4:45 PM
7 AMA PRA Category 1 Credits™

Limb Lengthening and Reconstruction Society
McCormick Place, Room S103a
8:00 AM – 5:30 PM
8 AMA PRA Category 1 Credits™

AAOS Board of Specialty Societies

- collaboration on issues
- resolution through communications
- unity among leaders

The Board of Specialty Societies (BOS) brings together the leaders of musculoskeletal specialty societies to address issues of mutual concern and to advise the Board of Directors of the AAOS. The BOS also provides opportunities for shared leadership, shared governance, organizational benchmarking, collaborative program development, and communications among member organizations.

The American Academy of Orthopaedic Surgeons gratefully acknowledges the following companies, organizations and individuals for their financial support of AAOS programs and projects throughout 2012 (as of 01/17/13).

Diamond Level – $200,000 and up

Platinum Level – $100,000-$199,999

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Biomet
Medtronic
Stryker

Gold Level – $50,000-$99,999

Arthrex, Inc.
Baxter Healthcare Corporation
Lilly USA, LLC
OrthoPediatrics
Smith & Nephew Inc.
Synthes Trauma

Silver Level – $10,000-$49,999

3M Health Care
American Association of Hip and Knee Surgeons
Arthroscopy Association of North America
Auxilium Pharmaceuticals, Inc.
Biomet Spine and Bone Healing Technologies
Biomet Trauma
Compulink Business Systems, Inc.
DePuy Synthes Spine
DJO Global
Elsevier
Foundation for Orthopaedic Trauma
Illinois Bone & Joint Institute
Integra
K2M, Inc.
KCI
Midwest Orthopaedics at Rush
National Institute of Arthritis and Musculoskeletal and Skin Diseases
NYUHJD
Orthofix
Orthopaedic Research Society
Orthopaedic Trauma Association
Pediatric Orthopaedic Society of North America
Pega Medical, Inc.
RTI Biologics, Inc.
Scoliosis Research Society
Shriners Hospitals for Children
Sociedade Brasileira de Ortopedia e Traumatologia
Sociedad Española de Cirugía Ortopédica y Traumatología
Société Internationale de Chirurgie Orthopédique et de Traumatologie (SICOT)
SRSsoft
Stryker Spine
United Health Foundation

Bronze Level – $1,000-$9,999

Acumed
Aesculap Implant Systems
Alexandra's Playground
American Association of Orthopaedic Executives
American Orthopaedic Foot & Ankle Society
American Orthopaedic Society for Sports Medicine
American Shoulder and Elbow Surgeons
American Society for Surgery of the Hand
American Society of Orthopaedic Physician Assistants
American Spinal Injury Association
Amniox Medical
Association of Residency Coordinators in Orthopaedic Surgery
Bonutti Technologies
Endo Pharmaceuticals
Ferring Pharmaceuticals, Inc.
Foundation of Orthopaedics and Complex Spine
Greatbatch Medical
Hamill Family Foundation
HangItUp Chicago, LLC
Dr. Stuart and Lisa Hirsch
Dr. Stephen and Sonny Hurst
Journal of Bone and Joint Surgery (Am)
J. Robert Gladden Orthopaedic Society
Dr. Frank and Lawson Kelly
Limb Lengthening and Reconstruction Society
Mayo Clinic, Rochester, MN
National Association of Orthopaedic Nurses
Newton-Wellesley Hospital
Orchid Orthopedic Solutions
Orthopaedic Nurses Certification Board
Orthopedic Specialists of North America
Paragon Medical
Permanente Medical Group
Purdue Pharma, L. P.
Rush University Medical Center
Ruth Jackson Orthopaedic Society
Stetson Powell Orthopaedics and Sports Medicine
Symmetry Medical

Thanks for your support

The Academy would also like to thank the following companies for their support for its 2012 Skills Courses, international activities and 2013 Annual Meeting Surgical Skills Courses by providing essential equipment and supplies:

Accu-Line Products
Acumed
Arthrex, Inc.
ArthroCare
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Biomet
Buxton Biomedical
Cayenne Medical, Inc.
ConMed Linvatec
DePuy Synthes
DePuy Synthes Mitek Sports Medicine
DJO Global, Inc.
Exactech
FluoroScan Imaging Systems
Hologic
Innomed
Institute for Global Orthopaedics & Traumatology
Intec Industries
Integra
Kinamed, Inc.
Life Instruments
Medtronic
Mölnlycke Healthcare
Musculoskeletal Transplant Foundation
NuVasive
OrthoPediatrics
Orthosonics
Pediatric Orthopaedic Society of North America
RTI Biologics
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Call For Abstracts

Contribute to the advancement of orthopaedic science and practice

Share your research with orthopaedic surgeons from around the world at the **2014 Annual Meeting**. Nowhere else will your discoveries reach such a wide-ranging orthopaedic audience.

Submissions open April 1, 2013. Watch for announcements!

Submit full-page abstracts, attach images, and more!
Present your research to its best advantage on our user-friendly website.

ATTENTION SUBMITTERS: **DISCLOSURE RULES**

Submissions due June 1, 2013

All presenters and co-authors must disclose financial relationships in the AAOS Orthopaedic Disclosure Program. The disclosure must be entered or updated as of April 1, 2013. Abstracts will not be graded without all disclosures.

2014 Annual Meeting

March 11 - 15

New Orleans, LA

AAOS
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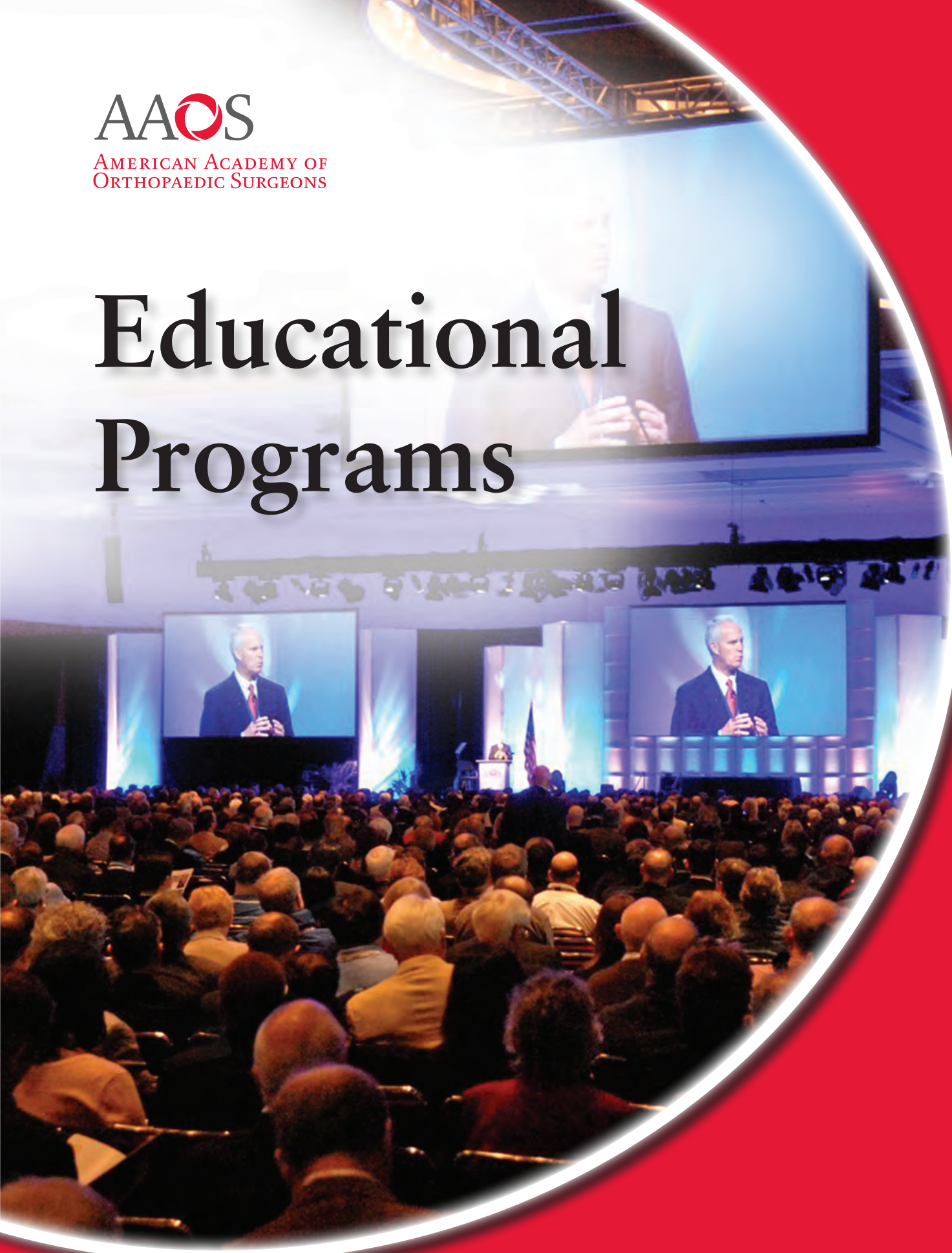
Educational Programs



Annual Meeting Education

The 2013 Annual Meeting features a variety of educational sessions including Symposia, Instructional Courses, Surgical Skills Courses, Papers and Posters, Scientific Exhibits and an Orthopaedic Video Theater (formerly MME).

Symposia are two hours in length, meant for cutting edge, controversial, new or innovative topics. Some feature debates with a diverse faculty. It is important that symposia be well balanced and feature a blend of differing techniques, styles or management.

Instructional Courses range from two to five hours in length featuring internationally known faculty. The courses are added, expanded, revised or dropped on the basis of evaluations completed by the previous registrants of the courses. The information presented in Instructional Course Lectures represents accepted principles and techniques as well as new evidence based practices. They often present the pitfalls of a specific procedure and contain pearls that you can take home to your practice.

Surgical Skills Courses are three hours in length. These courses feature lectures followed by intensive saw bone model labs. Faculty and registrant interaction is a highlight of these courses.

The Orthopaedic Review Course is an all day course featuring a review of the current knowledge on the diagnosis and management of clinical orthopaedic problems from a nationally accepted practice perspective. The course outline and faculty are listed on page 52.

Paper Presentations are six minutes grouped in a series of three followed by floor discussion. Our skilled moderators provide attendees with opportunities to ask questions for a more interactive learning experience.

Posters provide a unique opportunity for self study featuring the latest in scientific research. The Poster presenter or co-authors will be at their poster daily from 11:30 AM – 12:30 PM to discuss their research and answer your questions. Special focus posters by the Orthopaedic Research Society, Board of Specialty Societies, Allied Health Posters, Nth Dimensions and Guest Nation. The posters are located in McCormick Place, Academy Hall B. Posters are grouped in the following classifications:

- Adult Hip Reconstruction P001-P110
- Adult Knee Reconstruction..... P111-P205
- Foot and Ankle..... P206-P225
- Hand and Wrist..... P226-P240
- Pediatrics..... P241-P260
- Practice Management P261-P285
- Shoulder and Elbow P286-P345
- Spine P346-P405
- Sports Medicine and Arthroscopy P406-P465
- Trauma..... P466-P525
- Tumor and Metabolic Bone Disease P526-P545
- Orthopaedic Research Society P546-P562
- Guest Nation..... P563-P572
- BOS Posters..... P573-P575
- Allied Health P576-P579
- Nth Dimensions P580

Poster Awards Ceremony

Join us on Friday, March 22 at 7:00 AM for a free continental breakfast and the Poster Awards Ceremony. The winner of the Best Poster in each classification will receive their award and the Central Program Committee Chair will select the overall best poster of the 2013 Annual Meeting.

Scientific Exhibit format is used to graphically illustrate a study or a complex procedure. It differentiates itself from a poster presentation in the amount of material that is presented and uses audiovisual, interactive demonstration, or some other type of enhancement in its presentation. The authors of the exhibits are requested to be present Wednesday through Friday between 11:30 AM and 12:30 PM to discuss their ideas and presentation. Schedule your time to visit them when the author is present and can discuss the exhibit with you. Allow 10-15 minutes for the exhibits you are most interested in so that the author has time to properly discuss his or her presentation.

Scientific Exhibits have been grouped in the following categories:

- Adult Reconstruction Hip SE01-SE14
- Adult Reconstruction Knee..... SE15-SE31
- Basic Research..... SE32-SE35
- Foot and Ankle SE36-SE38
- Hand and Wrist..... SE39-SE40
- Pediatrics..... SE41-SE44
- Practice Management SE45-SE50
- Shoulder and Elbow SE51-SE58
- Spine SE59-SE62
- Sports Medicine and Arthroscopy SE63-SE78
- Trauma..... SE79-SE86
- Tumor and Metabolic Bone Disease SE87-SE88

AAOS Committee Scientific Exhibits:
Biological Implants Committee – SE88
Biomedical Engineering Committee – SE09
Ethics Committee - SE50
Evidence-Based Practice Committee – SE48
Extremity War Injuries & Disaster Preparedness Project—SE86
Medical Liability Committee – SE49
Patient Safety Committee – SE54
Research and Development Committee – SE07
Women's Health Issues Advisory Board – SE74

BOS Scientific Exhibits:
Hip Society – SE05
Knee Society – SE18
Limb Lengthening and Reconstruction Society – SE41
Musculoskeletal Tumor Society – SE87
Orthopaedic Trauma Association – SE79
Pediatric Orthopaedic Society of North America – SE41
Scoliosis Research Society – SE59

New! **iPosters and iScientific Exhibits**
iPosters and iScientific Exhibits provide audio for many of the Posters and Scientific Exhibits at the Annual Meeting. The audio will be a narrative of the exhibit recorded by the presenter and offered on playback by Smartphone and tablets as the attendee views the exhibit. A blog will allow viewers to question the authors creating an ongoing dialog. This area will feature a workstations with PCs where attendees can view the iPosters and iScientific Exhibits, hear the audio and also decide whether or not to view the actual exhibit.

Orthopaedic Video Theater presents peer reviewed videos and media programs developed and produced by your colleagues. Here you are able to observe and study the very latest in orthopaedic surgical technique. Discover leading edge devices

as well as new techniques and technologies in a wide range of orthopaedic specialties. Strengthen your knowledge of surgical anatomy, exposures, treatments, and more.

Also, make plans to attend the *Resource Center Theater,* an intimate setting where you can meet video authors, view programs as part of the live audience, and participate in question and answer sessions.

A complete listing of the Orthopaedic Video Theater programs is listed beginning on page 203.

Award Programs ..... Stations 01-04
Adult Reconstruction Hip ..... Stations 05-07
Adult Reconstruction Knee ..... Stations 08-10
Foot and Ankle ..... Stations 11
Hand and Wrist ..... Stations 12
Pediatrics ..... Stations 13
Shoulder and Elbow ..... Stations 14-19
Sports Medicine and Arthroscopy ..... Stations 20-29
Trauma ..... Station 30
Tumors and Metabolic Bone Disease ..... Station 31

In addition, five self-service stations are available for you to view any Orthopaedic Video Theater title online.

Academy Hall B features the Poster Exhibits, the Scientific Exhibits and the Orthopaedic Video Theater in addition to the Resource Center and Job Placement Center. Academy Hall features extended hours so you can visit before other educational events.

Hours of Operation:
Tuesday ..... 8:00 AM – 6:00 PM
Wednesday - Friday ..... 7:00 AM – 6:00 PM
Saturday ..... 7:00 AM – 5:30 PM

Best of AAOS Symposium

Friday, March 22 at 1:30 PM, McCormick Place Room S406
Annunziato Amendola, MD and Brian J. Cole, MD, Moderators
The Best of the AAOS will feature a synopsis of the best papers and posters from each of the 11 classifications that represent Annual Meeting education. Members of the Program Committees will present the best 3 to 5 "shouldn't be missed" studies presented at the 2013 Annual Meeting. Best of AAOS Symposium provides attendees with an opportunity to maximize their Academy experience.

AAOS/ORS Combined Symposia

Two symposia will combine AAOS and ORS topics of interest, both will be presented on Tuesday, March 19 at McCormick Place, Room S105 a,b,c,d. The combined symposia are:

- AAOS/ORS I: Translational Research in Orthopaedics: Structure Bone Allograft from Benchtop to Bedside at 1:30-3:30 PM, moderated by Robert A. Hart, MD
- AAOS/ORSII: Cell Based Strategies for Regenerating Musculoskeletal Tissues at 4:00-6:00 PM, moderated by Stuart B. Goodman, MD and Lynne C. Jones PhD.

General Education Information

An Audience Response System will be featured in several courses and symposia. This system provides the faculty and attendee with a unique opportunity to interact, enhancing the learning experience. Audience Response sessions are noted by in the program book.

Symposia and Instructional Courses noted with the logo of a Board of Orthopaedic Specialty Society are co-branded by that society and AAOS.

Over 5,500 abstracts were submitted for presentation at the 2013 Annual Meeting. Out of those, the Program Committee selected the best for presentation in 830 paper presentations and 580 poster presentations.

Applications for symposia and Instructional Courses were evaluated and rated by the Central Program and Central Instructional Course Committees. Countless hours were spent reviewing and rating these applications resulting in the excellent curriculum featured at the Annual Meeting.

Each Symposium and Instructional Course will have an evaluation form, your critical and constructive assessment of each session is essential for us to maintain the high standards that create the Annual Meeting. Please complete the evaluation in written or smartphone format for each session you attend. The evaluations are reviewed by the committees and are used to determine the curriculum that helps us maintain the high standards expected by those attending the Annual Meeting.

The Central Program Committee and Central Instructional Course Committee are very appreciative of the efforts extended by those who submitted abstracts and applications and congratulates them on the high quality submitted for the 2013 Annual Meeting. They are also grateful for the assistance of the Program and Instructional Course Committees in developing an excellent educational curriculum. Finally we thank the faculty, instructors, moderators, and paper and poster presenters and co-authors for their efforts in presenting an excellent educational program. Their willingness to share their research and knowledge are gratefully acknowledged by all who attend the Annual Meeting.

Instructional Course Ticket Fees

For those who have not registered and purchased their tickets in advance, available tickets may be purchased when registering onsite.

The following fee is applied:
Instructional Course Lecture (2 hours) $70.00
Instructional Course Lecture (3 hours) $80.00
U.S. Orthopaedic Resident (2 or 3 hours) $25.00
Surgical Skills Course (3 hours) $399.00
Surgical Skills Course (8SK) $299.00
Orthopaedic Review Course $400.00
Orthopaedic Review Course
(U.S. Orthopaedic Residents) $160.00
ICL 187 ..... $180.00

Persons who have registered in advance but wish to exchange a ticket may do so as long as neither course has taken place. Persons exchanging tickets must pay the difference between the advance registration ticket fee and the increased on-site fee.

Presentation of Fraudulent Research

The Program Committee makes every attempt to ensure that the research activities and findings presented in the scientific program are genuine and valid. It should be understood, however, that it is not possible to vet each and every study that is presented during

the Annual Meeting. The abstracts of presentations submitted for grading are rated by qualified and expert graders. In some instances the paper presentation or poster may not reflect its related abstract submitted six months earlier. The Program Committee considers these instances to be errors in the presenters' judgment when they occur. Presentation of fraudulent research violates the AAOS Standards of Professionalism on Research and Academic Responsibilities. If you feel you have witnessed a knowingly fraudulent presentation, please address your concern to a member of the Program Committee or Academy staff. The Program Committee will review the matter and may determine to bar the submission of future abstracts from the speaker(s) and/or to publish a retraction of the abstract in AAOS Now or other AAOS publications or communications. If there is a sufficient ground, any AAOS member may also file a grievance with the AAOS Professional Compliance Program. Based upon review of the Committee on Professionalism and as applicable the Judiciary Committee, the AAOS Board of Directors may determine to issue a letter of concern, censure, suspend or expel the Fellow or Member who presented the fraudulent research.

No reproductions of any kind, including audiotapes, videotapes, and still photography may be made of presentations at the Academy's Annual Meeting. The Academy reserves all of its rights to such material, and any reproduction is strictly prohibited. Cell phones and beepers are a necessity to a doctor but a ringing phone or beeper during an educational session is distracting to the audience and speakers. Please place your cell phone on vibrate as a courtesy to others. When taking or making a call, please step outside the meeting room.

AAOS Videotaping

The Academy is videotaping certain portions of the Annual Meeting. The tapes will be used for educational purposes and/or may be sold alone or in connection with other AAOS products. Please note that by attending the Annual Meeting, your image and/or voice may be captured and included as part of this event.

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Hand and Wrist
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Spine
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Joseph H. Perra, MD, Minneapolis, MN
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Marc Safran, MD, Redwood City, MD
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Trauma
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Kurt J. Ehlert, MD, Raleigh, NC
Madhav A. Karunakar, MD, Charlotte, NC
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Tumor and Metabolic Disease
Carol D. Morris, MD, MS, New York, NY, Chair
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B. Hudson Berrey, MD, FACS, Jacksonville, FL
Timothy Rapp, MD, New York, NY

Disaster Response Course

Developed by SOMOS
Co-sponsored by AAOS, OTA, and POSNA
Course Director: COL Tad L. Gerlinger, MD
Course Co-Directors: COL (Ret) Theodore W. Parsons, III, MD and Christopher T. Born, MD
Monday, March 18 – Tuesday, March 19
Orthopaedic Learning Center, Rosemont, IL

This hands-on skills course is the central training element for AAOS Fellows to be included in the AAOS Disaster Responder Database. This course covers the application of orthopaedic care techniques critical to disaster-inflicted injuries and treating the wounded in austere environments. Get the important training you need for personal and team preparation to effectively handle the physical, emotional, and care management skills for treating the injured in areas affected by catastrophic events. Day one of lectures is followed by a half-day in the cadaveric skills lab. This course is not part of the AAOS Annual Meeting registration form. To register for course #6808CHI, please contact AAOS Customer Service at (800)626-6726.

American Joint Replacement Registry Informational Session

Moderators: David G. Lewallen, MD and William J. Maloney, MD
Wednesday, March 20, 9:00 – 11:00 AM
McCormick Place, Room S405

This informational session is intended for orthopaedic surgeons, hospital executives, and nursing staff to learn from and interact with leaders of the American Joint Replacement Registry (AJRR).

The AJRR was founded in 2009 as a national, independent, not for-profit organization. The primary goal of AJRR is to optimize patient outcomes through the collection of Level I data on all primary and revision total hip and knee replacement procedures in the U.S.. Level I data includes patient, surgeon and hospital identifiers along with procedural and implant information. Research has shown that Level I registry data have the potential to reduce patient morbidity and mortality; improve patient safety and quality; and provide an early warning system for early implant failure.

Over the course of 2012-2013, significant gains have been made in developing and implementing this national effort. The AJRR is expanding efforts across the country, with over 120 hospitals currently participating and over 34,000 procedures in the database. Existing data proves comparable to other regional and international registries in terms of demographic and procedural frequencies and distributions. Session participants will learn how the AJRR has developed and operates to provide benefits to all involved in arthroplasty care, including orthopaedic surgeons and hospitals. AJRR will also be expanding to collect Level II and Level III data in 2013 to enable capture of co-morbidities and complications for risk adjustment of procedural data along with patient reported outcomes. This informational session is intended for orthopaedic surgeons specializing in joint replacement (but all members are welcome to attend), as well as hospital executives, and nursing/OR staff.

Forum for Young Orthopaedic Surgeons with the American Board of Orthopaedic Surgery

Thursday, March 21, 10:30 AM – 12:30 PM
McCormick Place, Room S101b

This free annual forum provides senior residents and new practitioners a unique opportunity to meet informally with the Executive Director of the American Board of Orthopaedic Surgery (ABOS). He will provide you with insightful information about Board requirements and procedures. This special program is a "must attend" as it will answer your questions about this important step in your career. If you are looking at ABOS Part 1 or Part 2 of the exam in the near future, you should not miss it!

Media Training

From Insights to Sound bites: *Your Orthopaedic Expertise and the News Media*

#701: Friday, March 22, 8:00 AM – 12:00 PM
#702: Friday, March 22, 1:30 PM – 5:30 PM
McCormick Place, Room N139

Feel more confident, make the most of every media encounter and gain an understanding of how the news media works in this training.

You'll learn the keys to a successful interview, including how to:

- Create clear and unambiguous key messages and sound bites
- Take control of an interview
- Bridge from an irrelevant question to your message
- Speak in English, not "doctor-ese"
- Use appropriate gestures and body language

This session is offered complimentary on a first-come, first-served basis to active AAOS Fellows, Resident Members, and Emeritus Fellows. Registration is required. Please see the AAOS registration form.

The Financial Value of the Orthopedic Surgeon: What You Can Do to Help Yourself! Understanding and Participating in Medicare and RUC Surveys

R. Dale Blasier, MD, Bernard A. Pfeifer, MD, Frank R. Voss, MD
Moderator: John P. Heiner, MD
Friday, March 22, 10:30 AM – 12:30 PM
McCormick Place, Room S402b

To provide an introduction of the Medicare Physician Fee Schedule and the RUC survey and review process that support the fee schedule. In addition, it will give members a chance to complete a sample practice survey and to sign up to be a regular contributor to AAOS reimbursement efforts.

The Basics of Coding, #150, is for those who are starting practice shortly or who have only been in practice a few years. The Top 10 Coding Errors, #153, is for those Orthopaedic Surgeons who have been in practice more than two years. Both courses are free of charge.

Basics of Coding for Starting Your Practice #150

Tuesday, March 19, 8:00 – 11:00 AM
McCormick Place, Lakeside, Room E354a

You don't want to miss this fast-paced course introducing the most important coding topics to orthopaedic residents. Margaret Maley from KarenZupko & Associates brings energy and humor to this topic critical to orthopaedic practice management. By the end of the course you will:

- Define a New Patient Visit vs. an Established Patient Visit
- Understand Relative Value Units (RVU's) are used to calculate your reimbursement or bonus if you are an employed physician
- Know how procedures are discounted by payors and how arthroscopic procedures are discounted differently
- Describe how modifiers protect reimbursement
- Understand what is included in the global surgical package

Join us for this complimentary workshop that will be so important to your career!

Practice Management Symposium for Orthopaedic Residents #151

Tuesday, March 19, 12:00 – 5:30 PM (Lunch at 11:30 AM)
McCormick Place, Lakeside, Room E354a

The American Academy of Orthopaedic Surgeons is pleased to present a complimentary half-day symposium on practice management designed especially for orthopaedic residents.

Selected speakers will present practical information on the legal and business aspects for orthopaedics. The program will be especially beneficial for fourth- and fifth-year residents, but all residents are welcome.

Topics covered during the symposium include evaluating practice opportunities, building a successful practice, contract negotiation and risk management and features a discussion on the ABOS and new this year is the topic of how to avoid ethical disasters in the first five years. Best of all, this Symposium is complimentary to all US residents!

12:00 PM	Welcome Adolph J. Yates, Jr, MD, Symposium Chair Frederick M. Azar, MD, Second Vice President Stuart L. Weinstein, MD, PAC representative Evaluating Practice Opportunities Ryan M. Dopirak, MD
12:40 PM	Avoiding Ethical Disasters in the First Five Years Charles Carroll, IV, MD Kenneth C. Thomas, MD Mark A. Yaffee, MD
1:10 PM	Negotiating a Contract Steve M. Harris, JD
2:30 PM	Break
2:45 PM	Risk Management Michael J. Rogal, MD, JD
3:45 PM	How to Build a Successful Practice Ryan M. Dopirak, MD
4:30 PM	The American Board of Orthopaedic Surgeons: Resources and Process Shepard R. Hurwitz, MD
5:00 PM	Adjourn/Questions and Answers

Practice Management Symposium for Practicing Orthopaedic Surgeons #152

Tuesday, March 19, 9:00 AM-5:00 PM
McCormick Place, Room S102

Don't miss this dynamic, educational event! Course Directors, Craig R. Mahoney, MD and Douglas R. Turgeon, MD: **"Dollars and Sense 2013 – Take Control of Your Finances and Your Future"** as a deeper dive into the top four topics attendees want to learn more about;

- financial stability
- bundled payments & negotiating strategies
- billing and collections strategies
- marketing and promotion strategies

Regardless of your practice model, all orthopaedic surgeons will be able to take advantage of useful information and effective techniques to be profitable and financially healthy. It's your bottom line…improve it!

Symposium faculty will present practical tips and provide tools to simplify and clarify the activities of managing your practice. This one-of-a-kind opportunity to take control of your practice's finances and your future will feature an interactive town hall discussion focusing on topics of critical importance to orthopaedic surgeons.

Register Now! Learn from our nationally recognized experts. Highlights include:

- John Cherf, MD, MPH, MBA explaining the implications of current and proposed legislation, changes in payment mechanisms
- Ian Alexander, MD & Louis McIntyre, MD discussing the trends in physician employment and the benefits and pitfalls of hospital employment versus private practice – learn why you need to consider the second contract while negotiating the first one!
- Michael McCaslin (SomersetCPAs) teaching you how to identify the key warning signs that your practice might be in trouble – and what to do about it.
- William Champion (Orthopaedic Marketing Group) showing you how to develop an effective marketing program to attract and retain patients
- Larry Elisco, CPA (Weltman Bernfield, LLC)discussing how to effectively evaluate your practice on a daily, weekly and monthly basis – know the metrics that help you analyze critical aspects of your practice
- Karen Zupko (Karen Zupko & Associates) helping you understand why the surgeon's participation in the third-party payment process is critical to the bottom line – and evaluating your systems for ICD – 10 readiness.

The Top 10 Coding Errors Made by Practicing Orthopaedic Surgeons #153

Tuesday, March 19, 1:30 – 4:30 PM
McCormick Place, Room N228

Margaret Maley from KarenZupko & Associates brings logic and laughs to this workshop addressing frequent and costly reporting errors made by orthopaedic surgeons. At the conclusion of this course you will:

- Properly report services for a patient in the Emergency Room
- Document what Medicare requires to justify the medical necessity of a total joint replacement
- Confidentiality report meniscectomy and removal of a loose body
- Know how to document an E&M service and fracture care correctly
- Define the common use of the modifier 59 in knee and shoulder surgery
- Report a consultation on a Medicare patient

This and much more will be packed into this course specifically designed for practicing orthopaedic surgeons.

Community Orthopaedist Workshop #154

Tuesday, March 19, 1:30 – 5:30 PM
McCormick Place, Room N227b

The Community Orthopaedist Workshop is being designed specifically for the orthopaedic surgeon who handles a variety of conditions, whether in the emergency room or in their office. The session will educate the physician on current "best-practices" for commonly encountered orthopaedic conditions, along with sessions devoted to organizational issues associated with a general orthopaedic practice. AAOS offers this session as a complimentary workshop.

Objectives

1. Instruct the community orthopaedist on frequently seen orthopaedic conditions
2. Address organizational and administrative issues related to community orthopaedic practice
3. Inform individual orthopaedists on the basics of Maintenance of Board Certification

1:30 PM Adult Reconstruction Hip – Daniel J. Berry, MD

1:55 PM Cost Effectiveness – John R. Tongue, MD

2:15 PM Adult Reconstruction Knee – Thomas K. Fehring, MD

2:40 PM Break

3:00 PM Trauma – Paul Tornetta, MD

3:25 PM Maintenance of Certification – Shepard R. Hurwitz, MD

3:55 PM Sports/ACL – Annunziato Amendola, MD

4:20 PM AAOS Resources – Thomas J. Grogan, MD

4:45 PM Shoulder and Elbow – Ken Yamaguchi, MD

5:10 PM Question and Answer

Upon adjourning, AAOS staff members will be available to discuss AAOS Resources including build your own website, CME Courses, membership, media training, learning portfolio, orthoportal.

Review Courses

Tuesday, March 19, 8:00 – 11:00 AM

The following three hour review courses are intended to assist those who need general review or are preparing for maintenance of certification. These courses will be followed by a special optional Maintenance of Certification primer from 11:15 AM – 12:30 PM. Anyone who purchased a ticket for one of the Review Courses below are invited to attend the complimentary Maintenance of Certification session.

181 Trauma Review Course
McCormick Place, Room N228
Moderator: Paul Tornetta, III, MD
- Review recent state of the art management of common fractures as well as future directions and evolving treatments.

182 Shoulder and Elbow Review Course
McCormick Place, Room S501
Moderator: Robert M. Orfaly, MD
- The diagnosis and treatment options for common adult shoulder and elbow conditions are reviewed as well as recent advances and changes in standard of care.

183 Spine Review Course
McCormick Place, Lakeside, Room E350
Moderator: Thomas J. Errico, MD
- Updates on cervical degenerative spine surgery; thoracic and lumbar degenerative spine surgery; spinal trauma surgery and adult spinal deformity surgery.

184 Sports Medicine Review Course
McCormick Place, Room S405
Moderator: Bruce S. Miller, MD, MS
- This course is a primer for the upcoming Sports Medicine Subspecialty Certification Examination. This three hour session will highlight sports injuries of the shoulder and knee and medical topics in sports medicine.

185 Hand and Wrist Review Course
McCormick Place, Lakeside, Room E351
Moderator: Martin A. Posner, MD
- Those hand and wrist problems that are generally the focus of certifying examinations will be discussed including pertinent anatomy, pathophysiology, clinical and imaging findings and treatment.

Maintenance of Certification: The Basics

Tuesday, March 19 11:15 AM – 12:30 PM
McCormick Place, Room S105
Sherpard R. Hurwitz, MD
Joseph A. Bosco, MD, Moderator

Cover strategies important to taking a multiple choice test and provide details on taking a computerized examination. This session will cover information that you need to know for Maintenance of Certification. This session will feature a look at the AAOS Learning Portfolio, designed to assist you in Maintenance of Certification. This session is complimentary for anyone who attended ICL 181-185.

Faculty Development Sessions

These sessions are for anyone who would like to further define or develop their presentation skills and create an environment beneficial to learning. The sessions are interactive and attendees are encouraged to bring their laptop. They are offered at no charge and are on a first come, first served basis.

Faculty Development Course 1: Getting Your Great Ideas Supported - Effective Techniques for Women in Orthopaedics
Wednesday, March 20, 8:00 – 9:00 AM
McCormick Place, Room N227a
Mary I. O'Connor, MD, Jacksonville, FL, Moderator

Understand the information which different types of people want in order to support your proposals; how to achieve buy-in and counter efforts to sink your next great idea. We will also discuss perceptions of women leaders as well as corresponding tactics for you to counter negative bias and improve your effectiveness.

Faculty Development Course 2: Video Production for Orthopaedic Surgeons: Getting the Award, Making the Difference
Wednesday, March 20, 1:30 – 3:30 PM
McCormick Place, Room N227a
Kevin D. Plancher, MD, MS, New York, NY, Moderator
Cesare Faldini, MD, Bolognia, Italy
Thomas G. Sampson, MD, San Francisco, CA

Video is one of orthopaedic educations most widely used instructional tools. This workshop will teach you how to critically evaluate the orthopaedic technique videos you watch, and how to create award winning orthopaedic videos of your own.

Faculty Development Course 3: Cliff Notes on Clinical Research: What You Need to Get Started
Thursday, March 21, 8:00 – 10:00 AM
McCormick Place, Room N227a
John W. Sperling, MD, MBA, Rochester, MN, Moderator
Leesa M. Galatz, MD, St. Louis, MO
Bruce S. Miller, MD, Ann Arbor, MI

Understand the scientific method and be able to design and complete a clinical research project. Formulate a clinically relevant hypothesis, perform a power analysis, collect and analyze data. Determine when the results are worthy of submission as an abstract.

Faculty Development Course 4: Writing an Abstract that Gets Accepted
Thursday, March 21, 10:30 AM – 11:30 AM
McCormick Place, Room N227a
Craig J. Della Valle, MD, Chicago, IL, Moderator
Mark W. Pagnano, MD, Rochester, MN
Javad Parvizi, MD, FRCS, Philadelphia, PA

Understand the abstract submission and review process in order to increase the likelihood of acceptance. Learn how to write an abstract that is focused, concise and clear so that your message is "heard" by the reviewers.

Faculty Development Course 5: The Art of Using PowerPoint for Effective Presentations
Thursday, March 21, 1:30 – 2:30 PM
McCormick Place, Room N227a
Roy W. Sanders, MD, Tampa, FL, Moderator
Paul Tornetta, III, MD, Boston, MA, Moderator

This hands on session will focus on utilizing PowerPoint especially for the medical professional. Learn tips and tricks that you can use to enhance your teaching skills when participating in educational sessions for your colleagues and for patient education both individually and community wide.

Faculty Development Course 6: Perspectives on Mentorship
Thursday, March 21, 4:00 – 6:00 PM
McCormick Place, Room N227a
Robert A. Hart, MD, Portland, OR, Moderator
James H. Beaty, MD, Memphis, TN
Edward N. Hanley, Jr., MD, Charlotte, NC
Vernon T. Tolo, MD, Los Angeles, CA

History, definition, and description of the mentoring process will be presented, emphasizing importance of good mentorship to career and personal satisfaction. Specific examples of successful and less successful approaches to mentoring will be described.

Faculty Development Course 7: Using Social Media in Your Practice
Friday, March 22, 10:30 – 11:30 AM
McCormick Place, Room 227a
Tony Edwards, Omaha, NE, Moderator
Bill Champion, Omaha, NE

Will focus on utilizing social media in your medical practice. Learn tips and tricks that you can use to enhance your marketing through the use of Facebook, Twitter and other forms of social media.

Faculty Development Course 8: The Art of Orthopaedic Lecture
Friday, March 22, 1:30 – 3:30 PM
McCormick Place, Room 227a
James H. Beaty, MD, Memphis, TN, Moderator
James J. McCarthy, MD, Cincinnati, OH

Learn to develop a lecture for an orthpaedic audience. From a 6 minute paper presentation to a 60 minute lecture on a specific research project or clinical subject. This session will give you the tools to prepare and present. Powerpoint preparation and tips included.

Guided Poster Tours

Academy Hall B

Guided poster tours will provide an opportunity for meeting attendees to ask questions and gain insights while earning CME credit. Each tour will be guided by an expert in the field. The expert will question the presenter, point out highlights and give interesting tips about selected posters in each classification. Register for the poster tours at the Poster and Scientific Exhibit Help Desk, Academy Hall B. Date, times and experts are below:

Date	Classification	Expert
Tuesday, March 19		
10:15 AM - 11:15 AM	Shoulder and Elbow	Joseph D. Zuckerman, MD
11:30 AM - 12:30 PM	Spine	Scott D. Boden, MD
1:30 PM - 2:30 PM	Foot and Ankle	Steven L. Haddad, MD
3:00 PM - 4:00 PM	Adult Reconstruction Knee	John J. Callaghan, MD
4:30 PM -5:30 PM	Trauma	David C. Templeman, MD
Wednesday, March 20		
8:30 AM - 9:30 AM	Sports Medicine/Arthroscopy	Kenneth E. DeHaven, MD
10:00 AM - 11:00 AM	Adult Reconstruction Hip	Daniel J. Berry, MD
11:30 AM - 12:30 PM	Pediatrics	Steven L. Frick, MD
1:30 PM - 2:30 PM	Tumor/Metabolic Disease	Franklin H. Sim, MD
3:00 PM - 4:00 PM	Hand and Wrist	Jesse B. Jupiter, MD
Thursday, March 21		
8:30 AM - 9:30 AM	Shoulder and Elbow	Felix H. Savoie III, MD
10:00 AM - 11:00 AM	Practice Management/Rehabilitation	Craig R. Mahoney, MD
11:30 AM - 12:30 PM	Foot and Ankle	Annunziato (Ned) Amendola, MD
1:30 PM - 2:30 PM	Sports Medicine/Arthroscopy	Michael J. Stuart, MD
3:00 PM - 4:00 PM	Trauma	Paul Tornetta III, MD
Friday, March 22		
8:30 AM - 9:30 AM	Adult Reconstruction Knee	William J. Maloney, MD
10:00 AM - 11:00 AM	Hand and Wrist	Terry R. Light, MD
11:30 AM - 12:30 PM	Spine	Robert A. Hart, MD
1:30 PM - 2:30 PM	Pediatrics	Charles T. Price, MD
3:00 PM - 4:00 PM	Adult Reconstruction Hip	William J. Hozack, MD

iPoster and iScientific Exhibits

iPoster and iScientific Exhibit provides an electronic version of the poster or scientific exhibit as prepared by the presenter. The audio will be a narrative of the poster and scientific exhibit recorded by the presenter and offered on playback by Smartphone and tablets as the attendee views them. The enhancement website features a blog allowing viewers to question the authors creating an ongoing dialog. The iposter and iscientific exhibit area will feature workstations with PCs where attendees can view the exhibits, hear the audio and participate in the blogs.

Poster Awards Ceremony

Join us on Friday, March 22 at 7:00 AM for a free continental breakfast and the Poster Awards Ceremony. The winner of the Best Poster in each classification will receive their award and the Central Program Committee Chair will select the overall best poster of the 2013 Annual Meeting.

Orthopaedic Review Course #490

Friday, March 22
McCormick Place, Lakeside, Room E354a
Course Chairman: David L. Skaggs, MD

- Review of current knowledge on diagnosis and management of clinical problems from a nationally accepted orthopaedic practice perspective
- Major sections of the course are pediatrics, upper and lower extremities, tumors and metabolic bone disease, and spine
- Each section includes discussion of fractures, complications, infections and trauma

Please note, the Orthopaedic Review Course is not intended as a review for the Board Examination, it is a review of orthopaedic basics.

8:00 - 10:00 AM	**Lower Extremity** *Moderator: Donald A. Wiss, MD*
8:00 AM	**Hip and Knee Reconstruction** *Daniel A. Oakes, MD*
8:30 AM	**Trauma** *Donald A. Wiss, MD*
9:00 AM	**Foot and Ankle** *Steven L. Haddad, MD*
9:30 AM	**Sports Knee** *Mark D. Miller, MD*
10:00 - 10:15 AM	**STRETCH BREAK**
10:15 - 11:50 AM	**Upper Extremity** *Moderator: William N. Levine, MD*
10:15 AM	**Hand and Wrist** *Martin I. Boyer, MD*
10:50 AM	**Forearm and Elbow** *Ken Yamaguchi, MD*
11:20 AM	**Shoulder and Humerus** *William N. Levine, MD*
11:50 AM - 12:30 PM	**LUNCH** (lunch included)
12:30 - 2:30 PM	**Pediatrics** *Moderator: Lori A. Karol, MD*
12:30 PM	**Hip** *William C. Warner Jr., MD*
1:00 PM	**Infection, Congenital, Developmental Problems/Miscellaneous** *Jeffrey R. Sawyer, MD*
1:30 PM	**Fractures of the Upper and Lower Extremities** *John M. Flynn, MD*
2:00 PM	**Lower Extremity** *Lori A. Karol, MD*
2:30 - 2:45 PM	**STRETCH BREAK**
2:45 - 4:15 PM	**Spine** *Moderator: David L. Skaggs, MD*
2:45 PM	**Trauma** *Jens R. Chapman, MD*
3:15 PM	**Degenerative** *Todd J. Albert, MD*
3:45 PM	**Pediatric** *David L. Skaggs, MD*
4:15 - 4:30 PM	**STRETCH BREAK**
4:30 – 5:35 PM	**Tumors and Metabolic Bone Disease** *Moderator: Albert J. Aboulafia, MD*
4:30 PM	**Tumors** *Albert J. Aboulafia, MD*
5:00 PM	**Metabolic Bone Disease** *Joseph M. Lane, MD*
5:35 PM	**Adjourn**

Continental breakfast and a box lunch are included in the fee, which is $300 in advance and $400 on-site.

Attention U.S. Orthopaedic Residents! Discounted tickets are available for the Orthopaedic Review Course. Advance tickets are $120 and tickets purchased on-site are $160.

Call For Abstracts

Contribute to the advancement of orthopaedic science and practice

Share your research with orthopaedic surgeons from around the world at the **2014 Annual Meeting**. Nowhere else will your discoveries reach such a wide-ranging orthopaedic audience.

Submissions open April 1, 2013. Watch for announcements!

Submit full-page abstracts, attach images, and more!
Present your research to its best advantage on our user-friendly website.

ATTENTION SUBMITTERS: **DISCLOSURE RULES**

Submissions due June 1, 2013

All presenters and co-authors must disclose financial relationships in the AAOS Orthopaedic Disclosure Program. The disclosure must be entered or updated as of April 1, 2013. Abstracts will not be graded without all disclosures.

2014 Annual Meeting

March 11 - 15

New Orleans, LA

AAOS
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Now YOU decide when and where to see

Annual Meeting Symposia Webcasts

Annual Meeting Symposia bring you today's hottest topics, presented by surgeons who are shaping the future of the orthopaedic specialty. Now, no matter how busy your schedule —you can "attend" more than 20 symposia – anytime and anywhere:

- **During the meeting, webcasts will be streamed live** to your mobile device using the AAOS Mobile Meeting Guide app or to your computer (www.aaos.org/annual). You'll even be able to email questions to the moderators. Register at www.aaos.org/webcast
- **Free on demand streaming will be available through Sunday, March 24.** Symposia webcasts will be available for on demand streaming from the AAOS website (www.aaos.org/annual) beginning on the day after the live presentation.
- **After the meeting**—beginning in early April—look for the symposia webcasts in the AAOS online store. Purchase the symposia you're most interested in, then view them at your convenience. Save when you pre-order now at the AAOS Resouce Center.

Annual Meeting Symposia provide a rich overview and various viewpoints on specific topics, ranging from accountable care organizations to sports injury management.

Symposia available as webcasts include:

Title and Moderator	Classification	Symposium and Live Webcast	On Demand Streaming Available Starting
Lower Extremity Nailing: What Can Be Nailed, What Should be Nailed, and Technical Pearls for Success (A) *Moderator: Joshua Langford, MD*	Trauma	Tuesday: 8:00 – 10:00 AM Room S406	Wednesday: 10:00 AM
Worldwide Perspective on Hip Instability after Total Hip Replacement (B) *Moderator: Paul Beaule, MD*	Adult Reconstruction Hip	Tuesday: 10:30 AM – 12:30 PM Room S406	Wednesday: 12:30 PM
Accountable Care Organizations and Bundled Payments: Passing Trends or a New Paradigm? (C) *Moderator: Kevin J. Bozic, MD*	Practice Management	Tuesday: 1:30 – 3:30 PM Grand Ballroom	Wednesday: 3:30 PM
Controversies in Pediatric Sports Medicine (D) *Moderator: John D. Polousky, MD*	Pediatrics	Tuesday: 1:30 – 3:30 PM Room S406	Wednesday: 3:30 PM
Elbow Trauma Gone Wrong: How to Solve Complications (F) *Moderator: Joaquin Sanchez-Sotelo, MD*	Shoulder and Elbow	Tuesday: 4:00 – 6:00 PM Grand Ballroom	Wednesday: 6:00 PM
A Decade of Change in the Treatment of Pediatric & Adult Spinal Deformity: What Progress Has Been Made (G) *Moderator: John Dimar, MD*	Spine	Tuesday: 4:00 – 6:00 PM Room S406	Wednesday: 6:00 PM
Hot Topics in Total Hip and Knee Arthroplasty (I) *Moderator: Jay R. Lieberman, MD*	Adult Reconstruction	Wednesday: 8:00 – 10:00 AM Grand Ballroom	Thursday: 10:00 AM

and hear these Annual Meeting Symposia

Title and Moderator	Classification	Symposium and Live Webcast	On Demand Streaming Available Starting
How Orthopaedic Surgeons Get Into Trouble. Lessons from The AAOS Compliance Program. A Case Based Symposium (J) *Moderator: Thomas Green, MD*	General	Wednesday: 8:00 – 10:00 AM Room S406	Thursday: 10:00 AM
Inside Job: The Nuts and Bolts of Sports Injury Management (L) *Moderator: J. Chris Coetzee, MD*	Sports Medicine	Wednesday: 10:30 AM – 12:30 PM Grand Ballroom	Thursday: 12:30 PM
Measuring Quality in Orthopaedics (N) *Moderator: Joseph D. Zuckerman, MD*	General	Wednesday: 1:30- 3:30 PM Room S406	Thursday: 3:30 PM
Essential Surgical Techniques for Total Hip Arthroplasty: A Video-Based Symposium (P) *Moderator: Daniel J. Berry, MD*	Adult Reconstruction Hip	Thursday: 1:30 – 3:30 PM Grand Ballroom	Friday: 3:30 PM
Health Care Advocacy: Why and How (Q) *Moderator: John M. Froelich, MD*	General	Thursday: 1:30 – 3:30 PM Room S406	Friday: 3:30 PM
Eight Common Pitfalls In Shoulder Arthroplasty (S) *Moderator: Edward Craig, MD*	Shoulder and Elbow	Thursday: 4:00 – 6:00 PM Grand Ballroom	Friday: 6:00 PM
Debates on the Use of BMP in Spine Surgery (T) *Moderator: Jeffrey Wang, MD*	Spine	Thursday: 4:00 – 6:00 PM Room S406	Friday: 6:00 PM
Optimizing Management of Patients with Metal-on-Metal Hips (U) *Moderator: Adolph Lombardi, MD*	Adult Reconstruction Hip	Friday: 8:00 – 10:00 AM Grand Ballroom	Saturday: 10:00 AM
The Social and Economic Value of Orthopaedic Surgery (V) *Moderator: John Tongue, MD*	Practice Management	Friday: 8:00 – 10:00 AM Room S406	Saturday: 10:00 AM
New Concepts Regarding Athletic Induced Mild Traumatic (Concussion) and Catastrophic Brain Injuries (W) *Moderator: Barry Boden, MD*	Sports Medicine / Arthroscopy	Friday: 10:30 AM – 12:30 PM Grand Ballroom	Saturday: 12:30 PM
Changing the Surgical Education Paradigm: How Do You Teach Someone to Have the Surgical Skills of an Orthopaedic Surgeon? (X) *Moderator: Ranjan Gupta, MD*	General	Friday: 10:30 AM – 12:30 PM Room S406	Saturday: 12:30 PM
Improving Outcomes with Total Knee Arthroplasty (Z) *Moderator: Giles Scuderi, MD*	Adult Reconstruction Knee	Friday: 1:30 – 3:30 PM Grand Ballroom	Saturday: 3:30 PM
Hip Arthroscopy: To the Cutting Edge… Without Falling Off (BB) *Moderator: Dean Matsuda, MD*	Adult Reconstruction Hip	Friday: 4:00 – 6:00 PM Grand Ballroom	Saturday: 6:00 PM
Orthopaedic Trauma Mythbusters (CC) *Moderator: Robert Ostrum, MD*	Trauma	Friday: 4:00 – 6:00 PM Room S406	Saturday: 6:00 PM

Tuesday, March 19

SPECIAL SESSIONS – PRACTICE MANAGEMENT FOCUS

FREE

8:00 AM — 11:00 AM

150 **Basics of Coding for Starting Your Practice**

Moderator: Margaret Maley, BSN, MS, Chicago, IL

TICKET

Lakeside, Room E354a

You don't want to miss this fast-paced course introducing the most important coding topics to orthopaedic residents. Margaret Maley from KarenZupko & Associates brings energy and humor to this topic critical to orthopaedic practice management. By the end of the course you will:

- Define a New Patient Visit vs. an Established Patient Visit-Understand Relative Value Units (RVU's) are used to calculate your reimbursement or bonus if you are an employed physician
- Know how procedures are discounted by payors and how arthroscopic procedures are discounted differently
- Describe how modifiers protect reimbursement
- Understand what is included in the global surgical package.

Join us for this complimentary workshop that will be so important to your career!

SYMPOSIUM

FREE

12:00 PM — 5:30 PM
Lakeside, Room E354a

Practice Management Symposium for Orthopaedic Residents (151)

Moderator: Adolph J. Yates Jr, MD, Pittsburgh, PA

Learn how to evaluate practice opportunities, negotiate a contract, and much more. This symposium offers a rare opportunity to learn first-hand from experts on the legal and business aspects of orthopaedics in today's challenging environment. Topics include "How to Build a Successful Practice" and "Risk Management." A discussion on the ABOS and practice management resources available from the AAOS will also be offered.

(Lunch at 11:30 am)

I. Welcome
A.J. Yates, Jr, MD, Symposium Chair
Frederick Azar, MD, Second Vice President
Stuart Weinstein, MD, PAC representative

II. Evaluating Practice Opportunities
Ryan M. Dopirak, MD

III. Avoiding Ethical Disasters in the First Five Years
Charles Carroll, IV, MD
Kenneth C. Thomas, MD
Mark A. Yaffee, MD

IV. Negotiating a Contract
Steve M. Harris, JD

Break

V. Risk Management
Michael J. Rogal, MD, JD

VI. How to Build a Successful Practice
Ryan M. Dopirak, MD

VII. The American Board of Orthopaedic Surgeons: Resources and Process
Shepard R. Hurwitz, MD, Executive Director, ABOS

VIII. Adjourn/Questions and Answers

SYMPOSIUM

9:00 AM — 5:00 PM
Room S102

Practice Management Symposium for Practicing Orthopaedic Surgeons (152)

Moderators: Craig R. Mahoney, MD, West Des Moines, IA
Douglas R. Turgeon, MD, Dallas, TX

Don't miss this dynamic, educational event! Course Directors, Craig Mahoney, MD and Douglas Turgeon, MD developed "Dollars and Sense 2013 – Take Control of Your Finances and Your Future" as a deeper dive into the top four topics attendees want to learn more about; financial stability, bundled payments & negotiating strategies, billing and collections strategies, and marketing and promotion strategies. Regardless of your practice model, all physicians need useful information and effective techniques to be profitable and financially healthy. Our speakers will present practical tips and tools to simplify and clarify the activities of managing your practice. This one-of-a-kind opportunity to take control of your practice's finances and your future will feature an interactive town hall discussion focusing on topics of critical importance to orthopaedic surgeons.

I. Welcome and Introduction
Craig R. Mahoney, MD, West Des Moines, IA
Douglas R. Turgeon, MD, Dallas, TX

II. Financial Stability of a Practice
Michael McCaslin, CPA, Indianapolis, IN

III. New Provider Payment Models: Preparing for the Future
John Cherf, MD, MPH, MBA, Chicago, IL

IV. Revenue Cycle Review: What Surgeons Need To Know
Karen Zupko, Chicago, IL

V. Practice Style 2013 - Part 1
Louis F. McIntyre, MD, White Plains, NY

VII. Practice Style 2013 - Part 2
Ian J. Alexander, MD, Akron, OH

VIII. The Power of Nine
Bill Champion, Omaha, NE

IX. Audit Your Practice
Lawrence M. Elisco, Buffalo Grove, IL

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Tuesday, March 19

SPECIAL SESSIONS – PRACTICE MANAGEMENT FOCUS

1:30 — 4:30 PM

FREE

153 **The Top 10 Coding Errors Made by Practicing Orthopaedic Surgeons**
Moderator: Margaret Maley, BSN, MS, Chicago, IL

Room N228

Margaret Maley from KarenZupko & Associates brings logic and laughs to this workshop addressing frequent and costly reporting errors made by orthopaedic surgeons. At the conclusion of this course you will:

- Properly report services for a patient in the Emergency Room-Document what Medicare requires to justify the medical necessity of a total joint replacement
- Confidentiality report meniscectomy and removal of a loose body-Know how to document an E&M service and fracture care correctly
- Define the common use of the modifier 59 in knee and shoulder surgery-Report a consultation on a Medicare patient

This and much more will be packed into this course specifically designed for practicing.

SYMPOSIUM

8:00 AM — 10:00 AM
Room S406

Lower Extremity Nailing: What Can Be Nailed, What Should be Nailed, and Technical Pearls for Success (A)
Moderator: Joshua Langford, MD, Orlando, FL

Aimed to bring the practicing orthopedic surgeon up to date on advances in lower extremity nailing. From new approaches to specific tricks, this symposium will cover complex femoral and tibial nailing in a step by step format. There will be surgical videos, didactic lectures, and lively cased based discussion to facilitate the understanding of what can be nailed, what should be nailed, as well as technical pearls for success.

I. Welcome/Introduction
Joshua Langford, MD, Orlando, FL

II. Multilevel Tibial Fractures
Frank A. Liporace, MD, Englewood Cliffs, NJ

III. Surgical Technique: Suprapatellar Nailing
Joshua Langford, MD, Orlando, FL

IV. Interactive Tibial Cases
Faculty

V. Complex Proximal Femoral Fractures
Hassan R. Mir, MD, Nashville, TN

VI. Nailing Intraarticular Distal Femoral Fractures
Kenneth J. Koval, MD, Orlando, FL

VII. Interactive Femoral Cases
Faculty

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 10:00 AM

101 **High Performance Hip Replacement: What Is It? Who Is the Right Candidate?**
Moderator: John J. Callaghan, MD, Iowa City, IA
A. S. Greenwald, DPhil Oxon, Cleveland Heights, OH
Thomas P. Schmalzried, MD, Los Angeles, CA
Rafael J. Sierra, MD, Rochester, MN

Room S401d

More young active patients are requiring total hip replacement. Addresses the challenges of providing durable implants and results in this patient population.

102 **Personalized Approach to the Painful Aseptic Total Knee Arthroplasty**
Moderator: Khaled J. Saleh, MD, MSc, Springfield, IL
Douglas A. Dennis, MD, Denver, CO
Stuart B. Goodman, MD, Redwood City, CA
William M. Mihalko, MD, PhD, Germantown, TN

Room S106

Participants will become familiar with the modalities used for diagnosing the cause of TKA pain, including examination, laboratory markers, imaging modalities, as well as intra- and extra-articular causes with non-operative and operative managements.

103 **Management of Complications of Common Foot and Ankle Surgeries**
Moderator: Mark S. Myerson, MD, Baltimore, MD
J. Chris Coetzee, MD, Golden Valley, MN
Steven L. Haddad, MD, Glenview, IL
William C. McGarvey, MD, Katy, TX

Room S503

Strategies for managing common complications following foot and ankle surgery. Present an approach to reconstruction and salvage of complications of the forefoot, midfoot, hindfoot and ankle, presented in a didactic and case based format.

The following symbols appear next to the educational sessions and indicate one or more of the following:

◆ U.S. Food and Drug Administration has not cleared the drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an off label use). For full information, refer to page 17.

TICKET For those who have not registered or purchased these tickets in advance, available tickets may be purchased when registering on-site.

An Audience Response System will be featured in several courses and symposia.

Symposia that are being Webcast, you can watch it live on your smart phone, laptop or tablet.

The Board of Specialty Societies logo next to an educational session indicates the session is co-branded with AAOS and that society.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Tuesday, March 19

104 **Managing the Increasing Demand for Total Joint Arthroplasty: An International Perspective**


Room S103a

Moderator: Stefano A. Bini, MD, San Francisco, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA
Enrique Guerado, MD, Marbella, Spain
Kazuo Hirakawa, MD, PhD, Kamakura, Japan

Focuses on the strategies adopted in Japan, the EU and the US to address this challenge in the face of decreasing per capita resources. The importance lies in understanding how these policies might affect practice once implemented.

105 **Complications of Common Hand Surgery Procedures**

Room S504a

Moderator: A Lee Osterman, MD, Villanova, PA
Joshua M. Abzug, MD, Timonium, MD
James Chang, MD, Palo Alto, CA
Peter J. Stern, MD, Cincinnati, OH

Address common complications of hand surgeries and how to avoid them. Procedures range from carpal and cubital tunnel release, hand and wrist fractures, joint injuries such as PIPJ fracture dislocations, tendon repairs and tendon release procedures. Tips to avoid the pitfalls algorithms for their treatment and management.

106 **Advanced Surgical Techniques in the Adolescent Hip**


Room S402a

Moderator: Ernest L. Sink, MD, New York, NY
Young J. Kim, MD, Boston, MA
Michael Leunig, MD, Zurich, Switzerland
Ira Zaltz, MD, Royal Oak, MI

Novel surgical treatments will be discussed by lecture and case presentations for adolescent femoroacetabular impingement, acute and chronic SCFE and Perthes/ avascular necrosis.

107 **Shoulder Instability: An International Perspective on Treatment**

Room S502

Moderator: Jon J. P. Warner, MD, Boston, MA
Christian Gerber, MD, Zurich, Switzerland
Eiji Itoi, MD, Sendai, Japan
Laurent Lafosse, MD, Annecy, France

Present the best evidence in support of conservative and operative management of traumatic shoulder instability. Specific consideration will be given to the natural history of traumatic instability and soft tissue Bankart Repair vs boney solutions such as Latarjet and Bone Grafting.

108 **Knee MLI Injuries: A Case-Based Approach**


Room S104

Moderator: Mark D. Miller, MD, Charlottesville, VA
Christopher D. Harner, MD, Pittsburgh, PA
Darren L. Johnson, MD, Lexington, KY
Claude T. Moorman III, MD, Durham, NC

After introductory lectures, Knee MLI cases will be presented and discussed between the faculty and the attendees.

109 **Treatment of Tibial Plateau Fractures**


Lakeside, Room E352

Moderator: Thomas F. Higgins, MD, Salt Lake City, UT
David Barei, MD, FRCS(C), Seattle, WA
Robert V. O'Toole, MD, Baltimore, MD
James P. Stannard, MD, Columbia, MO

Feature a case-based format to discuss expert advice and best evidence on timing, soft tissue handling, ligament injuries and geriatric fractures relevant to treatment of uni- and bi-condylar tibial plateau fractures.

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 11:00 AM

181 **Trauma Review Course**

Room N228

Moderator: Paul Tornetta III, MD, Boston, MA
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Robert F. Ostrum, MD, Chapel Hill, NC
Andrew H. Schmidt, MD, Minneapolis, MN
J. Tracy Watson, MD, Saint Louis, MO

This course will review recent state of the art management of common fractures as well as future directions and evolving treatments. A complimentary session on the basics of Maintenance of Certification will follow this review course.

182 **Shoulder and Elbow Review Course**

Room S501

Moderator: Robert M. Orfaly, MD, Portland, OR
Carl Basamania, MD, Shoreline, WA
Lana Kang, MD, New York, NY
John W. Sperling, MD, MBA, Rochester, MN

The diagnosis and treatment options for common adult shoulder and elbow conditions are reviewed as well as recent advances and changes in standard of care. A complimentary session on the basics of Maintenance of Certification will follow this review course.

◆ 183 **Spine Review Course**

Lakeside, Room E350

Moderator: Thomas J. Errico, MD, New York, NY
Todd J. Albert, MD, Philadelphia, PA
John A. Bendo, MD, New York, NY
Frank J. Schwab, MD, New York, NY
Alexander Vaccaro, MD, PhD, Gladwyne, PA

Updates on cervical degenerative spine surgery; thoracic and lumbar degenerative spine surgery; spinal trauma surgery and adult spinal deformity surgery. A complimentary session on the basics of Maintenance of Certification will follow this review course.

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Tuesday, March 19

184 **Sports Medicine Review Course**

Room S405

Moderator: Bruce S. Miller, MD, MS, Ann Arbor, MI
Asheesh Bedi, MD, Ann Arbor, MI
Thomas M. DeBerardino, MD, Farmington, CT
James MacDonald, MD, FAAFP, Dublin, OH

This course is a primer for the upcoming Sports Medicine Subspecialty Certification Examination. This three hour session will highlight sports injuries of the shoulder and knee and medical topics in sports medicine. A complimentary session on the basics of Maintenance of Certification will follow this review course.

185 **Hand and Wrist Review Course**

Lakeside, Room E351

Moderator: Martin A. Posner, MD, New York, NY
Steven M. Green, MD, New York, NY

Those hand and wrist problems that are generally the focus of certifying examinations will be discussed including pertinent anatomy, pathophysiology, clinical and imaging findings and treatment. A complimentary session on the basics of Maintenance of Certification will follow this review course.

PAPER PRESENTATIONS

8:00 AM — 10:00 AM
Room N427

Adult Reconstruction Knee I: Basic Science
Moderator(s): Brett R. Levine, MD, Chicago, IL
Martyn Porter, MD, Wigan, United Kingdom

8:00 AM **PAPER: 1**

In-vivo Function of the Medial and Lateral Collateral Ligaments in High Flexion of the Knee
Wei Qi, MD, Boston, MA
Ali Hosseini, MS, Boston, MA
Harry E. Rubash, MD, Boston, MA
Guoan Li, PhD, Boston, MA

The collateral ligaments do not elongate uniformly along the flexion path. The different roles of various portions should be considered before releasing the collateral ligaments during TKA.

8:06 AM **PAPER: 2**

Relationship Between Vascular Endothelial Growth Factor and Radiographic Severity in Primary Knee Osteoarthritis
Sittisak Honsawek, MD, PhD, Bangkok, Thailand
Aree Tanavalee, MD, Bangkok, Thailand
Srihatach G. Ngarmukos, MD, Bangkok, Thailand
Saran Tantavisut, Bangkok, Thailand
Thanathep Tanpowpong, Bangkok, Thailand

VEGF levels in both plasma and synovial fluid were positively correlated with the severity of knee OA. The VEGF polymorphisms could contribute to the susceptibility to knee OA.

8:12 AM **PAPER: 3**

Routine Fungal and Acid Fast Bacilli Cultures in Presumed Aseptic Revisions is Unwarranted
Anthony T. Tokarski, BS, Philadelphia, PA
Joseph T. O'Neil, BA, Wayne, PA
Joseph L. Ferguson, Philadelphia, PA
Benjamin Zmistowski, BS, Philadelphia, PA
Carl A. Deirmengian, MD, Wynnewood, PA
Gregory K. Deirmengian, MD, Broomall, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

For presumed aseptic hip and knee revisions, positive fungal and AFB cultures are quite rare and in the vast majority of cases, appear to be contaminants.

Discussion - 6 Minutes

8:24 AM **PAPER: 4**

◆ Betadine Wash Reduces Implant Related Bacterial Burden in a Rabbit Knee Prostheses Infection Model
Mohit Gilotra, MD, Baltimore, MD
Thao Nguyen, MD, Baltimore, MD
David E. Jaffe, MD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD

Dilute betadine wash decreases implant related bacterial counts and may be used as a treatment adjunct in acute postoperative arthroplasty infection.

8:30 AM **PAPER: 5**

Effect of Vitamin E on Outcomes, Oxidative Stress Levels in Blood, Joint Fluid and Synovial Tissue in Late Stage Knee OA
Saran Tantavisut, Bangkok, Thailand
Aree Tanavalee, MD, Bangkok, Thailand
Sittisak Honsawek, MD, PhD, Bangkok, Thailand
Yutthana Khanasuk, MD, Bangkok, Thailand
Sarit Hongvilai, Bangkok, Thailand
Srihatach G. Ngarmukos, MD, Bangkok, Thailand
Yongsak Wangroongsub, MD, Bangkok, Thailand

A 2-month application of 400 iu daily dose of vitamin E in late stage OA knee patients provided improved WOMAC score with supportive laboratory data.

8:36 AM **PAPER: 6**

◆Role of Rifampin plus Vancomycin or Tigecycline Against a S. aureus Implant Infection in Mice
Jared Niska, MD, Los Angeles, CA
Shahbazian Jonathan, Los Angeles, CA
Romela Irene Ramos, MS, Los Angeles, CA
Lloyd Miller, MD, PhD, Baltimore, MD

In this mouse model of surgical implant infection, treatment with tigecycline and rifampin was more effective than vancomycin at eliminating infection in the joint tissue and on the implant.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Tuesday, March 19

8:48 AM **PAPER: 7**

The Impact of Depression Following Total Joint Arthroplasty: A Nationwide Database Study

Wendy Novicoff, PhD, Charlottesville, VA
Michele R. D'Apuzzo, MD, Charlottesville, VA
James A. Browne, MD, Charlottesville, VA

Depression is a serious comorbidity that can impact outcomes after TJA. The rate of diagnosis has increased markedly over the last ten years, and treatment is essential.

8:54 AM **PAPER: 8**

Constitutional Varus Does Not Affect Joint Line Orientation in the Coronal Plane

Peter Verdonk, MD, PhD, Ghent, Belgium
David Bassens, MD, Ghent, Belgium
Aad Dhollander, MD, PT, PhD, De Klinge, Belgium
Sarper Gursu, MD, Istanbul, Turkey
Johan Bellemans, MD, Langdorp, Belgium
Jan M. Victor, MD, Gent, Belgium

People with neutral coronal alignment have a joint line parallel to the floor. This parallelism is preserved in individuals with constitutional varus alignment but not in people with valgus alignment.

9:00 AM **PAPER: 9**

Why do TKAs Survive? Soft Tissue Balancing Comparisons of Well Functioning TKA Retrievals

William M. Mihalko, MD, PhD, Germantown, TN
Jason A. Lindsey, Memphis, TN
Devin Conner, BS, Memphis, TN
Tyler R. Palumbo, BS, Memphis, TN
John L. Williams, PhD, Memphis, TN

This is the first study that investigates the soft tissue balancing of well functioning TKAs at necropsy through a retrieval program showing asymmetric laxity in the coronal plane.

Discussion - 6 Minutes

9:12 AM **PAPER: 10**

Does Bacteriuria Preop Increase the Risk of Deep Joint Sepsis After Joint Arthroplasty?

Kathryn McRoy, MBBS, Carlisle, United Kingdom
Manish Changulani, MS, MRCS, Newcastle Upon Tyne, United Kingdom
Ramasubramanian Dharmarajan, MBBS, FRCS, Carlisle Cumbria, United Kingdom

Does bacteriuria increase the risk of deep joint sepsis after joint arthroplasty?

9:18 AM **PAPER: 11**

Subclinical Systemic Inflammation in Obese Total Knee Arthroplasty Patients

Syed Azim, MD, Stony Brook, NY
James J. Nicholson, MD, Setauket, NY
Ruth A. Reinsel, PhD, Stony Brook, NY
Mario Rebecchi, PhD, Stony Brook, NY
Helene Benveniste, MD, PhD, Stony Brook, NY

Prospective study of subclinical inflammatory proteins in obese knee arthroplasty patients.

9:24 AM **PAPER: 12**

Effectiveness of Aspiration in Knee Joint Effusion Management: A Prospective Randomized Controlled Study

Nikolaos K. Paschos, MD, Davis, CA
Dimitrios Giotis, Ioannina, Greece
Emillios Pakos, Ioannina, Greece
Anastasos Georgoulis, Ioannina, Greece

In this randomized study, aspiration compared to non-aspiration for knee effusion resulted in temporary improvement but overall in worse outcome. History of trauma was a decisive factor for treatment.

Discussion - 6 Minutes

9:36 AM **PAPER: 13**

Elevated Blood Glucose and Hemoglobin A1C Associated with Wound Complication Following Total Joint Arthroplasty

Louis S. Stryker, MD, Charlotte, NC
Matthew P. Abdel, MD, New York, NY
Mark E. Morrey, MD, Rochester, MN
Daryl J. Kor, MD, Rochester, MN
Bernard F. Morrey, MD, San Antonio, TX

Mean perioperative blood glucose > 200 mg/dL, maximum blood glucose > 260 mg/dL, or HgA1C > 6.7% have odds ratios of 3.75, 3.0 and 9.0, respectively, for wound complication after joint arthroplasty.

9:42 AM **PAPER: 14**

Synovial Fluid Differential Cell Count in Wear Debris Synovitis after Total Knee Replacement

Ran Schwarzkopf, MD, Irvine, CA
Meagan E. Tibbo, Atlanta, GA
Richard D. Scott, MD, Boston, MA
Lee Josephs, Wellesley, MA
Evan M. Carlson, MS, Hanover, NH
John H. Currier, MS, Hanover, NH
Douglas Van Citters, PhD, Hanover, NH

The present study identified the value of monocyte cell count as a possible tool to diagnose abnormal wear rates of the tibial polyethylene insert.

Tuesday

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Tuesday, March 19

9:48 AM **PAPER: 15**

Treating Chondral Defects with Stem Cells Compromised to the Chondrocyte Lineage and Platelet Rich Plasma
Alex Vaisman, MD, Santiago, Chile
David Figueroa, MD, Santiago, Chile
Rafael Calvo, MD, Santiago, Chile
Maximiliano Espinosa, MD, Santiago, Chile

We show that treating chondral defects with a collagen scaffold with stem cells compromised to the chondrocitic lineage and PRP does not generate hyaline cartilage in an animal model.

Discussion - 6 Minutes

INSTRUCTIONAL COURSE LECTURE

11:30 AM — 12:30 PM

MOC **Maintenance of Certification: The Basics**
Room S105
Moderator: Joseph A. Bosco III, MD, New York, NY
Shep Hurwitz, MD, Chapel Hill, NC

Cover strategies important to taking a multiple choice test and provide details on taking a computerized examination. This session will cover information that you need to know for maintenance of certification. This session will feature a look at the AAOS Learning Portfolio, designed to assist you in Maintenance of Certification. This session is complimentary for anyone who attended ICL 181-185.

SYMPOSIUM

10:30 AM — 12:30 PM
Room S406

◆Worldwide Perspective on Hip Instability after Total Hip Replacement (B)
Moderator: Paul E. Beaule, MD, Ottawa, ON, Canada

The cost and morbidity associated with hip instability after total hip replacement remains significant. Although various implant designs and surgical techniques have been proposed, consensus on which ones are most efficacious is still lacking. This symposium will present an up to date worldwide perspective.

I. Current Incidence and Natural History
John C. Clohisy, MD, Saint Louis, MO

II. Pathomechanisms of Hip Instability
Thomas D. Brown, PhD, Iowa City, IA

III. Costs and Technological Considerations in the Management of Hip Instability
Kevin J. Bozic, MD, MBA, San Francisco, CA

DEBATES

IV. Dislocation Precautions Are Not Necessary
(For) William J. Hozack, MD, Philadelphia, PA,
(Against) Michael Tanzer, MD, Montreal, QC, Canada

V. Anterior Approach is the Answer
(For) Michael Leunig, MD, Zurich, Switzerland,
(Against) Fares Haddad, MD, London, United Kingdom

VI. Navigation is the Ultimate Answer
(For) Robert T. Trousdale, MD, Rochester, MD,
(Against) Andrew J. Shimmin, MD, Windsor, Australia

VII. Modular Necks Can Minimize the Risk of Hip Instability
(For) Aldo Toni, MD, Bologna, Italy,
(Against) Michael Dunbar, MD, Halifax, NS, Canada

VIII. Large Femoral Head Size is the Solution
(For) Donald S. Garbuz, MD, Vancouver, BC, Canada,
(Against) Keith R. Berend, MD, New Albany, OH

IX. With Dual Mobility Constrained Liners Are No Longer Needed
(For) Moussa Hamadouche, PhD, Paris, France,
(Against) John J. Callaghan, MD, Iowa City, IA

Case Discussion
William J. Hozack, MD, Philadelphia, PA

INSTRUCTIONAL COURSE LECTURE

10:30 AM — 12:30 PM

121 **Hip Pain in the Young, Active Patient: Surgical Strategies**
TICKET
Lakeside, Room E352
Moderator: Matthew Austin, MD, Philadelphia, PA
Joseph C. McCarthy, MD, Newton, MA
Michael A. Mont, MD, Baltimore, MD
Christopher L. Peters, MD, Salt Lake City, UT

Indications, results, and techniques of various surgical options for managing hip pain in young patients will be discussed. A balanced approach will be taken.

122 **Video Techniques in Revision Total Knee Replacement**
TICKET
Room S502
Moderator: David F. Dalury, MD, Baltimore, MD
William L. Griffin, MD, Charlotte, NC
Arlen D. Hanssen, MD, Rochester, MN
Giles R. Scuderi, MD, New York, NY

Use videos to demonstrate technical tips for revision TKR. Topics will include, surgical approaches, soft tissue management techniques, and bony reconstruction options in the revision setting.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Tuesday, March 19

123 **Tendon Transfers about the Foot and Ankle**
Room S106
Moderator: Keith L. Wapner, MD, Philadelphia, PA
Bruce E. Cohen, MD, Charlotte, NC
Thomas H. Lee, MD, Westerville, OH

Cover the options of tendon transfers about the foot and ankle for a range of disorders from chronic tendon injury, tendinosis to the use of tendon transfers for reconstructive and realignment in stroke and other neuromuscular disorders. Principles of tendon transfer and the various techniques will be reviewed with emphasis on surgical videos.

◆124 **PRP, BMP and Stem Cells: What Surgeons Need to Know**
Room S503
Moderator: S. T. Yoon, MD, PhD, Atlanta, GA
Evan L. Flatow, MD, New York, NY
Joseph M. Lane, MD, New York, NY
J. T. Watson, MD, Saint Louis, MO

Discuss the most important biologics in orthopaedic surgery, including growth factors, cell therapy and pharmacologics to promote bone and soft-tissue healing.

125 **Complications of Pediatric Spinal Surgery: Identification, Evaluation, Treatment and Prevention**
Room S402b
Moderator: Scott J. Luhmann, MD, Saint Louis, MO
Lawrence G. Lenke, MD, Saint Louis, MO
David L. Skaggs, MD, Los Angeles, CA
Michael G. Vitale, MD, Brooklyn, NY

Focuses on intra-operative and post-operative problems which arise during the surgical treatment of pediatric spinal deformity. Emphasis on prevention and optimal treatment of complications.

126 **Selection, Implementation and Interpretation of Patient Centered Orthopedic Outcomes**
Room S104
Moderator: Richard J. Hawkins, MD, Greenville, SC
John E. Kuhn, MD, Nashville, TN
Robert B. Litchfield, MD, London, ON, Canada
Nick G. Mohtadi, MD, Calgary, Canada

Model strategies for tool selection, implementation, and interpretation to optimize musculoskeletal patient care and practice sustainability.

127 **The Unstable Elbow: Current Concepts in Diagnosis and Treatment**
Room S401d
Moderator: Jay D. Keener, MD, Saint Louis, MO
Christopher S. Ahmad, MD, New York, NY
John-Erik Bell, MD, Hanover, NH
Robert Z. Tashjian, MD, Salt Lake City, UT

Provides a systematic approach to the diagnosis and management of patients with recurrent elbow instability ranging from traumatic onset instability to overhead athletes.

◆ 128 **Advances in Cervical Deformity Surgery**
Room S402a
Moderator: Alok D. Sharan, MD, New York, NY
James Kang, MD, Pittsburgh, PA
Ahmad Nassr, MD, Rochester, MN
K. Daniel Riew, MD, Saint Louis, MO

Proper evaluation of the patient with a coronal and sagittal cervical deformity. Techniques of deformity correction will be discussed including the use of advanced osteotomies.

129 **The Assessment and Treatment of Failed Patellar Stabilization**
Room S504a
Moderator: Laurie Hiemstra, MD, Banff, Canada
Lars Blond, MD, Greve, Denmark
Peter B. MacDonald, MD, Winnipeg, MB, Canada
William R. Post, MD, Morgantown, West VA

This course is designed to address the challenge of treating the patient with failed patellar stabilization. Participants will learn to identify the underlying mechanisms behind failure of patellar stabilization and discuss clinical solutions for various presentations.

130 **Improving Outcomes: Understanding the Psycho-Social Aspects of the Orthopaedic Trauma Patient**
Room S103a
Moderator: Paul Levin, MD, Bronx, NY
Michael J. Bosse, MD, Charlotte, NC
Pamela K. Greenhouse, MBA, Pittsburgh, PA
Ellen MacKenzie, PhD, Baltimore, MD

Delivery of exceptional patient and family care experiences leads to better outcmes, safety, quality and efficiencies.

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room N427

Trauma I: Ankle and Pilon
Moderator(s): Amer J. Mirza, MD, Portland, OR
Ivan S. Tarkin, MD, Pittsburgh, PA

10:30 AM **PAPER: 16**
Predictive Radiographic Markers for Concomitant Ipsilateral Ankle Injuries in Tibial Shaft Fractures
Patrick C. Schottel, MD, New York, NY
Marschall B. Berkes, MD, New York, NY
Milton T. Little, MD, New York, NY
Lionel E. Lazaro, MD, New York, NY
Nadine Pardee, BS, New York, NY
Joseph Nguyen, MPH, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

Ipsilateral ankle injuries including PMFs, AITFL avulsion fractures and medial malleolar fractures are commonly associated with tibial shaft fractures, specifically distal third spiral type.

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Tuesday, March 19

10:36 AM **PAPER: 17**

Ankle Radiographs in the Early Postoperative Period: Do they Matter?

Matthew R. McDonald, BS, Nashville, TN
Jesse Ehrenfeld, MD, MPH, Nashville, TN
Amir A. Jahangir, MD, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

A retrospective chart review of patients with ankle fractures revealed no significant relationship between timing of first postoperative radiographs and complication rates.

10:42 AM **PAPER: 18**

Assessment of Ankle Articular Reduction after Surgical Fixation: Sensitivity and Specificity of Plain Radiographs

Matthew R. Garner, MD, New York, NY
Marschall B. Berkes, MD, New York, NY
Milton T. Little, MD, New York, NY
Patrick C. Schottel, MD, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

After review of 122 patients with ankle ORIF, interobserver reliability and specificity for XR are high when assessing ankle articular congruency, however, the sensitivity was found to be only 0.23.

Discussion - 6 Minutes

10:54 AM **PAPER: 19**

Articular Congruity Predicts Short-Term Clinical Outcomes of Operatively Treated SER IV Ankle Fractures

Marschall B. Berkes, MD, New York, NY
Milton T. Little, MD, New York, NY
Lionel E. Lazaro, MD, New York, NY
Nadine Pardee, BS, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

In this population of operatively treated SER IV ankle fractures, the presence of postoperative articular incongruity correlated with inferior clinical outcomes.

11:00 AM **PAPER: 20**

Clinical Outcomes of Pronation External Rotation Type IV Ankle Fractures

Marschall B. Berkes, MD, New York, NY
Milton T. Little, MD, New York, NY
Matthew R. Garner, MD, New York, NY
Patrick C. Schottel, MD, New York, NY
Nadine Pardee, BS, New York, NY
Lionel E. Lazaro, MD, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

PER IV ankle fractures treated with fragment specific fixation and syndesmotic stabilization experienced good clinical outcomes which were comparable to those seen in SER IV ankle fractures.

11:06 AM **PAPER: 21**

Immediate Weightbearing After Open Reduction/Internal Fixation of Ankle Fractures

Reza Firoozabadi, MD, Seattle, WA
Emily C. Harnden, MD, Seattle, WA
Julie Agel, Seattle, WA
James C. Krieg, MD, Seattle, WA

Immediate post operative weight bearing as tolerated in a certain subset of patients with stable osteosynthesis of their fractured ankles is a plausible alternative to delayed weight bearing.

Discussion - 6 Minutes

11:18 AM **PAPER: 22**

Tightrope for Ankle Syndesmosis Injuries

Amarjit Anand, MBBS, BSc, Middlesex. London, United Kingdom
Bobby Anand, FRCS (Ortho), MBBS, North Wembley Middlesex, United Kingdom
Akash Patel, MBBS, London, United Kingdom
Vikas Vedi, MD, Gerrards Cross, United Kingdom

The use of tightrope is an acceptable and attractive alternative to the use of diastasis screws for well-selected cases. Good surgical technique is required.

11:24 AM **PAPER: 23**

A Clinical Evaluation of Alternative Fixation Techniques for Medial Malleolus Fractures

Hayley C. Barnes, Pittsburgh, PA
Lisa K. Cannada, MD, Clayton, MO
J. Tracy Watson, MD, Saint Louis, MO

Our purpose is to report the results of patients with medial malleolar fractures treated with headless compression screws in terms of union, need for hardware removal, and pain over the hardware site.

11:30 AM **PAPER: 24**

Does the Fibula Need to be Fixed in Complex Pilon Fracture

John Kurylo, MD, Boston, MA
Neil Datta, BA, New City, NY
Kendra N. Iskander, MD, MPH, Boston, MA
Paul Tornetta III, MD, Boston, MA

Although it may be helpful in specific cases to aid in reduction or augment external fixation, fibular fixation is not a necessary step in the reconstruction of pilon fractures.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Tuesday, March 19

11:42 AM **PAPER: 25**

Anterolateral versus Anteromedial Surgical Approach for Pilon Fractures: A Clinical and Functional Comparison

Brett D Crist, MD, Columbia, MO
Tyler J. Jenkins, BS, Columbia, MO
Michael S. Khazzam, MD, Southlake, TX
Yvonne M. Murtha, MD, Wichita, KS
Gregory J. Della Rocca, MD, PhD, Columbia, MO

The anterolateral surgical approach used for pilon fractures appears to result in fewer complications when compared to the anteromedial approach despite being used for more complex fractures.

11:48 AM **PAPER: 26**

Medium-Term Outcomes of High-Energy Pilon Fractures: Camparison of Internal and External Fixation Methods

Syed Nawaz, MRCS, Surrey, United Kingdom
Nikolai Briffa, MSc, MD, Surrey, United Kingdom
Kevin Newman, Guildford Surrey, United Kingdom
David Elliott, Teddington, United Kingdom
Arshad Khaleel, MD, Chertsey, United Kingdom

The use of the internal or external fixation methods showed no statistical differences in outcome but had the ilizarov group had fewer soft tissue complications but had similar outcomes at medium-term follow up.

11:54 AM **PAPER: 27**

Entrapped Posteromedial Structures in Pilon Fractures

Jonathan G. Eastman, MD, Sacramento, CA
Reza Firoozabadi, MD, Seattle, WA
Stephen K. Benirschke, MD, Seattle, WA
David Barei, MD, FRCS(C), Seattle, WA
Robert P. Dunbar, MD, Seattle, WA

CT images of pilon fractures can demonstrate interposed posteromedial structures and then allow for appropriate preoperative planning for extraction and subsequent reduction and internal fixation.

Discussion - 6 Minutes

12:06 PM **PAPER: 28**

Is There a Role for Intramedullary Nails in the Treatment of Simple Pilon Fractures?

Matthew S. Marcus, MD, Newark, NJ
Richard S. Yoon, MD, New York, NY
Joshua Langford, MD, Orlando, FL
Erik Kubiak, MD, Salt Lake City, UT
Andrew Morris, BS, Midvale, UT
Kenneth J. Koval, MD, Orlando, FL
George J. Haidukewych, MD, Orlando, FL
Frank A. Liporace, MD, Englewood Cliffs, NJ

Rationale and preliminary results for intramedullary nailing of simple pilon fractures.

12:12 PM **PAPER: 29**

◆ Data Driven Implant Design for the OTA/AO Type 43C3 Pil on Fracture

Brian W. Hill, MD, Saint Paul, MN
Paul M. Lafferty, MD, Woodbury, MN
Thuan V. Ly, MD, Saint Paul, MN
Peter A. Cole, MD, Saint Paul, MN

A new custom anterior pilon plate designed to address tibia pilon mapping data, consistently addressed the fracture patterns in OTA/AO type 43C3 tibial pilon fractures.

12:18 PM **PAPER: 30**

New Subdivision of the Hawkins Classification for Talar Neck Fractures Predicts Osteonecrosis

Stephen Reichard, MD, Cleveland Heights, OH
Heather A. Vallier, MD, Cleveland, OH
Alysse Boyd, MA, Cleveland, OH
Timothy A. Moore, MD, Shaker Heights, OH

Separating Hawkins II fractures into those with subtalar subluxation (IIA) versus dislocation (IIB) was predictive of AVN after talar neck fracture. AVN never occurred without subtalar dislocation.

Discussion - 6 Minutes

SYMPOSIUM

1:30 PM — 3:30 PM
Grand Ballroom

Accountable Care Organizations and Bundled Payments: Passing Trends or a New Paradigm? (C)

Moderator: Kevin J. Bozic, MD, MBA, San Francisco, CA

Evaluate the impact of accountable care organization and bundled payments on orthopaedic practice, and the organizational proficiencies necessary for successful participation.

I. Overview
Kevin J. Bozic, MD, MBA, San Francisco, CA

II. ACO's and Bundled Payments: Separating Hype from Reality
John Cherf, MD, MPH, MBA, Chicago, IL

III. Developing and Implementing Bundled Payments in Orthopaedics
Steven F. Schutzer, MD, Farmington, CT

IV. Population Health Management: A New Paradigm for Orthopaedics
Geoffrey Walton, MHA, Concord, MA

V. The Hospital's Perspective on Orthopaedic Service Lines and Provider Integration
Lee Sacks, MD, Oak Brook, IL

VI. Discussion, Q & A
All Faculty

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Tuesday, March 19

SYMPOSIUM
1:30 PM — 3:30 PM
Room S406

Controversies in Pediatric Sports Medicine (D)
Moderator: John D. Polousky, MD, Greenwood Village, CO

Case-based debate examining treatment options for four common pediatric sports injuries: ACL, patellofemoral instability, clavicle fractures and medial epicondyle fractures. For each topic, 2-3 cases will be presented.

I. Introduction
John D. Polousky, MD, Greenwood Village, CO

II. Adolescent Clavicle Fractures
Kevin G. Shea, MD, Boise ID and John D. Polousky, MD, Greenwood, CO

III. Medial Epicondyle Fractures
Donald S. Bae, MD, Boston, MA and Lawrence Wells, MD, Philadelphia, PA

IV. Patello-femoral Instability
Jennifer M. Weiss, MD, Los Angeles, CA and Daniel W. Green, MD, New York, NY

V. Skeletally Immature ACL
Theodore J. Ganley, MD, Philadelphia, PA and Minider S. Kocher, MD, MPH, Boston, MA

SYMPOSIUM
1:30 PM — 3:30 PM
Room S105

Translational Research in Orthopaedics: Structural Bone Allograft from Benchtop to Bedside (E)
Moderator: Robert A. Hart, MD, Portland, OR

Techniques for selection and processing of allograft bone based on basic biological and biomechanical research, as well as the ultimate clinical applications of structural allograft bone in multiple orthopaedic sub-specialties are described

I. Donor Safety and Screening
Steven Gitelis, MD, Chicago, IL

II. Clinical Applications of Allograft in Tumor Reconstruction
Steven Gitelis, MD, Chicago, IL

III. Clinical Applications of Allograft Bone in Revision Arthroplasty of the Hip
Allan E. Gross, MD, FRCSC, Toronto, ON, Canada

IV. Is There a Role for Biomechanical Standards for Allograft Bone Performance?
Robert A. Hart, MD, Portland, OR

V. Clinical Applications of Allograft Bone in Spinal Fusion
Robert A. Hart, MD, Portland, OR

VI. Tissue Processing Techniques and Effects
Ross M. Wilkins, MD, Evergreen, CO

INSTRUCTIONAL COURSE LECTURE

1:30 PM — 3:30 PM

141 **Bearing Surfaces and Total Hip Arthroplasty: Clinical Outcomes and Avoidance, Management of Adverse Events**
Moderator: Jay R. Lieberman, MD, Los Angeles, CA
William J. Hozack, MD, Philadelphia, PA
Steven J. MacDonald, MD, London, ON, Canada
William J. Maloney, MD, Redwood City, CA
Lakeside, Room E351

Total Hip Arthroplasty is a successful procedure but the bearing surfaces used are still limiting outcomes. Clinical outcomes, strategies to optimally manage these adverse events and selection of the appropriate bearing surface for your patients will be reviewed.

142 **The Perioperative Management in Total Knee Arthroplasty**
Moderator: Robert M. Meneghini, MD, Fishers, IN
Pete Caccavallo, MD, Fishers, IN
Brett R. Levine, MD, Chicago, IL
Bryan D. Springer, MD, Charlotte, NC
Lakeside, Room E352

Perioperative care of knee arthroplasty patients focused on evidence and value driven recommendations for medical management, blood conservation, pain management, infection prevention and wound management.

143 **Thromboembolic Disease: State of the Art Diagnosis, Prophylaxis and Treatment**
Moderator: Geoffrey H. Westrich, MD, New York, NY
Fred D. Cushner, MD, New York, NY
Jeffrey S. Dlott, MD, Chantilly, VA
Norman A. Johanson, MD, Philadelphia, PA
Lakeside, Room E350

Covers thromboembolic disease in THA/TKA patients, focusing on updates to the ACCP and AAOS guidelines, newer genetic and hematologic testing and bleeding risk.

◆ **144** **Legg Clave Perthes Disease: The Beginning and the End**
Moderator: Harish S. Hosalkar, MD, San Diego, CA
Harry K. Kim, MD, Dallas, TX
Klaus Siebenrock, MD, Bern, Switzerland
Room S503

Will present approaches to the diagnosis and management of Perthes disease. Organized by the Guest Nation - Canadian Orthopaedic Association.

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Tuesday, March 19

145 **Revision Shoulder Arthroplasty: Indications, Techniques and Results**

Moderator: John W. Sperling, MD, MBA, Rochester, MN
Robert H. Bell, MD, Akron, OH
Gilles Walch, MD, Lyon, France
Joseph D. Zuckerman, MD, New York, NY

Room S405

Participant will learn key elements to avoid the most common complications in shoulder arthroplasty as well as learn how to manage these complications when they occur.

146 **Adult Lumbar Scoliosis: State-of-the-Art Treatment (Operative and Non-Operative)**

Moderator: Christopher L. Hamill, MD, Amherst, NY
Sigurd H. Berven, MD, San Francisco, CA
Christopher J. DeWald, MD, Chicago, IL
Steven D. Glassman, MD, Louisville, KY

Room S502

Cover advanced techniques in adult deformity care. Emphasis placed on surgical management including osteotomies, pelvic fixation and associated complications.

147 **The Not So Simple Ankle Fracture: Avoiding Problems and Pitfalls to Improve Patient Outcome**

Moderator: Michael J. Gardner, MD, Saint Louis, MO
Thomas F. Higgins, MD, Salt Lake City, UT
Jeremy J. McCormick, MD, Saint Louis, MO
Samir Mehta, MD, Philadelphia, PA

Room S104

Management of some ankle fractures may be particularly problematic. Topics include the diabetic patient, severe osteoporosis, syndesmotic injuries, posteiror malleolus fractures, and techniques to improve outcomes.

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room N427

Adult Reconstruction Hip I: Primary Total Hip Arthroplasty
Moderator(s): J. Wesley Mesko, MD, Lansing, MI
Steven T. Woolson, MD, Palo Alto, CA

1:30 PM **PAPER: 31**

Anatomy of the Hip at the Time of Total Hip Arthroplasty is a Matter of Morphotype and Etiology But Not Gender
Matthieu Ollivier, Marseille, France
Sebastian Parratte, MD, Marseille, France
Jean-Noel A. Argenson, MD, Marseille, France

Anatomy of the hip at the time of surgery is related to the patient morphotype and to the etiology of the arthritis but not to patient gender.

1:36 PM **PAPER: 32**

Decrease in Dislocation After Primary THA with Use of Larger Femoral Heads: An Update on a Previous Series
Kevin I. Perry, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
William Harmsen, MS, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

Larger femoral heads are associate with a lower long-term risk of cumulative dislocation and the cumulative risk of first-time dislocation in primary THA appears to be decreasing over time.

1:42 PM **PAPER: 33**

Reduced Dislocation Rates and Excellent Functional Outcomes with Large-Diameter Femoral Heads
Alex A. Stroh, MD, Baltimore, MD
Aaron J. Johnson, MD, Baltimore, MD
Kimona Issa, MD, Santa Clarita, CA
Qais Naziri, MD, Brooklyn, NY
Ronald E. Delanois, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

We advocate the use of these components in high-risk patients prone to dislocate after primary or complicated revision total hip arthroplasty.

Discussion - 6 Minutes

1:54 PM **PAPER: 34**

The Use of the Transverse Acetabular Ligament for Cup Positioning: A Randomized Controlled Trial
Geert Meermans, MD, Berchem, Belgium
Jan-Jaap Kats, MD, Bergen Op Zoom, Netherlands
Willem J. Van Doorn, MD, Bergen Op Zoom, Netherlands

The goal was to investigate the usefulness of the transverse acetabular ligament in cup positioning. Our data demonstrate more accurate cup placement with less variability regarding anteversion.

2:00 PM **PAPER: 35**

◆ A New Method of Registration in Navigated Hip Arthroplasty without the Need to Register the Anterior Pelvic Plane
Edward T. Davis, FRCS, Hagley, United Kingdom
Martin Haimerl, PhD, MSc, Feldkirchen, Germany
Mario Schubert, Feldkirchen, Germany
Melanie Wegner, Feldkirchen, Germany

We describe a new imageless computer navigation registration technique that can be performed in the lateral position and provides fast, precise and accurate acetabular component placement.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Tuesday, March 19

2:06 PM **PAPER: 36**

The Effects of Acetabular Reaming on Bone Loss and Component Coverage

Sharat K. Kusuma, MD, Columbus, OH
Zachary A. Goodman, BS, Columbus, OH

Use of a cadaveric CT scan and computer based model of acetabular anatomy and reaming demonstrates that significant acetabular bone loss occurs with increased reaming and placement of larger acetabular.

Discussion - 6 Minutes

2:18 PM **PAPER: 37**

A Review of Current Fixation Usage and Registry Outcomes in Total Hip Arthroplasty: The Uncemented Paradox

Anders Troelsen, MD, PhD, Koege, Denmark
Erik Malchau, BS, Boston, MA
Nanna Sillesen, Boston, MA
Henrik Malchau, MD, Boston, MA

National arthroplasty registries reports lower revision rates using cemented THRs in patients above 75 years. Despite this, usage of uncemented fixation in THR is increasing worldwide.

2:24 PM **PAPER: 38**

Conventional versus Short, Anatomic Metaphyseal-Fitting Cementless Stem for Femoral Neck Fracture

Young-Hoo Kim, MD, Seoul, Republic of Korea
Jeong-Hwan Oh, Seoul, Republic of Korea

A short, metaphyseal-fitting anatomic cementless stem and conventional fully porous-coating cementless stem were rigidly fixed in all patients with an acute femoral neck fracture in 170 patients.

2:30 PM **PAPER: 39**

Porous Tantalum vs. Titanium Monoblock Acetabular Components: A Long-Term Randomized Controlled Trial

Julien Wegrzyn, MD, PhD, Lyon, France
Kenton R. Kaufman, PhD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN

We evaluated the long-term outcome of a less rigid monoblock porous tantalum cup compared to a conventional more rigid porous coated titanium shell in a randomized controlled trial.

Discussion - 6 Minutes

2:42 PM **PAPER: 40**

Cemented Hip Replacement with a Conventional Polyethylene Bearing is the Gold Standard for Patients Aged >60 Years

Simon Jameson, Middlesbrough, United Kingdom
Paul Baker, MB, ChB, Newcastle Upon Tyne, United Kingdom
James Mason, PhD, Stockton-on-Tees, United Kingdom
Paul J. Gregg, Cleveland, United Kingdom
Martyn Porter, MD, Wigan, United Kingdom
David Deehan, MD FRCS, England, United Kingdom
Mike R. Reed, MBBS MD, Northumberland, United Kingdom

After implant optimisation of the market-leading brands across 76492 procedures, and following risk adjustment cemented THR had the lowest revision risk.

2:48 PM **PAPER: 41**

Uncemented Total Hip Arthroplasty for Crowe II/III Dysplasia using a High Hip Center without Bone Graft

Danyal Nawabi, MD, FRCS (Orth), New York, NY
Morteza Meftah, MD, New York, NY
Denis Nam, MD, New York, NY
Amar S. Ranawat, MD, New York, NY
Chitranjan S. Ranawat, MD, New York, NY

In Crowe II/III dysplasia, a medialized high hip center with an uncemented cup obviates the need for bone graft and provides durable fixation beyond ten years without dislocation or significant wear.

2:54 PM **PAPER: 42**

Outcomes of Cable vs. Wire Fixation Five Years After Total Hip Arthroplasty

Anne Lubbeke-Wolff, MD, DSc, Geneva, Switzerland
Charles Berton, Lille, France
Gabor Puskas, MD, Zurich, Switzerland
Laurent-Panayiotis Christofilopoulos, Geneve, Switzerland
Richard E. Stern, MD, Eysins, Switzerland
Pierre J. Hoffmeyer, MD, Geneve, Switzerland

We found a higher incidence of complications, in particular osteolysis, and a trend towards increased infection and foreign-body reaction with the use of cable compared to wire fixation.

Discussion - 6 Minutes

3:06 PM **PAPER: 43**

Similar Improvement in Gait Parameters with Direct Anterior and Posterior Approach Total Hip Arthroplasty

Karl Orishimo, MS, New York, NY
Ian Kremenic, MD, New York, NY
Parthiv A. Rathod, MD, Flushing, NY
Ajit J. Deshmukh, MD, New York, NY
Jose A. Rodriguez, MD, New York, NY

THA performed via direct anterior(DAA) and posterior approach(PA) THA offer similar improvement in gait parameters upto 1year follow-up with the exception of lower internal/external ROM after PA THA.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Tuesday, March 19

3:12 PM **PAPER: 44**

Trends in Patient Physical Activity Before and After Primary Total Hip Arthroplasty

Anne Lubbeke-Wolff, MD, DSc, Geneva, Switzerland
Dorith Zimmermann, DSc, Conches - Geneva, Switzerland
Constantinos Roussos, MD
Alexis Bonvin, Plan-les-Ouates, Switzerland
Robin E. Peter, MD, Geneva, Switzerland
Pierre J. Hoffmeyer, MD, Geneve, Switzerland

THA substantially and durably improved activity level in men and women of all age categories. In the last decade the proportion of patients with active lifestyle before and after THA increased by 14%.

3:18 PM **PAPER: 45**

Variability in Hospital-Level Risk Standardized Complication Rates Following Primary TJA in Medicare Patients

Kevin J. Bozic, MD, MBA, San Francisco, CA
Laura M. Grosso, New Haven, CT
Zhenqiu Lin, PhD, New Haven, CT
Lisa G. Suter, MD, New Haven, CT
Michael Rapp, MD, Baltimore, MD
Jay R. Lieberman, MD, Los Angeles, CA
Robert W. Bucholz, MD, Dallas, TX
Daniel J. Berry, MD, Rochester, MN
Elizabeth Drye, MD, New Haven, CT

Risk-stratified complication rates for primary THA and TKA procedures demonstrate marked variation across hospitals that cannot be accounted for by patient factors alone.

Discussion - 6 Minutes

SURGICAL SKILLS COURSE

1:30 PM — 4:30 PM

1SK **Unicompartmental and Primary Total Knee Arthroplasty: Measured Resection versus Gap Balancing**

TICKET

AAHKS

Room S402a

Moderator: Rafael J. Sierra, MD, Rochester, MN
Michael P. Bolognesi, MD, Durham, NC
William L. Griffin, MD, Charlotte, NC
William G. Hamilton, MD, Alexandria, VA
Raymond H. Kim, MD, Denver, CO

To learn and apply the techniques of measured resection and gap balancing for unicompartmental and total knee arthroplasty. Simulated bone models.

INSTRUCTIONAL COURSE LECTURE

1:30 PM — 4:30 PM

186 **Fractures and Dislocations of the Midfoot: Lisfranc and Chopart Injuries**

TICKET

Room S103a

Moderator: Peter A. Cole, MD, Saint Paul, MN
Sarah Anderson, MD, St Paul, MN
Stephen K. Benirschke, MD, Seattle, WA
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Eric G. Meinberg, MD, San Francisco, CA

Midfoot fractures are not uncommon and are frequently isolated, spanning from subtle ligamentous injuries to complex fracture combinations of the lisfranc-chopart joint.

WORKSHOP

FREE

1:30 PM — 5:30 PM

154 **Community Orthopaedic Surgeon**

TICKET

Room N227b

Moderator: Dwight W. Burney III, MD, Albuquerque, NM
Annunziato Amendola, MD, Iowa City, IA
Daniel J. Berry, MD, Rochester, MN
Thomas K. Fehring, MD, Charlotte, NC
Thomas J. Grogan, MD, Los Angeles, CA
Shepard R. Hurwitz, MD, Chapel Hill, NC
John R. Tongue, MD, Tualatin, OR
Paul Tornetta III, MD, Boston, MA
Ken Yamaguchi, MD, Chesterfield, MO

This workshop is for the orthopaedic surgeon handling a variety of orthopaedic conditions. Whether in the ER or in the office setting, this session is designed to educate the community orthopaedist in accepted practices of common conditions.

INSTRUCTIONAL COURSE LECTURE

1:30 PM — 6:00 PM

187 **Planning for Life After Orthopaedics**

TICKET

Room S106

Moderator: Joseph S. Barr Jr, MD, Boston, MA
Cynthia K. Hinds, CLU, Lakewood, CO
Michael McCaslin, CPA, Indianapolis, IN

Include how to deal with life after surgery, how to plan for retirement in your practice (group or solo), insurance needs and estate planning, and strategies for managing your assets. There will be helpful information for fellows and spouses of any age. (NO CME CREDIT)

Tuesday

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Tuesday, March 19

SYMPOSIUM
4:00 PM — 6:00 PM
Grand Ballroom

◆ Elbow Trauma Gone Wrong: How To Solve Complications (F)
Moderator: Joaquin Sanchez-Sotelo, MD, Rochester, MN

A review of treatment options for complications after elbow trauma, including failed radial head implants, persistent elbow instability, distal humerus nonunion and post-traumatic elbow osteoarthritis using arthroplasty and non-arthroplasty options

I. Introduction
Joaquin Sanchez-Sotelo, MD, Rochester, MN

II. Olecranon Nonunion: Evaluation and Treatment
George S. Athwal, MD, London, ON, Canada

III. The Failed Radial Head Replacement
David C. Ring, MD, Boston, MA

IV. Persistent Instability I: Coronoid Deficiency
Graham J. King, MD, London, ON, Canada

V. Persistent Instability II: Ligament Reconstruction
Emilie V. Cheung, MD, Redwood City, CA

VI. Question and Answers

VII. Internal Fixation for Distal Humerus Nonunion
Michael D. McKee, MD, Toronto, ON, Canada

VIII. Elbow Arthroplasty for Distal Humerus Nonunion
Joaquin Sanchez-Sotelo, MD, Rochester, MN

IX. Postraumatic Arthritis and Stiffness: Non-Arthroplasty Options
Bernard F. Morrey, MD, San Antonion, TX

X. Postraumatic Arthritis: Elbow Arthroplasty
Matthew L. Ramsey, MD, Philadelphia, PA

XI. Case Presentations
Theodore A. Blaine, MD, New Haven, CT
Augustus Mazzocca, MD, West Haverford, CT
Scott P. Steinmann, MD, Rochester, MN

XII. Question and Answers

SYMPOSIUM
4:00 PM — 6:00 PM
Room S406

◆A Decade of Change in the Treatment of Pediatric & Adult Spinal Deformity: What Progress Has Been Made? (G)
Moderator: John R. Dimar II, MD, Louisville, KY

The treatment of spinal deformities in the pediatric and adult spinal populations has undergone significant changes over the past decade. There have been fundamental advances in the understanding of the underlying genetics, the 3-d structural changes that occur with growth and aging of spine, the importance in maintaining proper sagittal alignment within the spine, and the development of new pediatric & adult deformity classification regimes to aid in effective treatment.

I. What Non-Fusion Scoliosis Techniques Have Evolved for the Treatment of the growing Spine and Have Stood the Test of Time: Vertebral Body Stapling, SHILLA, and Tethers
Charles E. Johnston II, MD, Dllas, TX

II. Has the Use of Iliolumbar Fixation in the Treatment of Pediatric Spinal Deformity Improve Outcomes & Fusion Rates?
John P. Dormans, MD, Philadelphia, PA

III. What are the Benefits of the Evolution of Segmental Spinal Instrumentation from Predominately Hook Constructs to Pedicle Screw Instrumentation?
B. Stephens Richards III MD, Dallas, TX

IV. Has the Refinement of the Vertebral Column Resection Technique (VCR) Revolutionized the Approach to the Treatment of Severe Spinal Deformities in Children Over the Past Decade?
Lawrence G. Lenke, MD, Saint Louis, MO

V. Question and Answer

VI. Has the Incorporation of Evidence Based Medicine Over the Past Decade Changed How We Treat Spinal Disease and Deformity?
Sigurd H. Berven, MD, San Francisco, CA

VII. What are the Current Indications for Anterior Spinal Surgery in Adult Spinal Degenerative Disease, Deformity & Other Pathologies?
John R. Dimar II, MD, Louisville, KY

VIII. Trans Lumbar Interbody Fusion (TLIF) in the Management of Deformity: Has This Technique Improved Posterior Approach Interbody Surgery Over the Past Decade?
Todd J. Albert, MD, Philadelphia, PA

IX. After a Decade of Use, Which of the Posterior Osteotomy Techniques has Proven Effective in Restoring Sagittal Balance at an Acceptable Complication Rate in Adult Deformity?
Frank Schwab, MD, New York, NY

X. Debate and Case Discussion: Is Change Really Progress in the Treatment of Adult Spinal Deformity?
Moderator: Mark Dekutoski, MD, Rochester, MN
Panel Discussion: Todd J. Albert, MD, Philadelphia, PA, Sigurd H. Berven, MD, San Francisco, CA, John R. Dimar II, MD, Louisville, KY, and Frank Schwab, MD, New York, NY

XI. Question and Answer

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Tuesday, March 19

SYMPOSIUM
4:00 PM — 6:00 PM
Room S105

Cell-Based Strategies for Regenerating Musculoskeletal Tissues (H)
Moderators: Stuart B. Goodman, MD, Redwood City, CA, and Lynne C. Jones, PhD, Baltimore, MD

Cell-based therapies are currently being used to treat musculoskeletal disorders. Explores prior research, current clinical applications, and key advancements that for future applications for cell-based therapies. Organized by the AAOS Biological Implant Committee.

I. Historical context of cell-based therapies regarding musculoskeletal tissue engineering
Joseph M. Lane, MD, New York, NY

II. Scientific Basis of Cell-based Therapies in Musculoskeletal Tissue Engineering
Thomas A. Einhorn, MD, Boston, MA

III. Practical Aspects of Cell Therapy. Different Approaches That Have Been developed and what the State-of-the-Art of Cell-based Therapies Are Today
George F. Muschler, MD, Cleveland, OH

IV. The Future Regarding the Opportunities for New Applications and Further Development of Existing Therapies
Michael Yaszemski, MD PhD, Rochester, MN

INSTRUCTIONAL COURSE LECTURE

4:00 PM — 6:00 PM

◆161 TICKET
Lakeside, Room E352

Innovative Techniques in Revision Total Hip Arthroplasty
Moderator: Paul F. Lachiewicz, MD, Chapel Hill, NC
Keith R. Berend, MD, New Albany, OH
Michael P. Bolognesi, MD, Durham, NC
Scott M. Sporer, MD, Wheaton, IL

Introduce new techniques for management of common problems encountered in revision hip surgery. Acetabular component removal and revision with enhanced surface jumbo cups; new recurrent dislocation options; easier ways to perform ETO and fabricate antibiotic cement spacer; and management of the painful metal-metal and ceramic-ceramic hip will be covered in video vignettes and case presentations.

162 TICKET
Room S405

Diagnoses and Treatment of Chronic Ankle Pain
Moderator: James J. Sferra, MD, Cleveland, OH
James L. Beskin, MD, Atlanta, GA
David W. Boone, MD, Raleigh, NC

State-of-the-art diagnoses and treatment regimens for problems which cause chronic pain in the ankle, in the athletic and non-athletic population.

163 TICKET
Room S503

Is "Medical Clearance" Enough? Understanding Medical Issues That Can Affect Your Patients' Outcomes
Moderator: Garnett A. Murphy, MD, Germantown, TN
Judith F. Baumhauer, MD, MPH, Rochester, NY
William M. Mihalko, MD, PhD, Germantown, TN
Alastair S E. Younger, MD, Vancouver, BC, Canada

Despite "medical clearance", orthopaedic surgeons need to be familiar with medical issues that affect orthopaedic outcomes and have strategies for dealing with these.

164 TICKET
Room S504a

Compliance in 2013: What You Need to Know!
Moderator: Jack M. Bert, MD, Woodbury, MN
Abby Pendleton, Esq, Southfield, MI
Ranjan Sachdev, MD, Bethlehem, PA

Adoption of EHRs along with new regulations introduced by HITECH and ARRA (American Recovery and Reinvestment Act) and PPACA (Patient Protection and Affordable Care Act) laws have significantly increased practice exposure to fines and penalties. Increasing payor audits are putting practices at risk for large repayments and costly Corporate Integrity agreements. Detail risks and outline steps practices can take to update their existing/implement new compliance plans. This will not only help to minimize risks but also help to mitigate fines and penalties in case of unfavorable OIG (Office of Inspector General) audits.

165 TICKET
Room S402a

Venturing into the Overlap Between Pediatric Orthopaedics and Hand Surgery
Moderator: Scott H. Kozin, MD, Philadelphia, PA
Roger Cornwall, MD, Cincinnati, OH
Joshua Ratner, MD, Atlanta, GA
Dan A. Zlotolow, MD, Philadelphia, PA

Designed to allow the pediatric orthopaedist and adult hand surgeon to become comfortable with a set of pediatric hand surgery procedures that can safely be performed. Lectures, case presentations, and surgical videos will be used to highlight indications, technique and outcomes. The goal is for the participant to expand their practice to the pediatric hand.

Tuesday

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Tuesday, March 19

◆ 166 **Avoiding and Managing Complications in Cervical Spine Surgery**

Room S401d

Moderator: William F. Donaldson III, MD, Pittsburgh, PA
Clinton J. Devin, MD, Nashville, TN
Sanford E. Emery, MD, MBA, Morgantown, West VA
Ahmad Nassr, MD, Rochester, MN

Management of common complications such as dysphasia and dysphonia and more complex ones such as vertebral artery injuries, adjacent level disease, inadequate decompression, and fusion related complications.

167 **Fractures of the Proximal Humerus: Reduce and Pin, Plate or Replace**

Lakeside, Room E351

Moderator: Robert J. Neviaser, MD, Washington, DC
Lynn A. Crosby, MD, Augusta, GA
Andrew Neviaser, MD, Washington, DC
Herbert Resch, MD, Salzburg, Austria

Will discuss in detail means for correct diagnosis, choice of treatment, and rehabilitation to ensure best outcome for fracture treatment

◆ 168 **ACL Revision Reconstruction Technical Issues: A Case Based Approach**

Room S104

Moderator: Rick W. Wright, MD, Saint Louis, MO
Thomas M. DeBerardino, MD, Farmington, CT
Kurt P. Spindler, MD, Nashville, TN
Michael J. Stuart, MD, Rochester, MN

Revision ACL reconstructions result in worse outcomes than primary reconstructions. Focus on cases that demonstrate technical issues including preoperative assessment, graft choice, and femoral and tibial tunnel issues including bone grafting.

169 **Controversies in Management of Tibia Fractures**

Room S502

Moderator: Nirmal C. Tejwani, MD, New York, NY
David R. Polonet, MD, Manalapan, NJ
Michael Suk, MD, Danville, PA
Philip R. Wolinsky, MD, Sacramento, CA

Focus on controversies associated with management of tibia fractures including the use of supra-patellar nailing. The merits of choosing the appropriate fixation for tibial metaphyseal fractures, both proximal and distal will be debated. The use of external fixation for definitive management of non-articular tibia fractures will also be discussed.

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room N427

Sports Medicine/Arthroscopy I: ACL
Moderator(s): Freddie H. Fu, MD, Pittsburgh, PA
Darren L. Johnson, MD, Lexington, KY

4:00 PM **PAPER: 46**

An Association of Lateral Knee Sagittal Anatomic Factors with Non-Contact ACL Injury: Sex or Geometry?
Christopher J. Wahl, MD, La Jolla, CA
Robert W. Westermann, MD, Iowa City, IA
Gregory Y. Blaisdell, MD, Tampa, FL
Amy M. Cizik, MPH, Seattle, WA

Anatomic sex differences in the length/curvature of the lateral tibial plateau may explain the female predisposition to ACL injury.

4:06 PM **PAPER: 47**

The Effect of Playing Surface on the Incidence of ACL Injuries in NCAA Football
Jason L. Dragoo, MD, Redwood City, CA
Hillary Braun, BA, Redwood City, CA
Jennah Durham, BA, New York, NY
Michael Chen, MD, Cincinnati, OH
Alex H. Harris, PhD, MS

NCAA football players experience a greater number of ACL injuries when playing on artificial turf surfaces, particularly on artificial surfaces with fill.

4:12 PM **PAPER: 48**

Recovery of Postural Stability after ACL Reconstruction
Andrew J. Blackman, MD, Saint Louis, MO
Amanda Haas, MA, Saint Louis, MO
John Motley, PT, Saint Louis, MO
Matthew V. Smith, MD, Town and Country, MO
Matthew J. Matava, MD, Chesterfield, MO
Rick W. Wright, MD, Saint Louis, MO
Robert H. Brophy, MD, Chesterfield, MO

Postural stability continues to improve over the first 9 months after ACL reconstruction. Return to sport may not be optimal even at 6 months after ACL reconstruction.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Tuesday, March 19

4:24 PM **PAPER: 49**

Endoscopic Anterior Cruciate Ligament Reconstruction in Children using Living Donor Hamstring Tendon Allograft

Martin Goddard, FRCS (Ortho), MBBS, Sheffield, United Kingdom
Nicholas Bowman, MD, East Sussex, United Kingdom
Lucy J. Salmon, PhD, Sydney, Australia
Alison Waller, BAppSci, Sydney, Australia
Justin P. Roe, MD, Sydney, Australia
Leo A. Pinczewski, FRACS, Wollstonecraft, Australia

Endoscopic Transphyseal ACL reconstruction in children using living donor HT tendon allograft achieves excellent clinical and subjective outcomes with high levels of return to desired activities.

4:30 PM **PAPER: 50**

Anterior Cruciate Ligament (ACL) Reconstruction in Obese Patients

Michael J. Chambers, MD, Huntington, West VA
Tigran Garabekyan, MD, Huntington, West VA
Stephanie F. Zimmeck, MS, Fairfax, VA
John J. Jasko, MD, Barboursville, West VA
Charles Giangarra, MD, Huntington, West VA

Obese patient's ACL dependent knees make them more susceptible to injury, predispose them to multiple episodes of instability, indicating the bias of non-operative treatment to be incorrect.

4:36 PM **PAPER: 51**

The Adverse Effect of Femoral Nerve Blockade on Quadriceps Strength after ACL Reconstruction

Grigoriy Arutyunyan, MD, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN
Diane L. Dahm, MD, Rochester, MN
Michael J. Stuart, MD, Rochester, MN

In this comparative study, a continuous femoral nerve block had an adverse effect on quadriceps strength at 6 months following patellar tendon autograft ACL reconstruction compared to a control group.

Discussion - 6 Minutes

4:48 PM **PAPER: 52**

Incidence of Post-operative ACL Infections, Graft Choice Makes a Difference

Gregory B. Maletis, MD, Baldwin Park, CA
Maria C. Inacio, MS, San Diego, CA
Jamie L. Desmond, San Diego, CA
Sarah Reynolds, PT
Tadashi T. Funahashi, MD, Irvine, CA

The incidence of surgical site infection after ACL reconstruction was 0.48% (deep 0.32%, superficial 0.16%). Hamstring tendon grafts had an 8.1 times higher risk of deep infection compared to BPTB.

4:54 PM **PAPER: 53**

Immediate Anterior Cruciate Ligament Reconstruction Can Save Meniscus without Any Complications

Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, South Korea
Ji-Hyeon Yim, Jeonnam, Republic of Korea
Jae-Young Moon, MD, Hwasun-Gun, South Korea
Kyujin Cho, MD, Gwangju, South Korea

Immediate ACL reconstruction had excellent clinical results and stability as good as delayed reconstruction without the problem of knee motion, muscle power and postural control.

5:00 PM **PAPER: 54**

The Anterior Cruciate Ligament Graft Positioning Effects in In Situ Force

Paulo H. Araujo, MD, Brasilia, Brazil
Mauricio P. Pinto, São Paulo, Brazil
Thiago R. Protta, Sao Paulo, Brazil
Shigehiro Asai, Pittsburgh, PA
Kellie K. Middleton, MPH, Pittsburgh, PA
Monica Linde-Rosen, Pittsburgh, PA
Patrick J. Smolinski, Pittsburgh, PA
Freddie H. Fu, MD, Pittsburgh, PA

Anatomic ACL reconstructions show lower graft inclination angle and higher in situ forces than non-anatomic ones, which may ease early failure. Specific rehab protocol is needed to avoid this risk.

Discussion - 6 Minutes

5:12 PM **PAPER: 55**

Trans-tibial ACL Femoral Tunnel Preparation Increases the Odds of Repeat Ipsilateral Knee Surgery

Andrew R. Duffee, MD, Louisville, KY
Robert A. Magnussen, MD, Columbus, OH
Angela D. Pedroza, MPH, Columbus, OH
David C. Flanigan, MD, Columbus, OH
Christopher C. Kaeding, MD, Columbus, OH

In this prospective cohort, patients who underwent trans-tibial ACL reconstruction had 2.83 times the odds of repeat ipsilateral knee surgery within 6 years of reconstruction.

5:18 PM **PAPER: 56**

Anterior Tibial Tunnel Placement in Anterior Cruciate Ligament Reconstruction Doesn't Cause Roof Impingement

Kazuhika Hatayama, MD
Masanori Terauchi, MD, Maebashi-shi,, Japan
Kenichi Saito, Maebashi, Japan
Hiroshi Higuchi, MD, Maebashi-Shi, Japan
Masashi Kimura, MD, Maebashi-shi,Gunma, Japan

Anterior tibial tunnel placement in anatomic anterior cruciate ligament reconstruction leads to better anterior stability than posterior placement does, without loss of extension and graft failure.

Tuesday

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Tuesday, March 19

5:24 PM **PAPER: 57**

A Prospective Randomized Study Comparing Double- and Single-bundle Techniques for ACL Reconstruction

Mattias Ahlden, MD, Molndal, Sweden
Ninni Sernert, RPT, Trollhattan, Sweden
Jon Karlsson, MD, Gothenburg, Sweden
Juri Kartus, MD, Trollhattan, Sweden

In this prospective randomized study, the subjective and objective outcomes revealed no significant differences between the double-bundle and single-bundle techniques at two years after ACL reconstruction.

Discussion - 6 Minutes

5:36 PM **PAPER: 58**

Increased Posterior Tibial Slope is Associated with Repeat ACL Injury

Justin P. Roe, MD, Sydney, Australia
Etienne Leclerc, MD, Bromont, Canada
Lucy J. Salmon, PhD, Sydney, Australia
Alison Waller, BAppSci, Sydney, Australia
Leo A. Pinczewski, FRACS, Wollstonecraft, Australia

An increased posterior tibial slope (PTS) is associated with an increased incidence of further ACL injury after ACL reconstruction.

5:42 PM **PAPER: 59**

Effect of Tissue Processing on Outcome of Primary Anterior Cruciate Ligament Reconstruction using Allograft

Sam S. Park, MD, Toronto, ON, Canada
Tim Dwyer, MBBS, Toronto, ON, Canada
Francesco Congiusta, BS, Woodbridge, ON, Canada
John Theodoropoulos, MD, FRCSC, North York, ON, Canada

A systematic review of outcomes for primary anterior cruciate ligament reconstruction with allograft suggests superior outcomes for non-irradiated allograft, and freeze-drying preservation.

5:48 PM **PAPER: 60**

Does Anterior Cruciate Ligament Reconstruction Alter Natural History?: A Systematic Review of Long-term Outcomes

Peter N. Chalmers, MD, Chicago, IL
Nathan A. Mall, MD, Chesterfield, MO
Seth Sherman, MD, Columbia, MO
George A. Paletta Jr, MD, Chesterfield, MO
Bernard R. Bach Jr, MD, River Forest, IL

In a systematic review, at a mean of 13.9 years post-injury, ACL-R results in reduced knee instability and improved functional outcomes when compared non-operative treatment.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

SURGICAL SKILLS COURSE

7:00 AM — 10:00 AM

◆ 2SK **Posterior Correction Techniques in Pediatric Spinal Deformities**

Room S402a

Moderator: Viral V. Jain, MD, MBBS, Cincinnati, OH
Laurel C. Blakemore, MD, Washington, DC
Jose A. Herrera Soto, MD, Orlando, FL
Suken A. Shah, MD, Wilmington, DE
Peter F. Sturm, MD, Cincinnati, OH

This course covers surgical technique on bone models of spinal deformity correction by posterior approach along with indications, post-op management, pearls & pitfalls of Ponte osteotomy, pedicle subtraction osteotomy and vertebral column resection. Simulated bone models only.

3SK **Shoulder Instability**

Room S402b

Moderator: Patrick J. McMahon, MD, Pittsburgh, PA
Hussein A. Elkousy, MD, Houston, TX
Mark D. Lazarus, MD, Philadelphia, PA
Andrew S. Rokito, MD, New York, NY
Jon K. Sekiya, MD, Ann Arbor, MI

Surgical skills course focuses on the E and M and the latest techniques in arthroscopic and open surgery of shoulder instability. Learn management of patients from the athlete to the manual laborer. Simulated bone models only.

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 9:00 AM

FD1 **Getting Your Great Ideas Supported - Effective Techniques for Women in Orthopaedics**

TICKET

Moderator: Mary I. O'Connor, MD, Jacksonville, FL

Room N227a

This session will help you understand the information which different types of people want in order to support your proposals; how to achieve buy-in and counter efforts to sink your next great idea. We will also discuss perceptions of women leaders as well as corresponding tactics for you to counter negative bias and improve your effectiveness.

SYMPOSIUM

8:00 AM — 10:00 AM
Grand Ballroom

AAHKS American Association of Hip and Knee Surgeons

Hot Topics in Total Hip and Knee Arthroplasty (I)

Moderator: Jay R. Lieberman, MD, Los Angeles, CA

The goal of this symposium is to review hot topics in TJA related to bearing surface issues in THA, uni TKA, and patient specific instrumentation for TKA. The latest data on blood conservation, pain management and evaluation of infection for TJA will be presented.

I. Update on Metal on Metal Bearing Issues
Hip Resurfacing: I still Do it but with Caution
Thomas P. Vail, MD, San Francisco, CA
Evaulation of the Symptomatic and Asymptomatic Metal on Metal Hip
Steven J. MacDonald, MD, FRCSC, London, ON, Canada
Pseudotumors and other Adverse Tissue Reactions: Operative Management
Craig J. Della Valle, MD, Chicago, IL

II. Ceramic on Ceramic Hips - Highly Cross-linked Polyethylene Has Made Them Obsolete
(Affirmative) William J. Maloney, MD, Redwood City, CA
(Negative) William J. Hozack, MD, Philadelphia, PA

III. Case Discussion
Jay R. Lieberman, MD, Los Angeles, CA

IV. Perioperative Issues and Total Joint Replacement
Blood Conservation and Total Joint Replacement
Bryan D. Springer, MD, Charlotte, NC
Pain Management in 2013
Mark W. Pagnano, MD, Charlotte, NC
Evaluation of Periprosthetic Infection: The Optimal Work-Up
Javad Parvizi, MD, FRCS, Philadelphia, PA

V. Case Discussion
Jay R. Lieberman, MD, Los Angeles, CA

VI. Patient Specific Instrumentation – Not Ready for Prime Time
(Affirmative) Paul F. Lachiewicz, MD, Chapel Hill, NC
(Negative) C. Anderson Engh Jr, MD, Alexandria, VA

VII. A Uni (UKA) is the Best Option for the 60 Year Old with Medial Compartment Arthritis
(Affirmative) Michael E. Berend, MD, Moorseville, IN
(Negative) Robert T. Trousdale, MD, Rochester, MN

VIII. The Knee is Stiff at 4 Weeks. What Do You Do Now?
Vincent D. Pellegrini, MD, Baltimore, MD

IX. Case Discussion
Jay R. Lieberman, MD, Los Angeles, CA

X. Audience Questions

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Wednesday, March 20

SYMPOSIUM
8:00 AM — 10:00 AM
Room S406

How Orthopedic Surgeons Get Into Trouble. Lessons from The AAOS Compliance Program. A Case Based Symposium (J)
Moderator: Thomas M. Green, MD, Seattle, WA

Drawing on cases from the Committee on Professionalism, the Judiciary Committee, and the Board, this symposium may help orthopedists avoid violations and understand the grievance process. Organized by the AAOS Compliance Committee.

I. Introduction and Background: AAOS Standards of Professionalism
Edward V. Craig, MD, New York, NY

II. The Nitty Gritty: The Work of the Committee on Professionalism
Murray J. Goodman, MD, Salem, MA

III. "I Didn't Do It" The Appeal Process and the Licensure Review by the Judiciary Committee
Richard D. Schmidt, MD, Edina, MN

IV. Drugs, Alcohol and the Impaired Physician. Are We Doing Enough?
Gary D. Carr, MD, FAAFP, Purvis, MS

V. PCP Experience: Summary of Cases, Costs & Litigation
Joseph D. Zuckerman, MD, New York, NY

VI. Questions and Answers
All Panleists

SYMPOSIUM
8:00 AM — 10:00 AM
Room S105

Distal Radius Fractures: When Things Don't Work the Way You Thought (K)
Moderator: Scott W. Wolfe, MD, New York, NY

New devices have facilitated operative treatment of distal radius, but reports of tendon injury, loss of fixation, and re-operation have burgeoned. This symposium addresses the recognition and treatment of complications.

I. Introduction
Scott W. Wolfe, MD, New York, NY

II. Determinants of instability: How To Optimize Non-Operative Treatment
Philip E. Blazar, MD, Boston, MA

III. My Algorithm for Operative Treatment of Articular Fractures
Douglas P. Hanel, MD, Seattle, WA

IV. The Lost Reduction: When To Hold 'Em, When To Fold 'Em
Jesse B. Jupiter, MD, Boston, MA

V. Recognition and Treatment of Tendon and Nerve Complications
David S. Ruch, MD, Durham, NC

VI. Late Malunion: Indications and Options for Reconstruction
Diego L. Fernandez, MD, Berne, Switzerland

VII. Management of acute and chronic radio-ulnar instability
Scott W. Wolfe, MD, New York, NY

VIII. Question and Answer Session/Cases
All Faculty

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 10:00 AM

201 TICKET
Room N228

Femoroacetabular Impingement: Pathophysiological Concepts, Treatment and Outcomes
Moderator: John C. Clohisy, MD, Saint Louis, MO
Paul E. Beaule, MD, Ottawa, ON, Canada
J. W. T. Byrd, MD, Nashville, TN
Christopher L. Peters, MD, Salt Lake City, UT

Comprehensive presentation of FAI pathophysiology, contemporary trends in surgical treatment and indications for different techniques (videos) including clinical outcomes.

202 TICKET
Room S504a

How to Perform a Primary Total Knee Arthroplasty: Video Vignettes
Moderator: Raymond H. Kim, MD, Denver, CO
Walter B. Beaver, MD, Charlotte, NC
Gwo-Chin Lee, MD, Philadelphia, PA
Giles R. Scuderi, MD, New York, NY

Techniques required to perform a successful TKA will be detailed using video vignettes including pre-operative planning, prosthesis selection, surgical exposures, ligamentous balancing, fixation, and patellar resurfacing.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

203
Achilles Tendon Ruptures: An International Evidence Based Approach to Treatment and Rehabilitation
Moderator: Brian G. Donley, MD, Cleveland, OH
James Calder, MD, London, United Kingdom
Jon Karlsson, MD, Gothenburg, Sweden
C. N. Van Dijk, MD, Abcoude, Netherlands
Room S501

International perspective on current controversies concerning optimal treatment and rehabilitation of achilles tendon ruptures and the efficacy of new techniques and technologies.

◆ 204
Sex, Women and Bones: A Musculoskeletal Health Update
Moderator: Amy L. Ladd, MD, Palo Alto, CA
Lisa K. Cannada, MD, Clayton, MO
Aenor J. Sawyer, MD, Oakland, CA
Jennifer M. Wolf, MD, Farmington, CT
Room S103a

In the context of children, women and men at risk, this osteoporosis course will emphasize bone metabolism, interaction with pharmaceuticals, imaging techniques and surgical treatment.

205
Tendinopathy of the Upper Extremity: Evaluation, Treatment and Evidence Based Care
Moderator: Julie E. Adams, MD, Minneapolis, MN
Jeffrey A. Greenberg, MD, Indianapolis, IN
Donald H. Lee, Nashville, TN
David C. Ring, MD, Boston, MA
Room S106b

Diagnosis, evaluation, and treatment of various tendinopathies of the upper extremity, including those about the shoulder, elbow, wrist and hand, will be discussed. Understanding of pathophysiology, treatment options, and the biomechanical and biological evidence supporting these treatment options will be explored. Case discussion and audience participation will be encouraged.

206
The Kids You See on Call: Pearls for Managing Urgent Pediatric Orthopaedics
Moderator: John M. Flynn, MD, Philadelphia, PA
James H. Beaty, MD, Memphis, TN
Martin J. Herman, MD, Philadelphia, PA
David L. Skaggs, MD, Los Angeles, CA
Room S104

Address many of the pediatric orthopaedics urgencies and emergencies that might cause anxiety for the general orthopaedist covering his or her local emergency room. Highlight standard of care for managing dangerous infection, pediatric femur fractures, SCFE (including technique) and the pulseless supracondylar. Enhanced case discussions are used to teach principles of treating a wide variety of acute pediatric orthopaedic issues, and demonstrating decision-making for controversial pediatric fracture surgical indications.

207
Difficult Shoulder Problems and their Management with Reverse Shoulder Replacement
Moderator: Joseph P. Iannotti, MD, PhD, Cleveland, OH
Anders L. Ekelund, MD, Stockholm, Sweden
Ludwig Seebauer, MD, Forstinning, Germany
Jon J. Warner, MD, Boston, MA
Room N227b

Reverse shoulder arthroplasty is helpful in treatment of difficult and disastrous shoulder pathologies. Cover a thorough understanding of the pathomorphology, pathomechanics and operative techniques to optimize success.

◆208
Recording and Reporting of Adverse Outcomes in Spine Surgery: Are We at the Top of Our Game?
Moderator: Robert A. Hart, MD, Portland, OR
Paul A. Anderson, MD, Madison, WI
Eugene Carragee, MD, Redwood City, CA
Sohail K. Mirza, MD, MPH, Lebanon, NH
Room S106a

This course will describe the current status of recording and reporting of adverse events during spine surgery as well as initiatives to improve standardization of adverse event reporting and barriers to implementation of such initiatives.

209
Troublesome Stress Fractures
Moderator: Christopher C. Kaeding, MD, Columbus, OH
Richard D. Parker, MD, Cleveland, OH
Rick W. Wright, MD, Saint Louis, MO
Room S503

Understand the location and clinical presentation of stress fractures that can be challenging treatment situations as well as their appropriate evaluation and work-up; and to understand the surgical and non-surgical treatment options for each of these specific troublesome stress fractures; and to understand the pathophysiology and classification of stress fractures as a basis for our treatment decisions.

210
Proximal Fractures of the Femur
Moderator: Robert F. Ostrum, MD, Chapel Hill, NC
Jeffrey Anglen, MD, FACS, Indianapolis, IN
Henry M. Broekhuyse, MD, Vancouver, BC, Canada
Kenneth A. Egol, MD, New York, NY
Room S502

Comprehensive review outlining the current indications and treatment for femoral neck, intertrochanteric and subtrochanteric fractures. Case presentations with faculty and audience input will enhance the lecture.

211
Soft Tissue Lumps and Bumps: Tips to Stay Out of Trouble
Moderator: Joel Mayerson, MD, Columbus, OH
Valerae O. Lewis, MD, Houston, TX
Carol D. Morris, MD, MS, New York, NY
Thomas J. Scharschmidt, MD, Powell, OH
Room S401d

Will illustrate tips to "stay out of trouble" when managing soft tissue lumps and bumps.

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Wednesday, March 20

212 **Fracture and Dislocations of the Elbow: A Return to the Basics**

TICKET

Lakeside, Room E352

Moderator: Ken Faber, MD, London, ON, Canada
April D. Armstrong, MD, Hershey, PA
Daphne M. Beingessner, MD, Seattle, WA
Graham J. King, MD, London, ON, Canada

Provide a comprehensive review of the decision making processes, surgical indications, operative techniques and controversies in the management of fracture and dislocations of the elbow.

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room N427

Adult Reconstruction Hip II: Metal-on-Metal Total Hip Arthroplasty
Moderator(s): Adolph V. Lombardi Jr., MD, New Albany, OH
John B. Meding, MD, Mooresville, IN

8:00 AM **PAPER: 61**
Outcome of Metal on Metal Articulations in Primary Total Hip Arthroplasty
Stephen Graves, MD, Adelaide, Australia
Richard De Steiger, MD, Richmond, Australia
David Davidson, MD, University Of Adelaide, Australia
Kara Cashman, BSc (HONS), Adelaide, Australia
Yen-Liang Liu, Adelaide, Australia
Elizabeth C. Griffith, BA, Adelaide, Australia
Philip Ryan, FAFPHM, Adelaide, Australia

This national Registry study was unable to identify any prostheses with MoM bearings which used a head size ≥36mm that had a revision rate that was better when compared to other THA's.

8:06 AM **PAPER: 62**
◆R.I.P.O. Experience on 7,500 Metal-on-Metal Total Hip Arthoplasty at 12 Years Follow Up
Barbara Bordini, MD, Bologna, Italy
Susan Stea, BS, Bologna, Italy
Stefano Falcioni, PhD, Bologna, Italy
Federico Pilla, MD, Bologna, Italy
Alessandra Sudanese, MD, Bologna, Italy
Aldo Toni, MD, Bologna, Italy

Metal-on-metal THA, inferior performance.

8:12 AM **PAPER: 63**
Minimum Three-Year Follow Up of 359 ASR XL Metal-on-Metal Total Hip Arthroplasties
Chris J. Dangles, MD, Champaign, IL
Laura Brinkley, RN, NP, Champaign, IL
Rachel-Anne Magsalin, MD, Urbana, IL
Kevin Osborne, BS, CCRP, Urbana, IL

The ASR XL implant system was used in 359 hips at the Carle Foundation Hospital between January 2006 and February 2009. Minimum three year follow up shows a revision rate of 19%.

Discussion - 6 Minutes

8:24 AM **PAPER: 64**
Results After Stem Retention in Metal on Metal Hip Revisions
Raghu Raman, MRCS, Swanland, United Kingdom
Howard Widdall, Swanland, United Kingdom
Geoffrey V. Johnson, FRCS, Hull, United Kingdom
Keith Jackson, Hull, United Kingdom
Shah Jehan, Hull, United Kingdom
Karthik S. Sivasankaran, MBBS, MRCS, Sheffield, United Kingdom

Trunion wear certainly contributes to the debris disease in Metal on Metal hip replacements. The lengths of the trunion and head size significantly contribute to this wear. Short tapers perform poorly and neck sleeves do not seem to affect the wear pattern.

8:30 AM **PAPER: 65**
Are Plasma and Whole Blood Cobalt and Chromium Levels Interchangeable in the Monitoring of Metal on Metal Hips?
Joanne Rogers, Cardiff, United Kingdom
Ibrahim Malek, MD, Cardiff, United Kingdom
Amanda King, BSc(Hons), MBBCh, Cardiff, United Kingdom
Alun John, MD, Cardiff, United Kingdom

There is significant difference in mean plasma and whole blood concentration of Cobalt and Chromium. The ratio of metal ions in these blood fractions is also concentration dependent and not constant.

8:36 AM **PAPER: 66**
◆ Surveillance of Metal-on-Metal Hip Arthroplasties: Is Blood Metal Ion Measurement Useful?
Shiraz Sabah, MD, London, United Kingdom
Aleksi Reito, MD, Tampere, Finland
Jorma Pajamaki, MD, PhD, Tampere, Finland
Timo J. Puolakka, MD, PhD, Tampere, Finland
Barry Sampson, MD, London, United Kingdom
Johann Henckel, MD, London, United Kingdom
John Skinner, FRCS, London, United Kingdom
Alister Hart, FRCS, London, United Kingdom
Antti Eskelinen, MD, PhD, Tampere, Finland

Blood metal ions had good discriminant ability to separate metal-on-metal hip arthroplasties according to function, but were an inadequate screening test.

Discussion - 6 Minutes

8:48 AM **PAPER: 67**
Chronological Follow-up of Metal Ions as an Important Predictor of (Mal-) Functioning Resurfacing Hip Arthroplasty
Jose M. Smolders, MD, Lent, Netherlands
Annemiek Hol, MSc, Arnhem, Netherlands
Job L. van Susante, MD,PHD, Arnhem, Netherlands

Metal ion trend is important in evaluating implant functioning. Well-functioning implants there is a low chance of increasing ions after 2 years, and if present the absolute elevation should be <1µg/L.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

8:54 AM **PAPER: 68**

Synovial Fluid Aspirations in Failed Metal-on-Metal (MoM) Total Hip Arthroplasty (THA)

Cody Wyles, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

Synovial fluid white blood cell (WBC) counts are variable and often misleading when diagnosing an infection in failed MoM THA, whereas neutrophil percentages are a highly accurate marker.

9:00 AM **PAPER: 69**

The Economic Impact for Routine Post-Operative Surveillance of Metal-on-Metal Hip Arthroplasty

David W. Anderson, MD, MS, Kansas City, KS
Ahmer K. Ghori, MD, Cambridge, MA
Hany Bedair, MD, Newton, MA
Henrik Malchau, MD, Boston, MA
Andrew A. Freiberg, MD, Boston, MA

The cost of long-term surveillance with the recommended intervals for metal on metal bearing surfaces is significantly higher compared to highly crosslinked polyethylene bearing surfaces.

Discussion - 6 Minutes

9:12 AM **PAPER: 70**

Unexplained Pain in Failed Metal-on-Metal Hip Arthroplasty: A Retrieval, Histological and Imaging Analysis

Danyal Nawabi, MD, FRCS (Orth), New York, NY
Nader A. Nassif, MD, New York, NY
Stephanie L. Gold, BA, New York, NY
Kirsten Stoner, M.S., New York, NY
Marcella Elpers, BS, New York, NY
Timothy M. Wright, PhD, New York, NY
Edwin P. Su, MD, New York, NY
Hollis Potter, MD, New York, NY
Douglas E. Padgett, MD, New York, NY

Unexplained pain is a common mode of failure in MOM hips and is usually due to ALVAL. MRI parameters may be better than surrogates of wear in the surveillance of patients with unexplained pain.

9:18 AM **PAPER: 71**

Large Stripe Wear-damage Forms on all Large-diameter Metal on Metal when Hip Joint Motion Reverses Direction

Ian C. Clarke, PhD, Colton, CA
Edward J. McPherson, MD, Los Angeles, CA
Thomas K. Donaldson, MD, Colton, CA
Christopher L. Peters, MD, Salt Lake City, UT

Adverse wear was identified in 60 MOM retrievals and included stripe-wear damage (96% femoral heads) and rim-breakout wear (94% cups). Adverse 'impingement' wear is created at extremes of hip motion.

9:24 AM **PAPER: 72**

Risk Factors for Pseudotumor Formation in 1,036 Consecutive Hips Operated on with ASR Components

Aleksi Reito, MD, Tampere, Finland
Jorma Pajamäki, MD, PhD, Tampere, Finland
Timo J. Puolakka, MD, PhD, Tampere, Finland
Olli Lainiala, Medical Student, Tampere, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland

We report the risk factors for pseudotumout formation in 1036 consecutive ASR hip replacements.

Discussion - 6 Minutes

9:36 AM **PAPER: 73**

Short-Term Natural History of Pseudotumor in Asymptomatic Patients After Metal-on-Metal Hip Arthroplasty

Sulaiman Almousa, MD, FRCSC, Vancouver, BC, Canada
Nelson V. Greidanus, MD, MPH, Vancouver, BC, Canada
Bassam A. Masri, MD, FRCSC, Vancouver, BC, Canada
Clive P. Duncan, MD, MSc, Vancouver, BC, Canada
Donald S. Garbuz, MD, MHSc, Vancouver, BC, Canada

Patients previously diagnosed with pseudotumor in a metal-on-metal hip, were followed and re-assessed using ultrasound, to determine the progression or regression of their pseudotumor(s).

9:42 AM **PAPER: 74**

Prevalence of Pseudotumors Associated with Metal-on-Metal Total Hip Arthroplasty and Metal Ion Study

Masahiro Hasegawa, MD, Mie, Japan
Kakunoshin Yoshida, MD, Tsu City, Japan
Hiroki Wakabayashi, Mie Prefecture, Japan
Miyamoto Noriki, Tsu City, Japan
Akihiro Sudo, Prof., Tsu City, Mie, Japan

Magnetic resonance imaging screening showed that pseudotumors following metal-on-metal total hip arthroplasty were found in 10 hips (9%). Pseudotumors could be associated with increased metal wear.

9:48 AM **PAPER: 75**

◆ Metal-on-Metal Bearings and Malignant Disease

Andrew Cobb, MD, Surrey, United Kingdom
Henrik Moller, BA, MSc, London, United Kingdom

The incidence of cancer in patients recorded in the UK National Joint registry compared to that of the population as a whole.

Discussion - 6 Minutes

Wednesday

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Wednesday, March 20

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room N426

Pediatrics I: Hip-Lower Extremity
Moderator(s): Donna M. Pacicca, MD, Kansas City, MO
Jeffrey R. Sawyer, MD, Germantown, TN

8:00 AM **PAPER: 76**
Increased Self-reported Pain and Gait Dysfunction at 20 Years Post Hip Fusion as an Adolescent
David A. Podeszwa, MD, Dallas, TX
Kirsten Tulchin-Francis, PhD, Dallas, TX
Adriana De La Rocha, MS, Dallas, TX
Wilshaw Stevens JR, BS, Dallas, TX
Deraan Collins, BS, Dallas, TX
Lori A. Karol, MD, Dallas, TX
Daniel J. Sucato, MD, Dallas, TX

At a mean of 20 yrs follow-up, a decreased quality of life with increased pain and gait dysfunction are common in adult pts treated with a HF in adolescence.

8:06 AM **PAPER: 77**
Modern Total Hip Arthroplasty in Teenagers: An Alternative to Hip Arthrodesis
Nirav K. Patel, BMedSc, MBChB, Middlesex, United Kingdom
Thomas W. Luff, MBBS, Bucks, United Kingdom
Paul M. Whittingham-Jones, MRCS, Ottawa, ON, Canada
Christopher Gooding, MD, Middlesex, United Kingdom
Aresh Hashemi-Nejad, FRCS, Middlesex, United Kingdom

Debilitating arthritis in teenage patients is a complex problem with limited surgical options. Hip arthrodesis is unpopular amongst patients and modern total hip arthroplasty (THA) may be a promising alternative.

8:12 AM **PAPER: 78**
Demographics of Adolescent/Adult Acetabular Dysplasia Compared to Infantile Developmental Dysplasia of the Hip
Cara Beth Lee, MD, Seattle, WA
Ana Mata-Fink, MD, Lebanon, NH
Michael B. Millis, MD, Boston, MA
Young Jo Kim, MD, PhD, Boston, MA

The demographics of patients with adolescent/adult-diagnosed dysplasia differ from patients with infantile DDH based on questionnaires from 311 patients undergoing periacetabular osteotomy.

Discussion - 6 Minutes

8:24 AM **PAPER: 79**
CT and X-Ray Examination of the Immature Acetabulum is Appropriate Only After Closure of the Triradiate Cartilage
Peter D. Fabricant, MD, New York, NY
Brandon P. Hirsch, MD, Miami, FL
Ian Holmes, BS, New York, NY
Bryan T. Kelly, MD, New York, NY
Dean G. Lorich, MD, New York, NY
David L. Helfet, MD, New York, NY
Eric A. Bogner, MD, New York, NY
Daniel W. Green, MD, New York, NY

Acetabular development completes just prior to closure of the triradiate cartilage, at which time standard radiographic imaging modalities (CT, XR, fluoroscopy) are appropriate.

8:30 AM **PAPER: 80**
Radiation Exposure in the Management of Children with Developmental Dysplasia of the Hip
Todd P. Balog, MD, Lacey, WA
Chad A. Hills, DO, Tacoma, WA
Bryan J. Tompkins, MD, Spokane, WA
Glen O. Baird, MD, Spokane, WA
Paul M. Caskey, MD, Spokane, WA

Introduction: Management of Developmental Dysplasia of the HIP (DDH) is associated with significant radiation exposure which is significantly reduced with low-dose CT scans.

8:36 AM **PAPER: 81**
Assessment of Femoral Head Perfusion Following Anterior Surgical Hip Dislocation Using Contrast-Enhanced MRI
Lionel E. Lazaro, MD, New York, NY
David Wellman, MD, New York, NY
Nadine Pardee, BS, New York, NY
Peter K. Sculco, MD, New York, NY
Jonathan Dyke, PhD, New York, NY
Milton T. Little, MD, New York, NY
Craig Klinger, BS, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

Quantitative MRI data confirms preservation of blood supply to the femoral head and head neck junction following an anterior surgical hip dislocation using a 'Trochanteric Flip' Osteotomy.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

8:48 AM **PAPER: 82**

Rate of Correction After Asymmetrical Physeal Suppression in Valgus Deformity

Kyoung Min Lee, MD, Sungnam, Republic of Korea
Chin Y. Chung, MD,PhD, Seoul, Republic of Korea
Ki Hyuk Sung, MD, Kyungki, Republic of Korea
Seung Yeol Lee, MD, Seongnam, Republic of Korea
In H. Choi, MD, Seoul, Republic of Korea
Tae-Joon Cho, Seoul, Republic of Korea
Won Joon Yoo, MD, Seoul, Republic of Korea
Moon Seok Park, MD, Sungnam, Republic of Korea

When we treat valgus deformity in growing children, we should take into consideration the fact that the rate of correction at the distal femur is lower in older children.

8:54 AM **PAPER: 83**

◆Guiding Femoral Rotational Growth in Animal Model

Amir Arami, MD, Tel Aviv, Israel
Elhanan Bar-On, MD, D N Emek-Sorek, Israel
Snir Heller, MD, Netania, Israel

Guided growth is an attractive surgical option for correction of angular deformity in skeletally immature patients. Although guided growth is technically feasible for deformity in any plane, it is use.

9:00 AM **PAPER: 84**

The Relationship of GMFCS Level and Hip Subluxation on the Progression of Scoliosis in Children with Cerebral Palsy

Sumeet Garg, MD, Denver, CO
Glenn H. Engelman, BA, Denver, CO
Hiroyuki Yoshihara, MD, PhD, Aurora, CO
Bryan McNair, MS, Aurora, CO
Frank M. Chang, MD, Aurora, CO

Scoliosis progression is more severe in GMFCS 5 patients versus those with less severe CP. There does not appear to be any correlation between scoliosis and severity or lateraliy of hip subluxation.

Discussion - 6 Minutes

9:12 AM **PAPER: 85**

Arthroscopic Differences Between Idiopathic Cam Deformity and Slipped Capital Femoral Epiphysis

Prasad V. Gourineni, MD, Oak Brook, IL
James E. Ho, MD, Chicago, IL

Arthroscopic findings suggest that idiopathic cam deformity is different from a slipped epiphysis deformity.

9:18 AM **PAPER: 86**

Poor Applicability of Radiographic Signs for Femoroacetabular Impingement in Pediatric Populations

Vincent M. Moretti, MD, Chicago, IL
Leslie E. Schwindel, MD, Chicago, IL
Prasad V. Gourineni, MD, Oak Brook, IL

Due to the complexity and timing of normal osseous acetabular development, common radiological signs of adult femoroacetabular impingement are inappropriate for use in the pediatric population.

9:24 AM **PAPER: 87**

Surgical Dislocation and Periacetabular Osteotomy for Treatment of Complex Perthes-like Deformities

John C. Clohisy, MD, Saint Louis, MO
Perry L. Schoenecker, MD, Saint Louis, MO
Gail Pashos, Saint Louis, MO
Geneva Baca, Saint Louis, MO
Thomas R. Lewis, MD, Oklahoma City, OK

Combined surgical hip dislocation and PAO provides comprehensive deformity correction and excellent clinical results for severe "Perthes-like" hip deformities.

Discussion - 6 Minutes

9:36 AM **PAPER: 88**

Anatomical Dissection and CT Imaging of the Medial Patellofemoral Ligament in Skeletally Immature Cadaver Knees

Kevin G. Shea, MD, Boise, ID
John D. Polousky, MD, Greenwood Village, CO
John C. Jacobs Jr, BS, Boise, ID
Theodore J. Ganley, MD, Philadelphia, PA
Stephen K. Aoki, MD, Salt Lake City, UT
Nathan L. Grimm, BS, Salt Lake City, UT
Shital Parikh, MD, Cincinnati, OH

This study identified the origin and insertion of the MPFL and determined its relationship to the distal femoral physis through CT imaging in skeletally immature cadaver knees.

9:42 AM **PAPER: 89**

First Time Patellofemoral Dislocation in Pediatric and Adolescent Patients

Laura Lewallen, MD, Rochester, MN
Amy L. McIntosh, MD, Rochester, MN
Diane L. Dahm, MD, Rochester, MN

Conservative treatment for first time patellofemoral dislocation yielded a 62% success rate overall. However, skeletally immature patients with trochlear dysplasia had only a 31% success rate.

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Wednesday, March 20

9:48 AM **PAPER: 90**

Biomechanical Evaluation of Physeal Sparing Fixation Methods in Tibial Eminence Fractures

Christian N. Anderson, MD, Redwood City, CA
Kirk A. McCullough, MD, Charlotte, NC
Uppuganti Sasidhar, MS, Nashville, TN
Yanna Song, PhD, Nashville, TN
Kevin R. O'Neill, MD, Saint Louis, MO
Allen F. Anderson, MD, Nashville, TN
Warren Dunn, MD, MPH, Nashville, TN
Jeffry Nyman, PhD, MS, Nashville, TN

Under cyclic and load-to-failure conditions, physeal sparing fixation of tibial eminence fractures with screw or PDS suture provides inferior fixation compared to FiberWire or suture anchor.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room S102

Practice Management/Rehabilitation I: Quality Improvement
Moderator(s): Catherine Hawthorne, Gallup, NM
Patrick J. Horan, MD, Tampa, FL

8:00 AM **PAPER: 91**

The Standard One Gram Dose of Vancomycin is not adequate Prophylaxis for MRSA

Anthony A. Catanzano, Seaford, NY
Germaine Cuff, RN, New York, NY
Michael Phillips, MD, New York, NY
Lorraine Hutzler, BA, New York, NY
Sapna A. Mehta, MD, New York, NY
Andrew D. Rosenberg, MD, New York, NY
Joseph A. Bosco III, MD, New York, NY

In settings, such as hospitals, where the risk for resistant bacteria, especially MRSA, is high, it is becoming increasingly important to accurately dose patients who require vancomycin.

8:06 AM **PAPER: 92**

Prevention of Surgical Site Infections: Effectiveness of Nasal Povidone-Iodine and Nasal Mupirocin

Joseph A. Bosco III, MD, New York, NY
Germaine Cuff, RN, New York, NY
Sapna A. Mehta, MD, New York, NY
Andrew D. Rosenberg, MD, New York, NY
Michael Phillips, MD, New York, NY

Minimize s. aureus concentration on the patient's skin at time of surgical incision.

8:12 AM **PAPER: 93**

Staphylococcus Decolonization in Total Joint Arthroplasty is Effective

Antonia Chen, MD, Pittsburgh, PA
Alma Heyl, CCRC
Peter Z. Xu, BA, Pittsburgh, PA
Nalini Rao, MD, Pittsburgh, PA
Brian A. Klatt, MD, Pittsburgh, PA

Current decolonization protocols using intranasal mupirocin and chlorhexidine body washes are effective for reducing MRSA and MSSA colonization in total joint arthroplasty patients.

Discussion - 6 Minutes

8:24 AM **PAPER: 94**

No Surgical Site Infection Reduction with 2% Chlorhexidine Gluconate Wipes in Total Joint Arthroplasty

Nicholas Farber, BS, Pittsburgh, PA
Antonia Chen, MD, Pittsburgh, PA
Jody L. Feigel, RN, Pittsburgh, PA
Alvaro Sánchez Ortiz, Pittsburgh, PA
Brian A. Klatt, MD, Pittsburgh, PA

Preoperative use of 2% chlorhexidine gluconate-impregnated wipes did not result in a significant decrease in SSI rate in patients undergoing TJA compared to controls in this retrospective cohort study.

8:30 AM **PAPER: 95**

Total Joint Replacement Surgery: Does Day of Surgery Matter?

Raghuveer Muppavarapu, MD, Boston, MA
Eric L. Smith, MD, Boston, MA

Patients who had surgery on Thursday have significantly longer length of stay compared to patients with operations on Friday or Monday. Patients with an ASA of 3 or higher had a 0.37 day longer stay.

8:36 AM **PAPER: 96**

◆ Building Consensus: Best Practice Guideline for High Risk Pediatric Spine Surgical Site Infection

Michael G. Vitale, MD, Brooklyn, NY
Matthew D. D. Riedel, BA, New York, NY
Michael P. Glotzbecker, MD, Waban, MA
Hiroko Matsumoto, MA, New York, NY
David P. Roye Jr, MD, New York, NY
Lisa Saiman, MPH, MD, New York, NY

Systematic literature review and nominal group technique led to consensus from 20 pediatric spine surgeons on a "Best Practice Guideline" to prevent high risk pediatric spine surgical site infection.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

8:48 AM **PAPER: 97**

Hospital Acquired Conditions After Orthopedic Surgery Do Not Effect Patient Satisfaction Scores

Michael S. Day, MD, New York, NY
Lorraine Hutzler, BA, New York, NY
Raj Karia, MPH, New York, NY
Kella Vangsness, BA, New York, NY
Nina Setia, MS, BS, New York, NY
Marta Cieslak, MPH, Wading River, NY
Ellen Brophy, MPA, New York, NY
Joseph A. Bosco III, MD, New York, NY

Development of an HAC did not affect satisfaction scores in a population of orthopaedic surgery patients at a private, university-affiliated specialty center.

8:54 AM **PAPER: 98**

Use of Nerve Blocks after Total Joint Arthroplasty Leads to Increased Rate of Falls

Brian A. Klatt, MD, Pittsburgh, PA
Matthew Pigott, BS, Pittsburgh, PA
Nicholas Farber, BS, Pittsburgh, PA
Yihe Huang, BS, Pittsburgh, PA
Antonia Chen, MD, Pittsburgh, PA

The use of nerve blocks after TJA demonstrated an increased rate of falls, especially in primary TKA and revision THA. Older TJA patients were more likely to fall.

9:00 AM **PAPER: 99**

Is ACS NSQIP, a Departmental M&M Database or Patient Questionnaire More Accurate at Determining DVT and PE rates?

Michael A. Charters, MD, Detroit, MI
Mark Morris, BA, Ann Arbor, MI
Stuart T. Guthrie, MD, Detroit, MI
William M. Hakeos, MD, Detroit, MI
Joseph J. Hoegler, MD, Birmingham, MI

Given the increasing financial pressures to measure and decrease rates of DVT and PE in orthopaedic surgery, our study compared 3 common methods to identify patients with complications of DVT or PE.

Discussion - 6 Minutes

9:12 AM **PAPER: 100**

Occupational Injury Among Orthopaedic Surgeons: A Lack of Resources

William T. Davis, BS, Nashville, TN
Amir A. Jahangir, MD, Nashville, TN
Mallory Powell, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

Survey study demonstrated that many orthopaedic surgeons have suffered one or more occupational injuries. Support for the injured Orthopaedic surgeon was reported to be unavailable at many institutions.

9:18 AM **PAPER: 101**

In-Office Supervised versus Outpatient Therapy for Arthroscopic Shoulder Surgery Rehabilitation

Stephen C. Weber, MD, Sacramento, CA
Donald V. Torrey, PT, Sacramento, CA
Edward Nickerson, Sacramento, CA
Richard B. Riemer, DO, Sacramento, CA

In Office Supervised Home Therapy provides superior outcomes.

9:24 AM **PAPER: 102**

Correlation Between Limp and Cup Height in Total Hip Arthroplasty

Masaaki Matsubara, MD, Tokyo, Japan
Akimasa Kimura, MD, Tokyo, Japan
Atsuko Sato, MD, Tokyo, Japan
Hiroyuki Ogawa, Tokyo, Japan

In THA to DDH patient, if femoral head center is located less than 25 mm of lateral displacement and lower than 32 mm of height from tear drop, postoperative limp disappears significantly short period.

Discussion - 6 Minutes

9:36 AM **PAPER: 103**

Magnetic Resonance Imaging of the Hip: Poor Cost Utility for Adult Patients with Hip Pain

James A. Keeney, MD, Saint Louis, MO
Nathan A. Mall, MD, Chesterfield, MO
Muyibat A. Adelani, MD, Saint Louis, MO
Ryan Nunley, MD, Saint Louis, MO

Among patients over the age of 40, hip MRI rarely defines a surgical condition when plain radiographs and medical history do not suggest a specific diagnosis is present.

9:42 AM **PAPER: 104**

IVC Filters are Safe and More Cost-Effective than Bridging Heparin for PE Management after Total Joint Arthroplasty

Ibrahim Raphael, MD, Philadelphia, PA
James C. McKenzie, BS, Philadelphia, PA
Benjamin Zmistowski, BS, Philadelphia, PA
Daniel Brown, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA

IVCF use for PE treatment is safe and more cost-effective than heparin in TJA patients, mostly due to reduced length of in-patient hospital stay.

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Wednesday, March 20

9:48 AM **PAPER: 105**

The Risk of Hepatitis C Virus Exposure in Orthopaedic Surgery: Is Universal Screening Needed?
Edward M. Delsole, New York, NY
John J. Mercuri, MD, MA, New York, NY
Anna Stachel, MPH, New York, NY
Michael Phillips, MD, New York, NY
Joseph D. Zuckerman, MD, New York, NY

Hepatitis C has re-emerged as a serious occupational hazard for orthopaedic surgeons. Here we advocate that all patients be screened prior to surgery, and we propose an ethical procedure for doing so.

Discussion - 6 Minutes

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 11:00 AM

◆ 281 TICKET
Lakeside, Room E351

Surgical Management of Cervical Spondylotic Myelopathy
Moderator: Sanford E. Emery, MD, MBA, Morgantown, West VA
James Kang, MD, Pittsburgh, PA
Michael D. Smith, MD, Edina, MN
Jeffrey C. Wang, MD, Sherman Oaks, CA

Describe the surgical treatment of cervical myelopathy. Anterior and posterior methods emphasizing choice of approach regarding patient selection and complications will be covered.

282 TICKET
Lakeside, Room E350

Challenging Problems in Shoulder Instability: How To Get It Right the First Time and What To Do If You Don't
Moderator: Matthew T. Provencher, MD, San Diego, CA
Jeffrey S. Abrams, MD, Princeton, NJ
Pascal Boileau, MD, Nice, France
Richard K. N. Ryu, MD, Santa Barbara, CA
John M. Tokish, MD, Kailua, HI

Understanding of the common pathology, associated conditions, and radiographic and examination findings of glenohumeral instability. Evaluation and treatment of the failed instability procedures offers additional challenges to optimize return to function.

SYMPOSIUM

10:30 AM — 12:30 PM
Grand Ballroom

Inside Job: The Nuts and Bolts of Sports Injury Management (L)
Moderator: J. Chris Coetzee, MD, Golden Valley, MN

Focus on injuries and management of not only injuries in elite and college athletes, but also weekend warriors and the aging athlete. Covers a wide range of injuries, complexity of injury and management options.

I. Introduction
J. Chris Coetzee, MD, Golden Valley, MN

I. Ankle Fracture Management in Competitive Athletes
Robert B. Anderson, MD, Charlotte, NC

II. Ankle Ligament Injuries
Thomas O. Clanton, MD, Vail, CO

III. "Weekend Warrior" Injuries and Management
Steven L. Haddad, MD, Glenview, IL

IV. Foot and Ankle Prolems in Dancers
J. Chris Coetzee, MD, Golden Valley, MN

IV. Audience Questions and Answers/Case Discussion
Moderator: J. Chris Coetzee, MD, Golden Valley, MN

INSTRUCTIONAL COURSE LECTURE

10:30 AM — 12:30 PM

221 TICKET
Room S103b

Optimizing Patient Function After Total Hip Replacement
Moderator: Paul E. Beaule, MD, Ottawa, ON, Canada
Donald S. Garbuz, MD, MHSc, Vancouver, BC, Canada
Steven J. MacDonald, MD, London, ON, Canada
Pascal-Andre Vendittoli, MD, Montreal, QC, Canada

Provide an in depth look at what current total hip replacement patients obtain in terms of function and what are the current limitations. Evidence for multi-modal pain management as well as effective strategies to minimize the risk of transfusion discussed. Surgical techniques to minimize the risk of early complications will be reviewed as well as relevant clinical cases. Organized by the Guest Nation - Canadian Orthopaedic Association.

222 TICKET
Room S103a

Complex Case Controversies in Primary and Revision Total Knee Arthroplasty
Moderator: Bryan D. Springer, MD, Charlotte, NC
Thomas K. Fehring, MD, Charlotte, NC
William J. Long, MD, New York, NY
Robert M. Meneghini, MD, Fishers, IN

Focus on controversial issues in primary, complex primary and revision total knee arthroplasty with experts in the field.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

223 **Pes Planovalgus: From Adolescent to Adulthood**
TICKET
Room S503
Moderator: Jenny Frances, MD, New York, NY
David S. Feldman, MD, New York, NY
Vincent S. Mosca, MD, Seattle, WA
Lew C. Schon, MD, Baltimore, MD

Review all aspects of treatment of painful pes planovalgus feet, from idiopathic pathology in children, through neuromuscular deformity to adult pathology using a case based approach. Review current concepts with regards to surgical indications, operative techniques and pearls and pitfalls in each treatment group.

224 **Is This Article Going to Change My Practice? A Critical Evaluation of Literature**
TICKET
OTA
Room S402b
Moderator: Amer J. Mirza, MD, Portland, OR
Richard Myers, MD, Portland, OR

Methods to identify, critically evaluate, and then integrate literature into clinical practice. Topics include levels of evidence, identifying articles, dissecting components of a paper, and implementing changes in your practice.

225 **Opportunities for American Orthopaedists in the Developing World**
TICKET
Room S106a
Moderator: Ralph R. Coughlin, MD, San Francisco, CA
Richard A. Gosselin, MD, El Granada, CA
David A. Spiegel, MD, Philadelphia, PA
Peter G. Trafton, MD, Providence, RI

Globally, musculoskeletal disorders are the most common cause of severe long-term pain and disability. This program hopes to introduce, advocate and inspire global volunteerism.

226 **Wide Awake Hand and Wrist Surgery: A New Horizon in Outpatient Surgery**
TICKET
AAHS
Room S401d
Moderator: Jesse B. Jupiter, MD, Boston, MA
Peter C. Amadio, MD, Rochester, MN
Charles Eaton, MD, Jupiter, FL
Don Lalonde, MD, St John, Canada

Demonstrate techniques of applying local anesthesia with minimal pain and effectiveness for a variety of hand and wrist procedures. These will include flexor tendon repair as well as flexor tenolysis; carpal tunnel surgery; percutaneous and open fasciotomy and fascietomy for Dupuytren's disorders; fractures in the hand; arthroplasties; and wrist surgery including arthroscopy and ganglion excision. Patient satisfaction documented; clinical outcomes reported with best evidence regarding safety and function, and surgeon experiences with pitfalls and pearls.

227 **Adult Consequences of Pediatric Orthopedic Conditions**
TICKET
Room S106b
Moderator: Martin J. Herman, MD, Philadelphia, PA
Todd J. Albert, MD, Philadelphia, PA
Mininder S. Kocher, MD, MPH, Boston, MA
Joshua Ratner, MD, Atlanta, GA

Provides management strategies for common pediatric orthopedic diseases that have important sequelae in adulthood including scoliosis, spondylolisthesis, knee pathology and upper extremity conditions.

228 **Assembling the Orthopaedic Team**
TICKET
Lakeside, Room E352
Moderator: Harpal S. Khanuja, MD, Cockeysville, MD
C. L. Barnes, MD, Little Rock, AR
Timothy S. Johnson, MD, Lansdowne, VA
Tricia Marriott PA-C, Alexandria, VA

Various allied health professionals can improve the services delivered by an orthopaedic practice. These include: MAs, NPs, PAs, and athletic trainers. Understanding the potential roles of these team members can maximize utilization and efficiency.

229 **Elbow Arthroplasty: Lessons Learned from the Past and Directions for the Future**
TICKET
Room N227b
Moderator: Bernard F. Morrey, MD, San Antonio, TX
George S. Athwal, MD, London, ON, Canada
Thomas W. Throckmorton, MD, Germantown, TN

Current state, lessons learned and the evolving concepts of elbow arthroplasty will be discussed. Opportunities for partial replacement and hybrid type of implants have opened a new dimension to addressing a broader spectrum of elbow pathology.

230 **Arthroscopic Rotator Cuff Repair: Indication and Technique**
TICKET
Room N228
Moderator: Richard L. Angelo, MD, Woodinville, WA
Larry D. Field, MD, Jackson, MS
Anthony A. Romeo, MD, Chicago, IL
Jon J. P. Warner, MD, Boston, MA

Course with 50% lectures including "Mistakes I've Made" and 50% patient-based controversies followed by audience questions.

231 **Avoiding and Managing Complications in Routine Lumbar Spine Surgery**
TICKET
Room S504a
Moderator: Louis G. Jenis, MD, Newton, MA
Wellington K. Hsu, MD, Chicago, IL
Joseph R. O'Brien, MD, Washington, DC
Peter G. Whang, MD, New Haven, CT

The focus is on the identification, management and avoidance of complications related to common conditions treated with lumbar spine surgery.

Wednesday

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Wednesday, March 20

232 **Patellofemoral Joint: From Instability to Osteoarthrosis**
Moderator: Elizabeth A. Arendt, MD, Minneapolis, MN
Diane L. Dahm, MD, Rochester, MN
David Dejour, MD, Lyon, France
Donald C. Fithian, MD, El Cajon, CA
Room S104

Discuss treatment options for patellofemoral instability and arthrosis. Span operative and non-operative management schemes, with emphasis on technical aspects of surgical management.

233 **Talus and Calcaneus Fractures: Current Treatment**
Moderator: Michael S. Sirkin, MD, Newark, NJ
David Barei, MD, FRCS(C), Seattle, WA
Wayne S. Berberian, MD, Paramus, NJ
David J. Stephen, MD, Toronto, ON, Canada
Room S502

Focus on the current surgical treatment options for fractures of the talus and calcaneus.

234 **Tips and Tricks for Problem Fractures**
Moderator: Steven J. Morgan, MD, Denver, CO
Peter L. Althausen, MD, Reno, NV
Daniel S. Horwitz, MD, Danville, PA
Paul Tornetta III, MD, Boston, MA
Room S501

Trauma experts detail technical tips for common challenges in community orthopaedic fracture care, including intramedullary nailing, locked plate applications, tibial plateau and hip fractures.

235 **Malignant and Benign Bone Tumors That You Are Likely to See!**
Moderator: Valerae O. Lewis, MD, Houston, TX
Carol D. Morris, MD, MS, New York, NY
Theodore W. Parsons, MD, FACS, Detroit, MI
Room S402a

This course will comprehensively review the common bone tumor, both benign and malignant. The course will conclude with case based presentation and discussion.

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room S105

Adult Reconstruction Knee II: Non-Arthroplasty Approach
Moderator(s): David F. Dalury, MD, Towson, MD
James A. Shaw, MD, Cabin John, MD

10:30 AM **PAPER: 106**
Results of Navigational Open Wedge High Tibial Osteotomy Compared with Conventional Cable Technique
Eun K. Song, MD, Hwasun-Gun,Republic of Korea
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Ji-Hyeon Yim, Jeonnam, Republic of Korea
Jae-Young Moon, MD, Hwasun-Gun, Republic of Korea
Taek R. Yoon, MD, PhD, Jeonnam, Republic of Korea
Kyung Soon Park, MD, Jeonnam, Republic of Korea

Navigation for HTO significantly improved the accuracy of postoperative leg axis, and decreased the variability of correction with fewer outliers, and without any complications.

10:36 AM **PAPER: 107**
Triple Positioning of Tibia Tuberosity Osteotomy for Patellofemoral Disorders
Ching-Jen Wang, MD, Kaohsiung, Taiwan
To Wong, Kaohsiung, Taiwan
Jih-Yang Ko, MD, Niao Sung City, Taiwan

The the current study showed that triple positioning of tibia tuberosity osteotomy is effective and provide satisfactory long-term results in patients with patellofemoral disorders.

10:42 AM **PAPER: 108**
Comparison with Minimum 30 Years Follow Up between HTO, UKA and TKA Performed in Patients Younger than 50 Years
Philippe Hernigou, PhD, Creteil France, France
Charles Henri Flouzat-Lachaniette, MD, Creteil, France
Alexandre Poignard, MD, Creteil, France

When TKA is performed first in a young patient, loosening is the first cause of revision surgery, while infection the greatest risk to success. Beginning by an HTO first remains the safest way to reach 30 years follow up with only one arthroplasty.

Discussion - 6 Minutes

10:54 AM **PAPER: 109**
Ten-Year Outcome of High Tibial Osteotomy: A Prospective Study of 100 Patients
Leo A. Pinczewski, FRACS, Wollstonecraft, Australia
John A. Scanelli III, MD, Norfolk, VA
Lucy J. Salmon, PhD, Sydney, Australia
Alison Waller, BAppSci, Sydney, Australia
Justin P. Roe, MD, Sydney, Australia

High levels of patient satisfaction and good subjective outcomes are maintained 10 years after high tibial osteotomy. Poorer outcomes are seen as BMI increases.

11:00 AM **PAPER: 110**
The Risk of Total Knee Arthroplasty After Knee Arthroscopy in Patients Under 65
Catherine J. Fedorka, MD, Philadelphia, PA
Brandon M. Tauberg, BS, Pittsburgh, PA
Doug Cerynik, Downingtown, PA
Norman A. Johanson, MD, Philadelphia, PA

The low rate of knee arthroplasty at 1 and 5 years after knee arthropscopy may demonstrate the benefit of arthroscopy in younger patients in relieving symptoms of OA and delaying arthroplasty.

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Wednesday, March 20

11:06 AM **PAPER: 111**

Long-Term Results of Drilling Chondroplasty in Patellofemoral Arthritits

Yi-Yen Chiang, MD, Taipei, Taiwan
Ching C. Jiang, MD, Taipai, Taiwan
Wo-Jan Tseng, MD, New Taipei City, Taiwan
Yeong-Jang Chen, MD, New Taipei City, Taiwan
Chung-Yu Hsieh, MD, Taipei City, Taiwan
Zheng-Ren Dong, MD, Taipei City, Taiwan
Wei Chen Huang, MD, New Taipei City, Taiwan
Cheng-Wei Wang, MD, Taipei, Taiwan
Yun-Liang Chang, MD, Taipei City, Taiwan

Multiple drilling chondroplasty is a reliable method in treating stage II patellofemoral arthritis for good long term results (average 14.2 years).

Discussion - 6 Minutes

11:18 AM **PAPER: 112**

Longitudinal Symptom Variation over One Year in the Failing Medial Compartment of the Knee

Luke Jones, MRCS, Oxford, UK, United Kingdom
Kristina Knezevic, MSc, Oxford, United Kingdom
William Jackson, FRCS, Oxford, United Kingdom
David J. Beard, PhD, MSc, Oxford, United Kingdom
Andrew J. Price, FRCS, Oxford, United Kingdom

Patients with Failing Medial Compartments of the knee reporesent a considerable clinical problem and display significant symptom variation over one year.

11:24 AM **PAPER: 113**

Lateral Opening Wedge Distal Femoral Varus Osteotomy for Correction of Valgus Deformity of the Knee

Arash Kermanshahi, MD, San Diego, CA
William Bugbee, MD, La Jolla, CA

Lateral opening wedge distal femoral varus osteotomy is a valuable procedure for correction of valgus coronal mal-alignment associated with lateral compartment arthritis or cartilage disease.

11:30 AM **PAPER: 114**

Survivorship Of High Tibial Osteotomy in the Treatment of Knee Osteoarthritis: Registry-based Study of 3,195 Knees

Tuukka T. Niinimaki, MD, Oulu, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland
Bhupinder S. Mann Sr, MBBS, FRCS (Ortho), Middlesex, United Kingdom
Mika Junnila, Turku, Finland
Pasi Ohtonen, MSc, Oulu, Finland
Juhana Leppilahti, MD, Oulu, Finland

This registry based study of 3,195 HTO's revealed that the overall survivorship of HTO was 89% at 5 years and 73% at 10 years with conversion to total knee replacement as the end point.

Discussion - 6 Minutes

11:42 AM **PAPER: 115**

Survival and Health-related Quality of Life After Valgus Open-wedge High Tibial Osteotomy

Thoralf R. Liebs, MD, Kiel, Germany
Alain Huneke, Kiel, Germany
Joachim Hassenpflug, MD, Kiel, Germany

In 54 patients who have received a HTO for medial osteoarthritis of the knee we observed a revision rate that was lower than available registry data for UKA, indicating HTO to be a good alternative.

11:48 AM **PAPER: 116**

Comparative Study of Medial Opening Wedge High Tibial Osteotomy Using Two Different Implants

Woon-hwa Jung, MD, Gyeongsangnam-do, Republic of Korea
Chung-woo Chun, MD, Gyeongsangnam-do, Republic of Korea
Jae Hun Ha, PA, Changwonsi, Republic of Korea
Kwang J. Oh, MD, Seoul, Republic of Korea
Jae-heon Jeong, MD, Changwon-Si, Republic of Korea

We suggest that rigid long plate has superior stabiltity for early weight bearing than the short spacer plate.

11:54 AM **PAPER: 117**

Effects of Corticosteroid Injection on Systemic Glucose Levels in Diabetic and Non-diabetic Patients

Mark Stouffer, MD, Dayton, OH
Uthona R. Green, RN, Centerville, OH
Brian Burke, MD, Dayton, OH
Jason Vourazeris, MD, Dayton, OH
Anil Krishnamurthy, MD, Dayton, OH
Ronald J. Markert, PhD, Dayton, OH

Cortisone injections can be an effective treatment for arthritis but cause a significant increase in hyperglycemia in diabetic patients compared to non-diabetic patients.

Discussion - 6 Minutes

12:06 PM **PAPER: 118**

Propionibacterium Acnes as an Under Diagnosed Pathogen in Prosthetic Joint Infection after Lower Limb Arthroplasty

Andrew M. Jones, MBBS, Southampton, United Kingdom
Alex D. Liddle, MBBS, Headington, Oxon, United Kingdom
Gagandeep Grover, BSc, MBBS, Berkshire, United Kingdom
Shabnam Iyer, Reading, United Kingdom
Tony J. Andrade, MBBS, MSc, Berkshire, United Kingdom

This study has shown Propionibacterium acnes as the causative organism in a number of cases of painful lower limb arthroplasty. A high index of suspicion and prolonged enrichment cultures is required.

Wednesday

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Wednesday, March 20

12:12 PM **PAPER: 119**

Knee Magnetic Resonance Imaging in Adult Patients: Cost Utility is Dependent on Clinician Experience

James A. Keeney, MD, Saint Louis, MO
Muyibat A. Adelani, MD, Saint Louis, MO
Ryan Nunley, MD, Saint Louis, MO
Nathan A. Mall, MD, Chesterfield, MO

Knee MRI may be cost effective for assessing adult patients with knee pain or a clinical diagnosis, but cost utility is influenced by the experience of the practitioner ordering the study.

12:18 PM **PAPER: 120**

Conflict of Interest in the Assessment of Hyaluronic Acid Injections for Osteoarthritis of the Knee

Jonathan Printz, MD, Ann Arbor, MI
John Lee, MD, MS, Ann Arbor, MI
Michael Knesek, MD, Ann Arbor, MI
Andrew G. Urquhart, MD, Ann Arbor, MI

A systematic review of studies on hyaluronic acid injections for knee osteoarthritis demonstrates the qualitative conclusions are associated with a financial conflict of interest of the authors.

Discussion - 6 Minutes

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room N427

Shoulder and Elbow I: Rotator Cuff 1

Moderator(s): Joshua Dines, MD, Great Neck, NY
Stephen C. Weber, MD, Sacramento, CA
Mark Wright, MD, Auckland, New Zealand

10:30 AM **PAPER: 121**

Trends in Arthroscopic Versus Open Rotator Cuff Repair

Jaicharan Iyengar, MD, New York, NY
Samagh Sanjum, MD, San Diego, CA
William W. Schairer, San Francisco, CA
Gaurav Singh, MD, MPH, Fremont, CA
Frank Valone III, MD, San Francisco, CA
Feeley T. Brian, MD, San Francisco, CA

We have demonstrated a significant increase in the rate of arthroscopic rotator cuff repair, a disproportionate rise in associated procedure codes and a shift away from inpatient procedures since 2001.

10:36 AM **PAPER: 122**

Factors Predicting Rotator Cuff Re-tear: An Analysis of 1,000 Consecutive Rotator Cuff Repairs

Brian T. Le, MS, Kogarah, Australia
Xiao Wu, BSc MBBS, Sydney, Australia
Patrick H. Lam, Sydney, Australia
George A. Murrell, MD, Kogarah, Australia

Rotator cuff tear size, tear thickness, patient age and operative time were the best predictors of re-tear six months after arthroscopic rotator cuff repair in this retrospective cohort study.

10:42 AM **PAPER: 123**

Accelerated Rehabilitation After Rotator Cuff Repair: Does Double Row Repair Lower the Risk for Re-tear?

Franceschi Francesco, MD, Rome, Italy
Rocco Papalia, MD, PhD, Rome, Italy
Sebastiano Vasta, MD
Zampogna Biagio, MD, Rome, Italy
Angelo Del Buono, MD, Rome, Italy
Alessio Palumbo, MD, Roma, Italy
Nicola Maffulli, London, United Kingdom
Vincenzo Denaro, MD, Rome, Italy

Double row repair lead to a stronger tendon-to-bone construct, resulting in a significant lower re-tear rate, allowing for accelerated rehabilitation protocol in high risk patients for stiffness.

Discussion - 6 Minutes

10:54 AM **PAPER: 124**

Arthroscopic Partial Repairs for Irreparable Rotator Cuff Tears: Deterioration of the Results at Serial Follow Up

Min Soo Shon, MD, Seoul, Republic of Korea
Jae-Chul Yoo, MD, Seoul, Republic of Korea
Kyoung-Hwan Koh, MD, Seoul, Republic of Korea
Tae Kang Lim, MD, Gunpo, Republic of Korea
Seungwon Lee, MD, Seoul, Republic of Korea
Young Eun Park, Seoul, Republic of Korea

Arthroscopic partial repair in large-to-massive RCTs can produce relatively good outcome at minimal 2-years follow-up. However, its results showed gradually deterioration with time.

11:00 AM **PAPER: 125**

The Clinical Assessment of Teres Minor in Massive Rotator Cuff Tears

Philippe Collin, St Gregoire, France
Thomas D. Treseder, FRACS, Melbourne, Australia
Gilles Walch, MD, Lyon, France

Introduction The clinical assessment of Teres Minor is integral to the management of massive cuff tears. However, clinical tests designed to assess it have not been validated in this setting .

11:06 AM **PAPER: 126**

Severity of Fatty Infiltration in Reparable and Irreparable Massive Rotator Cuff Tears

Teruhisa Mihata, MD, PhD, Takatsuki, Osaka, Japan
Chisato Watanabe, MD, PhD, Osaka, Japan
Kunimoto Fukunishi, MD, Osaka, Japan
Mutsumi Ohue, MD, Takatsuki, Japan
Tomoyuki Tsujimura, MD, Takatsuki, Japan

For Goutallier's Stage 3 or 4 supraspinatus tear, any alternative treatment is recommended. In case of Stage 3 or 4 subscapularis or infraspinatus, supraspinatus tear may be irreparable.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

11:18 AM **PAPER: 127**

Correlation Between Dynamic Coracohumeral Distance Using Ultrasonography and Subscapularis Tears

Joo Han Oh, MD, Seongnam, Republic of Korea
Byung Wook Song, Seongnam-Si, Republic of Korea
Jung-Ah Choi, MD, PhD, Seongnam-si, Republic of Korea
Sae Hoon Kim, MD, Seoul, Republic of Korea
Jong Pil Yoon, MD, Daegu, Republic of Korea
Seok Won Chung, MD, Gyeonggi-Do, Republic of Korea
Yeun Ho Kim, Seongnam-Si, Republic of Korea
Hye Yeon Choi, Seongnam-Si, Republic of Korea
Namyun Chung, Seongnam-Si, Republic of Korea

We investigated the correlation between dynamic coracohumeral distance (CHD) using USG and subscapularis (SSC) tears and could not confirm the causal relationship between dynamic CHD and SSC tears.

11:24 AM **PAPER: 128**

Prospective Randomized Comparative Study of 191 Subscapularis Tear: Arthroscopic Repair vs. Debridement

Sang-hoon Lhee, Seoul, Republic of Korea

Based on our results, it is strongly recommeded to repair subscapularis in large-to-massive rotator cuff tears, borderline-2 lesions and complete subscapularis tear.

11:30 AM **PAPER: 129**

Arthroscopic Rotator Cuff Repair: Knotless Versus Knot-tying Suture Bridge Technique

Yong-Girl Rhee, MD, Seoul, Republic of Korea
Nam-Su Cho, MD, Seoul, Republic of Korea
Chongsuck Parke, MD, Sungnam, Republic of Korea
Jae Hyun Yoo, MD, Seoul, Republic of Korea

Knotless suture-bridge group showed significantly lower retear rate than knot-tying suture bridge group and knotless suture-bridge technique is a new complementary technique for rotator cuff repair.

Discussion - 6 Minutes

11:42 AM **PAPER: 130**

Comparison of Those Who Underwent and Refused Surgery for Patients Diagnosed as Full-thickness Rotator Cuff Tear

Min Soo Shon, MD, Seoul, Republic of Korea
Kyoung-Hwan Koh, MD, Seoul, Republic of Korea
Tae Kang Lim, MD, Gunpo, Republic of Korea
Seungwon Lee, MD, Seoul, Republic of Korea
Young Eun Park, Seoul, Republic of Korea
Jae-Chul Yoo, MD, Seoul, Republic of Korea

Overall 23.5% of patients who showed full-thickness RC tear refused to have surgery and they seems to have had less pain and disabilities initially than those who underwent surgery.

11:48 AM **PAPER: 131**

Clinical Outcome and Prognostic Factors of Revision Arthroscopic Rotator Cuff Tear Repair

Emilio Calvo, MD, Madrid, Spain
Diana Morcillo, Madrid, Spain
Antonio Maria Foruria de Diego, MD, PhD, Madrid, Spain
Maria Valencia, MD, Madrid, Spain

Revision arthoscopic rotator cuff repair results in reliable subjective satisfaction and improvement in shoulder function in selected cases.

11:54 AM **PAPER: 132**

Which is Better Between In Situ Repair Versus Completion Repair for Partial-thickness Rotator Cuff Tear?

Yang-Soo Kim, MD, Seoul, Republic of Korea

Both in situ repair and completion repair of partial thickness rotator cuff showed good results in ROM and clinical assessment postoperatively.

Discussion - 6 Minutes

12:06 PM **PAPER: 133**

Patient Satisfaction-Driven Reimbursement: Setting Patients' Expectations for Motion After Rotator Cuff Repair

Joshua Harris, MD, Chicago, IL
Grant L. Jones, MD, Columbus, OH
Robert B. Butler, MD, Columbus, OH
Amy L. Ravindra, MD, Columbus, OH
Julie Y. Bishop, MD, Columbus, OH

Significant tear size-dependent differences in range-of-motion following rotator cuff repair were observed: Large tears were stiffer than small at all points up to 1 year after repair.

12:12 PM **PAPER: 134**

Analysis of Ultrasound Operator Experience on Accuracy to Detect Supraspinatus Tears

Edward Yian, MD, Newport Coast, CA
Jeff F. Sodl, MD, Newport Beach, CA
Emil Dionysian, MD, Anaheim, CA

The recommended amount of operator experience necessary to evaluate the supraspinatus tendon before clinical application is 100 ultrasounds.

12:18 PM **PAPER: 135**

Appropriate Time to Judge Ultrasound-Guided Lidocaine Test Response for Subacromial Bursitis

Tomohisa Hashiuchi, MD, PhD, Nara City, Japan
Goro Sakurai, MD, Nara City, Japan
Yoshinori Takakura, MD, Nara, Japan
Yasuhito Tanaka, MD, Kashihara, Nara, Japan

Ultrasound-guided injection into the SAB was performed and 1% lidocaine alone was infused. The maximum amelioration rate was the highest (89.7%) 10 minutes after the injection.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Wednesday, March 20

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room N426

Hand and Wrist I: Hand and Tendon
Moderator(s): Joseph E. Imbriglia, MD, Wexford, PA
Fraser J. Leversedge, MD, Durham, NC

10:30 AM **PAPER: 136**
◆ Retrospective Review of the Author's First 140 Dupuytren's Patients Treated with Collagenase
James R. Verheyden, MD, Bend, OR

Improved nonoperative Dupuytren's contracture release results with collagenase can be achieved with use of the entire 0.9 mg bottle of enzyme, using a slow intracord and multicord injection technique.

10:36 AM **PAPER: 137**
Limited Fasciotomy for Early Dupuytren's Contracture
Colyn J. Watkins, MD, Atlanta, GA
Michael S. Sridhar, MD, Boston, MA
Jimmy H. Daruwalla, BS, Atlanta, GA
Gary R. McGillivary, MD, Atlanta, GA

This retrospective case series presents the limited fasciotomy, a novel surgical technique for the safe and effective management of early Dupuytren's contracture.

10:42 AM **PAPER: 138**
Collagenase Injection for Severe PIPJ Induced Dupuytren's Contracture Augmented by a Therapy Protocol
Terri Skirven, King of Prussia, PA
Abdo Bachoura, MD, Philadelphia, PA
Sidney M. Jacoby, MD, Philadelphia, PA
Randall W. Culp, MD, King Of Prussia, PA
A. Lee Osterman, MD, Villanova, PA

In the short-term, severe PIPJ contractures benefit from specific post injection splinting and stretching modalities.

Discussion - 6 Minutes

10:54 AM **PAPER: 139**
Expression of VEGF, Its Receptors and HIFα in Dupuytren's Disease
Lukas A. Holzer, MD, Graz, Austria
Andrej Coer, PhD, Izola, Slovenia
Gerold Holzer, MD, Vienna, Austria

The role of angiogenesis in Dupuytren's disease was studied immunohistochemically and VEGF, its receptors VEGFR-1 and Flk-1and HIF1a found to be expressed in SMA positive myofibroblast rich nodules.

11:00 AM **PAPER: 140**
Mesenchymal Stem Cell and Bioactive Substrate on Suture Confers Early Strength to Rat Achilles Tendon Repairs
Jeffrey Yao, MD, Redwood Shores, CA
Colin Woon, MD, Palo Alto, CA
Anthony Behn, MS, Stanford, CA
Don Y. Park, MD, Foster City, CA
Varun K. Gajendran, MD, Redwood City, CA
Robert Lane Smith, PhD, Stanford, CA

Sutures seeded with stem cells and bioactive substrate enhance early tendon repair strength at 7 to 10 days. There was no significant effect at later stages.

11:06 AM **PAPER: 141**
Distal Interphalangeal Joint Arthrodesis with Small Headless, Variable Pitch Screws
Christopher Cox, MD, Walnut Creek, CA
Brandon E. Earp, MD, Boston, MA
Philip E. Blazar, MD, Boston, MA

Prior implants for DIP arthrodesis often exceeded the size of the neck of the distal phalanx. We summarize our experience using smaller, variable pitch compression screws to achieve DIP arthrodesis.

Discussion - 6 Minutes

11:18 AM **PAPER: 142**
Arthrodesis Versus Prosthetic Arthroplasty for Osteoarthritis of the Index Finger Pip Joint
Mark A. Vitale, MD, Brooklyn, NY
Steven L. Moran, MD, Rochester, MN
Sanjeev Kakar, MD, Rochester, MN

This study evaluates the outcomes of joint fusion versus prosthetic arthroplasty for osteoarthritis or post-traumatic arthritis of the index finger proximal interphalangeal (PIP) joint.

11:24 AM **PAPER: 143**
Swan Neck and Buttonhole Deformities in Rheumatoid Arthritis: Clinical Course During a Five-Year Follow Up
Ryo Oda, MD, Kyoto, Japan
Daisaku Tokunaga, MD, Kyoto, Japan
Hiroyoshi Fujiwara, MD, Kyoto, Japan
Shogo Toyama, Kobe, Japan
Kan Imai, MD
Toshikazu Kubo, MD, Kyoto, Japan

In the RA patients, typical swan neck and buttonhole deformities are developed and cause impairment of the hand. We assessed functional deficiency and successive changes regarding these deformities.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

11:30 AM **PAPER: 144**

Reconstruction of Swan-neck Deformities after Proximal Interphalangeal Arthroplasty

John M. Froelich, MD, Denver, CO
Marco Rizzo, MD, Rochester, MN

Twelve patients treated with a flexor digitorum superficialis hemitenodesis for a swan-neck deformity after proximal phalangeal joint arthroplasty maintained 39 degrees of flexion at 30 months follow-up.

Discussion - 6 Minutes

11:42 AM **PAPER: 145**

Anatomic Modular Thumb Basal Joint Hemiarthroplasty Relieves Pain and Improves Function

James W. Pritchett, MD, Seattle, WA
Louis S. Habryl, DO, Gaylord, MI

Basal joint hemiarthroplasty with an anatomically curved, plasma-sprayed, stemmed prosthesis with a modular cobalt-chromium head achieves better results than previous implant types and designs.

11:48 AM **PAPER: 146**

◆ Basal Joint Osteoarthritis: Outcomes with Suture Button versus Abductor Pollicis Longus Suspensionplasty

Brian D. White, MD, Tampa, FL
Kristopher Avant, DO, Oklahoma City, OK
Michael C. Doarn, MD, Tampa, FL
Alfred V. Hess, MD, Temple Terrace, FL
Jeffrey D. Stone, MD, Tampa, FL
Michael J. Garcia, MD, Tampa, FL

Suspensionplasty with a suture-button device provides an effective alternative to APL suspensionplasty when treating thumb basal joint osteoarthritis.

11:54 AM **PAPER: 147**

Retrospective Review Comparing Post-Operative Protocols for Carpometacarpal Interpositional Arthroplasty

Filippo C. Chillemi, MD, Mobile, AL
Daniel Smith, BS, Mobile, AL
Frederick N. Meyer, MD, Mobile, AL

A retrospective review comparing prolonged immobilization versus limited immobilization with early controlled movements in the post-operative care of CMC interpositional arthroplasty of the thumb.

Discussion - 6 Minutes

12:06 PM **PAPER: 148**

A Prospective Randomized Study Comparing One versus Two Injections for Stenosing Tenosynovitis

John Peters, BS, Clarks Summit, PA
Charles F. Leinberry, MD, Chester Springs, PA
Emran Sheikh, MD, Rutherford, NJ
William M. Sayde, MD, Philadelphia, PA
James E. Dowdell III, BA, BS, Philadelphia, PA

Undergoing a staged, two-injection corticosteroid treatment for trigger digits was not shown to be superior to a single-injection treatment.

12:12 PM **PAPER: 149**

Plating of Metacarpal Fractures with Locked or Nonlocked Screws: How Many Cortices of Fixation are Really Needed?

Cameron Barr, MD, Stanford, CA
Anthony Behn, MS, Stanford, CA
Yi-Chao Huang, MD, Palo Alto, CA
Jeffrey Yao, MD, Redwood Shores, CA

No significant difference was found in bending or torsion testing between simulated comminuted metacarpal fractures plated with either six bicortical nonlocking screws or four bicortical locking screw.

12:18 PM **PAPER: 150**

3D-Computed Tomography Analyses of Intramedullary Headless Screw Fixation of Metacarpal Neck Fractures

Paul Willem Louis W. Ten Berg, Amsterdam, Netherlands
Chaitanya S. Mudgal, MD, Boston, MA
Matthew I. Leibman, MD, Newton, MA
Mark R. Belsky, MD, Newton, MA
David Ruchelsman, MD, Newton, MA

Simulation of retrograde insertion of headless screws in 3D models demonstrates the small extent of surface area violation; articular starting point is supported for these extra-articular fractures.

Discussion - 6 Minutes

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room S102

Spine I: Cervical

Moderator(s): Ronald A. Lehman, MD, Potomac, MD
Jory Richman, MD, Pittsburgh, PA

10:30 AM **PAPER: 151**

Cost Effectiveness of Single-Level Anterior Cervical Discectomy and Fusion Five Years After Surgery

Leah Y. Carreon, MD, Louisville, KY
Paul A. Anderson, MD, Madison, WI
Vincent C. Traynelis, MD, Chicago, IL
Praveen V. Mummaneni, San Francisco, CA
Steven D. Glassman, MD, Louisville, KY

Five year cumulative cost and SF-6D data in 241 patients showed that single-level instrumented ACDF is both effective and durable, with a Cost per QALY gained of $23,460 at five years after surgery.

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Wednesday, March 20

10:36 AM **PAPER: 152**

Minimum Clinically Important Difference Assesses Health State After Repeat Cervical Spine Surgery

Lauren Mioton, BS, Nashville, TN
Kevin R. O'Neill, MD, Saint Louis, MO
Katharine M. Burns, Nashville, TN
Brian T. Wright, BA, Nashville, TN
Robert J. Wilson II, MD, Nashville, TN
Kristin Archer, PhD, Nashville, TN
Matthew McGirt, MD, Nashville, TN
Clinton J. Devin, MD, Nashville, TN

A change difference method with health transition index anchor led to the most accurate minimum clinically important difference calculations for those with cervical fusion for adjacent segment disease.

10:42 AM **PAPER: 153**

Cervical Spine Fusion in Patients with Rheumatoid Arthritis: A U.S. Experience from 1992 through 2008

Benjamin E. Stein, MD, Baltimore, MD
Hamid Hassanzadeh, MD, Baltimore, MD
Andre Jakoi, MD, Philadelphia, PA
Amit Jain, MD, Baltimore, MD
Addisu Mesfin, MD, Rochester, NY
Mesfin A. Lemma, MD, Baltimore, MD
David B. Cohen, MD, Cockeysville, MD
Khaled M. Kebaish, MD, Baltimore, MD

Despite the increasing number of cervical fusions being performed, the relative rate of C1-C2 and posterior fusion procedures in patients with RA has been significantly less than in Non-RA patients.

Discussion - 6 Minutes

10:54 AM **PAPER: 154**

◆ Occipital Neuralgia After C1-2 Fusion with/without C2 Root Resection

Jin-Sup Yeom, MD, Sungnam, Republic of Korea
Jacob M. Buchowski, MD, MS, Saint Louis, MO
Ho-Joong Kim, Sungnam, Republic of Korea
Bong-Soon Chang, MD, Seoul, Republic of Korea
Choon-Ki Lee, Seoul, Republic of Korea
K. Daniel Riew, MD, Saint Louis, MO

The prevalence and intensity of postoperative neuralgia was significantly higher with C2 nerve root transection than with its preservation. We recommend against routine C2 nerve root transection.

11:00 AM **PAPER: 155**

Tractography of the Human Cervical Spine Nerve Roots

Matthew Kang
Brian W. Hill, MD, Saint Paul, MN

This is the first clear depiction of tractography at the cervical spinal nerve root level which may provide more objective data in the clinical assessment of a patient with cervical radiculopathy.

11:06 AM **PAPER: 156**

Epidemiological Trends in Cervical Spine Surgery between 2002-2009

Miguel Pelton, BS, Chicago, IL
Kern Singh, MD, Chicago, IL

Our study demonstrates that cervical spine surgeries have increased in incidence within the 8 year time duration between 2002 to 2009 with ACFs increasing and laminoplasties decreasing.

Discussion - 6 Minutes

11:18 AM **PAPER: 157**

Cervical Posterior Foraminotomy's Effect on Segmental Range of Motion in the Setting of Total Disc Arthroplasty

Adam Bevevino, MD, Washington, DC
Ronald A. Lehman, MD, Potomac, MD
Daniel Kang, MD, Bethesda, MD
Divya Ambati, A, Fairfax, VA
Rachel E. Gaume, BS
David E. Gwinn, MD, Crownsville, MD
Anton E. Dmitriev, Fort Belvoir, VA

Our results indicate that segmental stability is not significantly decreased by the presence, number, or level of posterior foraminotomies in the setting of cervical disc replacement.

11:24 AM **PAPER: 158**

◆ Wear Debris Formation Around Cervical Disc Prosthesis After a Minimum of 18 Months In Vivo

Korush Kabir, MD, Bonn, Germany
Moritz Deml, MD, Bonn, Germany
Hojjat Ahmadzadehfar, MD, Bonn, Germany
Robert Pflugmacher, MD, Bonn, Germany

Tissue surrounded revised cervical prosthesis show foreign body inflammatory reaction to wear debris after a minimum of 18 months in vivo. Revision surgery is promising in such patients after a standardized diagnostic algorithm.

11:30 AM **PAPER: 159**

Clinical and Radiographic Analysis of an Artificial Cervical Disc: Five-Year Results

J. Kenneth Burkus, MD, Columbus, GA
Vincent C. Traynelis, MD, Chicago, IL
Praveen V. Mummaneni, San Francisco, CA
Regis W. Haid Jr, MD, Atlanta, GA

To determine its safety and efficacy, we examined the outcomes of patients enrolled in a prospective, randomized, multicenter trial of an artificial cervical disc device at 5 years of follow up.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

11:42 AM **PAPER: 160**

Rate of Adjacent Segment Disease in Cervical Disc Arthoplasty Versus Fusion: An Analysis of Prospective Studies

Kushagra Verma, MD, Philadelphia, PA
Sapan D. Gandhi, BS, Philadelphia, PA
Alexander Vaccaro, MD, PhD, Gladwyne, PA
Alan S. Hilibrand, MD, Philadelphia, PA
Todd J. Albert, MD, Philadelphia, PA
Kristen E. Radcliff, MD, Egg Harbor, NJ

Data from six prospective studies was used to report an overall rate of ASD for ACDF vs. TDR at 2-5 years follow-up. There was no detectable difference in the rate of ASD between these groups.

11:48 AM **PAPER: 161**

◆ Re-operations in Cervical Total Disc Replacement vs. Anterior Cervical Fusion: Mean 48 Month Follow Up

Scott L. Blumenthal, MD, Plano, TX
Richard D. Guyer, MD, Plano, TX
Jack E. Zigler, MD, Plano, TX
Donna D. Ohnmeiss, MD, Plano, TX

Among 135 patients enrolled in prospective, randomized trials at a single site, compared with anterior cervical fusion, total disc replacement had a significantly lower re-operation rate.

11:54 AM **PAPER: 162**

Radiographic Predictors of Cervical Spondylotic Myelopathy Severity and Outcome

Fadi Taher, MD, New York, NY
Federico P. Girardi, MD, New York, NY
Gbolabo O. Sokunbi, MD, Bethlehem, PA
Alexander P. Hughes, MD, New York, NY
Matthias Pumberger, MD, Berlin, Germany
Andrew A. Sama, MD, New York, NY
Joseph Nguyen, MPH, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
Darren R. Lebl, MD, New York, NY

Study of radiographic predictors of disease severity and outcome of surgically treated cervical spondylotic myelopathy patients.

Discussion - 6 Minutes

12:06 PM **PAPER: 163**

Quantification of Neuronal Injury in Cervical Myelopathy Using Diffusion Tensor Imaging (DTI)

S. Rajasekaran, PhD, Coimbatore, India
Vishnu Prasath, Coimbatore, India
AC Swarnalakshmi, Coimbatore, India
Rishi M. Kanna, MRCS, Coimbatore, India
Janardhan Yerramshetty, PhD, Coimbatore, India

Changes in DTI data metrics at compressed levels of cervical myelopathic patients in comparison to controls and their relation to neurological status of patients.

12:12 PM **PAPER: 164**

Anterior Corpectomy versus Multiple Level Discectomy in Cervical Spondylotic Myelopathy

Ahmad Fouad A. Allam, MSc MRCS, Minia, Egypt
Talaat Taher A. El Hadidi, MD, Cairo, Egypt
Yasser H. El Miligui, MD, FRCS, Cairo, Egypt
Wael Koptan, MD, Cairo, Egypt
Mohammad M. El-Sharkawi, MD, Assiut, Egypt

In a prospective randomized study of 40 CSM patients, both multilevel ACDF using PEEK interbody cages and ACCF using autograft filled TMC and plating have satisfactory clinical & radiological outcome.

12:18 PM **PAPER: 165**

Clinical Validation of a Novel, Anatomically Based Classification of Cervical Stenosis

Kristen E. Radcliff, MD, Egg Harbor, NJ
Christopher Kepler, MD, Philadelphia, PA
Gursukhman Sidhu, MBBS, Philadelphia, PA
Todd J. Albert, MD, Philadelphia, PA
Alan S. Hilibrand, MD, Philadelphia, PA
Jeffrey A. Rihn, MD, Media, PA
Alexander Vaccaro, MD, PhD, Gladwyne, PA

Current descriptive terminology for cervical stenosis is "mild, moderate, or severe" and does not carry any clinical or anatomical correlation. We created an anatomically based, clinically validated classification of central cervical stenosis.

Discussion - 6 Minutes

SYMPOSIUM

1:30 PM — 3:30 PM
Room S406

Measuring Quality in Orthopaedics (N)

Moderator: Joseph D. Zuckerman, MD, New York, NY

The purpose of this symposium is to detail the provisions of the Patient Protection and Affordable Care Act (PPACA) that require gathering and submission of quality data and the financial impact of this data. The measures are different from those traditionally gathered as outcomes and represent CMS aprroach to measuring quality. Physicians, Hospital CEOs and Legislative counsel also have their own perspectives on what constitutes quality and these will be described by the respective stakeholders. Describe planning steps needed and actions practices should consider to prevent cuts in reimbursements and possibly qualify for incentive payments. Compliance risks associated with and methods to gather this data will be discussed.

I. Introduction
Joseph D. Zuckerman, MD, New York, NY

II. Quality Initiatives Mandated by Healthcare Reform
Ranjan Sachdev, MD, MBA, Bethlehem, PA

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Wednesday, March 20

III. Measuring MD – Measruing Outcomes and Quality in an Academic Setting
Joseph A. Bosco III, MD, New York, NY

IV. Hospital CEO Role in Quality Initiatives in Orthopaedics
Louis A. Shapiro, New York, NY

V. Compliance Risks of Quality Initiatives
Brian D. Annulis, Chicago, IL

VI. Questions and Answers

SYMPOSIUM
1:30 PM — 3:30 PM

Room S105

◆ Surgery for Early Onset Spinal Deformity: What is the Science? (O)
Moderator: Richard H. Gross, MD, Charleston, SC

Management of early onset spinal deformity has evolved over the past decade to the point where a variety of options are available for a given deformity. Critical factors in decision making include systemic osteoporosis, lung growth, and rib growth.

I. Growth Of The Immature Spine
James O. Sanders, MD, Rochester, NY

II. Growth of the Immature Lung
Robert M. Campbell, MD, Philadelphia, PA

III. Anatomy of the Immature Rib
Richard M. Schwend, MD, Kansas City, MO

IV. Growth Modulation
Peter O. Newton, MD, San Diego, CA

V. Osteoporosis in Children with Early Onset Spinal Deformity
Chad T. Price, MD, Orlando, FL

VI. Basic Science of the Shilla Procedure
Richard E. McCarthy, MD, Little Rock, AR

VII. Antikyphotic Strength of Current Fixation Methods
Richard H. Gross, MD, Charleston, SC

INSTRUCTIONAL COURSE LECTURE

1:30 PM — 3:30 PM

241 **Primary Total Hip Arthroplasty: The Basics**
TICKET
Room N227b
Moderator: Thomas S. Thornhill, MD, Boston, MA
Jay R. Lieberman, MD, Los Angeles, CA
Mark W. Pagnano, MD, Rochester, MN
Harry E. Rubash, MD, Boston, MA

Lecture and case presentation format beginning with pre-operative evaluation and peri-operative management. Various surgical approaches will be discussed. Implant choice, bearing surface, fixation and component implantation, prevention of dislocation and leg length equality.

◆242 **Periprosthetic Infection: The Algorithmic Approach and the Emerging Evidence**
TICKET
Room S103b
Moderator: Javad Parvizi, MD, FRCS, Philadelphia, PA
Keith R. Berend, MD, New Albany, OH
Craig J. Della Valle, MD, Chicago, IL
Bryan D. Springer, MD, Charlotte, NC

Management of periprosthetic joint infection will be discussed and all hot topics related to management of PJI. The course will be divided to three sections: prevention, diagnosis and surgical treatment of PJI.

243 **The Subtle to Severe Cavus Foot**
TICKET
Room S103a
Moderator: Brian C. Toolan, MD, Flossmoor, IL
John G. Anderson, MD, Grand Rapids, MI
Donald R. Bohay, MD, Grand Rapids, MI
Norman S. Turner III, MD, Rochester, MN

From subtle to severe, the cavus deformity is an underappreciated factor in the evaluation and management of foot and ankle complaints.

244 **Disorders of the Distal Radioulnar Joint**
TICKET
Lakeside, Room E352
Moderator: Brian D. Adams, MD, Iowa City, IA
Michael Hausman, MD, New York, NY
David S. Ruch, MD, Durham, NC

Open surgical and arthroscopic techniques for the treatment of triangular fibrocartilage complex (TFCC) injuries, acute and reconstructive procedures for instabilities and fractures involving the DRUJ and the management of arthritis of the DRUJ including the use of implants will be covered. Basic and complex cases, will be presented highlighting key aspects of treatment outcomes.

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Wednesday, March 20

245 **Complications of Common Pediatric Fractures: Prevention and Management**

Room S503

Moderator: Martin J. Herman, MD, Philadelphia, PA
Joshua M. Abzug, MD, Timonium, MD
Scott H. Kozin, MD, Philadelphia, PA
Shannon D. Safier, MD, Gladwyne, PA

Complications of common pediatric fractures will be presented in a case based manner. Discussion regarding pearls and pitfalls of avoiding complications as well as managing them.

246 **Difficult Conversations in Orthopaedics**

Room S502

Moderator: Andrew M. Wong, MD, Tallahassee, FL
David A. Halsey, MD, South Burlington, VT
Michael Marks, MD, MBA, Norwalk, CT
Donna P. Phillips, MD, New York, NY

Techniques and tools for difficult patient interactions: bad news, unexpected outcomes, medical error, angry and difficult patients, drug seeking and non-adherence due to financial concerns.

◆ 247 **Shoulder Prosthetic Arthroplasty Options in 2013: What To Do and When To Do It**

Room S104

Moderator: J. M. Wiater, MD, Beverly Hills, MI
Geert Declercq, MD, Deurne, Belgium
Thomas B. Edwards, MD, Houston, TX
Ralph Hertel, MD, Bern, Switzerland
Anand M. Murthi, MD, Baltimore, MD
Edwin E. Spencer Jr, MD, Knoxville, TN
John W. Uribe, MD, Coral Gables, FL
Peter L. Verrillo, Wood Ridge, NJ

Describe the indications and technical considerations for the latest cutting-edge prosthetic designs, including stemless TSA, in use in Europe and being investigated in the US. Treatment algorithms, technical pearls, and pitfalls will be covered by an experienced international faculty. Interesting and controversial cases will be presented

248 **PRP to the Reverse Prosthesis: Controversies in Treating Rotator Cuff Pathology**

Room N228

Moderator: Edward V. Craig, MD, New York, NY
Pascal Boileau, MD, Nice, France
Leesa M. Galatz, MD, Saint Louis, MO
John W. Sperling, MD, MBA, Rochester, MN

Indications and use of biologics, patches, open vs arthroscopic repair, tissue transfers and reverse arthroplasty to treat rotator cuff pathology.

249 **The Current State of Minimally Invasive Spine Surgery**

Room S106a

Moderator: Alexander C. Ching, MD, Portland, OR
Mark B. Dekutoski, MD, Rochester, MN
Eugene Y. Koh, MD, PhD, Baltimore, MD
Gregory M. Mundis, MD, San Diego, CA

Focus on the practical challenges of adopting MIS. Didactic talks will include: teaching MIS, MIS in "traditional" deformity practice and avoiding complications.

250 **Sports Hip Injuries: Assessment and Management**

Room S501

Moderator: Bryan T. Kelly, MD, New York, NY
Asheesh Bedi, MD, Ann Arbor, MI
Christopher Larson, MD, Edina, MN
Ira Zaltz, MD, Royal Oak, MI

Reviews the assessment and management of sports related hip injuries including impingement, labral and cartilage injuries, pubalgia, snapping hip syndromes, stress fractures and muscle injures.

251 **The Traumatic Amputee: Surgical Challenges and Advances in Prosthetics**

Room S504a

Moderator: Lisa K. Cannada, MD, Clayton, MO
Dana C. Covey, MD, MSc, San Diego, CA
Paul J. Dougherty, MD, Bloomfield Township, MI
Rahul Vaidya, MD, Tecumseh, Canada

Combines lessons learned from care of the civilian and combat amputee for up to date information on treatment, complications, rehabilitation and prosthetic advances.

252 **Geriatric Trauma: The Role of Immediate Arthroplasty**

Room S106b

Moderator: Andrew H. Schmidt, MD, Minneapolis, MN
Jonathan P. Braman, MD, Minneapolis, MN
Paul J. Duwelius, MD, Portland, OR
Michael D. McKee, MD, Toronto, ON, Canada

Discuss, in a case-based format, current indications and techniques for acute arthroplasty to treat articular fractures of the shoulder, elbow, hip and knee in the geriatric patient.

253 **Infection Prevention and Control: An Emerging Paradigm**

Room S401d

Moderator: Richard P. Evans, MD, Kansas City, MO
Jason H. Calhoun, MD, Columbus, OH
John L. Esterhai Jr, MD, Philadelphia, PA
Michael J. Patzakis, MD, San Marino, CA

Preoperative risk factor modification, antibiotic prophylaxis, and perioperative strategies that diminish the risk and rate of surgical infection will be covered. Case presentations are included.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Wednesday, March 20

FD2

Room N227a

Video Production for Orthopaedic Surgeons: Getting the Award, Making the Difference
Moderator: Kevin D. Plancher, MD, MS, New York, NY
Cesare Faldini, MD, Bologna, Italy

Video is one of orthopaedic educations most widely used instructional tools. This workshop will teach you how to critically evaluate the orthopaedic technique videos you watch, and how to create award winning orthopaedic videos of your own.

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room N427

Adult Reconstruction Hip III: Revision Total Hip Arthroplasty
Moderator(s): William A. Jiranek, MD, Richmond, VA
William B. Macaulay, MD, New York, NY

1:30 PM **PAPER: 166**
Epidemiology of Periprosthetic Femur Fractures in 5,500 Revision Total Hip Arthroplasties
Matthew P. Abdel, MD, New York, NY
David G. Lewallen, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

In 5500 revision THAs, the intraoperative and postoperative femoral fracture rates were 12.5% and 5.3%, respectively.

1:36 PM **PAPER: 167**
Clinical Outcome and Proximal Femur Changes Using an Extensively Porous-coated Stem in Periprosthetic Fractures
Eduardo García-Rey, MD, Madrid, Spain
Eduardo Garcia-Cimbrelo, MD, Madrid, Spain
Ana Cruz-Pardos, Madrid, Spain

The extensively porous-coated stem can solve Vancouver B2 and B3 periprosthetic fractures without post-operative bone loss.

1:42 PM **PAPER: 168**
Total Hip Arthroplasty Conversion After Previous Transtrochanter Rotational Osteotomy
Taek R. Yoon, MD, PhD, Jeonnam, Republic of Korea
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Republic of Korea
Kyung Soon Park, MD, Jeonnam, Republic of Korea
Jae-Wook Byun, MD, Gwangju, Republic of Korea

Conversion THA after transtrochanteric osteotomy showed similar clinical and radiological results except internal rotation limitation.

Discussion - 6 Minutes

1:54 PM **PAPER: 169**
Is There Faster Recovery After Direct Anterior Than Posterior Approach Total Hip Arthroplasty?
Ajit J. Deshmukh, MD
Jose Rodriguez, MD, New York, NY
Parthiv Rathod, MD, Flushing, NY
Michelle Greiz, New York, NY
Amar Ranawat, MD, New York, NY

DAA offered accelerated early post-operative recovery compared to the PA, although measured differences disappeared by 6 weeks, and parity was maintained at 12 weeks and 1 year.

2:00 PM **PAPER: 170**
Revision Total Hip Arthroplasty in Patients 55 Years and Younger
Muyibat A. Adelani, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO
William J. Maloney, MD, Redwood City, CA
Karla Crook, BS, Granite City, IL
John C. Clohisy, MD, Saint Louis, MO

At mid-term follow-up, young patients ≤ 55 years undergoing revision THA have modest clinical improvement and higher complication and failure rates than primary THA in a matched patient cohort.

2:06 PM **PAPER: 171**
Short Fully Coated Stem Use in Revision Hip Arthroplasty
Matthew Tetreault, BA, Pittsburgh, PA
Sanjai K. Shukla, MD, Reno, NV
Scott M. Sporer, MD, Wheaton, IL
Craig J. Della Valle, MD, Chicago, IL

The majority of femoral revisions can be performed with the use of a primary length diaphyseal engaging fully porous coated stem.

Discussion - 6 Minutes

2:18 PM **PAPER: 172**
Long-term Outcome of Revision Total Hip Arthroplasty in Juvenile Idiopathic Arthritis at 5-19 Years
Katherine Hwang, MS, Redwood City, CA
Susanna Imrie, PT, Stanford, CA
Stuart B. Goodman, MD, Redwood City, CA

Revision THA in JIA is challenging due to the patients' small proportions and compromised bone stock. The intra-operative and late complication rates are relatively high.

2:24 PM **PAPER: 173**
Survivorship of Revision Hip Arthroplasty in Patients with Sickle Cell Disease
Philippe Hernigou, PhD, Creteil France, France
Alexandre Poignard, MD, Creteil, France

revision hip arthroplasty in SCD involves a higher complications rate and incidence of failure (with iterative revision) than revision arthroplasty in osteonecrosis related to other conditions.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

2:30 PM **PAPER: 174**

Increased Revision Rates Following Total Hip Arthroplasty in Patients Who Smoke

Bhaveen Kapadia, MD, Baltimore, MD
Kimona Issa, MD, Santa Clarita, CA
Aaron J. Johnson, MD, Baltimore, MD
Qais Naziri, MD, Brooklyn, NY
Robert Pivec, MD, Baltimore, MD
Peter M. Bonutti, MD, Effingham, IL
Michael A. Mont, MD, Baltimore, MD

The purpose of this study was to compare the clinical outcomes of total hip arthroplasty in patients who are, or were smokers, to outcomes in non-smoker hip arthroplasty patients.

Discussion - 6 Minutes

2:42 PM **PAPER: 175**

Femoral Component Revision Using a 2nd Generation Modular Femoral Implant

Puneet Bhatia, MD, Louisville, KY
Arthur L. Malkani, MD, Louisville, KY
Steven L. Barnett, MD, Villa Park, CA
Tim P. Lovell, MD, Spokane, WA
William J. Hozack, MD, Philadelphia, PA

Femoral component revision can be a challenging problem due to the difficulty in restoring bone loss, offset, and leg length and achieving immediate implant stability.

2:48 PM **PAPER: 176**

Financial Analysis of Revision Hip Arthroplasty and the Shortfall in Reimbursement Paid to Hospitals

Ivor Vanhegan, BSc(Hons), MBBS, London, United Kingdom
Ahmad K. Malik, MD, Beaconsfield, United Kingdom
Prakash Jayakumar, MBBS, MSc, London, United Kingdom
Saif Ul-Islam, FRCS (Ortho), London, United Kingdom
Fares S. Haddad, FRCS, London, United Kingdom

We found a loss of £860 ($1,360) on average per case when performing revision hip arthroplasty. This shortfall may compromise smaller units from being able to provide this specialist service.

2:54 PM **PAPER: 177**

The Impact of Early Failures on the Cost-Effectiveness of Total Hip Arthroplasty

David Shearer, MD, San Francisco, CA
Jiwon Youm, BS, MS, San Jose, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA

Reductions in SSI and early readmissions have greater influence on the lifetime cost and quality-of-life associated with THA than equivalent reductions in failures related to aseptic loosening.

Discussion - 6 Minutes

3:06 PM **PAPER: 178**

Referral Patterns for Revision Total Hip Arthroplasty and Effect on Short Term Complications

Stephen Lyman, PhD, New York, NY
Kevin J. Bozic, MD, MBA, San Francisco, CA
Robert G. Marx, MD, New York, NY
Timothy M. Wright, PhD, New York, NY
Ting-Jung Pan, MPH, New York, NY
Huong Do, MA, New York, NY
Douglas E. Padgett, MD, New York, NY

Referral patterns for revision total hip arthroplasty have implications for patient care delivery and may increase complication rates.

3:12 PM **PAPER: 179**

Aetiology of Hip Revision Cases Performed within the U.K.: Results from the National Joint Registry

Ben Bolland, FRCS, MBBS, MD, Hampshire, United Kingdom
Sarah Whitehouse, PhD, Brisbane, Australia
John J. Timperley, MD, Exeter, United Kingdom

This study provides important baseline revision rates by indication for each prosthetic group from which future comparisons can be made.

3:18 PM **PAPER: 180**

Survival and Failure Mechanisms of Revision THA and TKA in a Community Registry

Daniel P. Hoeffel, MD, Woodbury, MN
Brandon J. Kelly, Saint Paul, MN
Penny Tatman, MPH, Saint Paul, MN
Susan C. Mehle, Saint Paul, MN
Kathleen Killeen, OT, Woodbury, MN

Mechanisms of failure and CSR results of revision THA and TKA from a community-based registry of 28,859 arthroplasties performed over a 20 year period are reported.

Discussion - 6 Minutes

Wednesday

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Wednesday, March 20

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room N426

Sports Medicine/Arthroscopy II: Articular Cartilage
Moderator(s): James C. Dreese, MD, Monkton, MD
Stephen R. Soffer, MD, Wyomissing, PA

1:30 PM **PAPER: 181**
Magnetic Resonance Imaging and Clinical Evaluation of Chondral Lesions Treated with Allografts Juvenile Cells
Cecilia Pascual Garrido, MD, Denver, CO
Stephanie L L. Gold, BA, New York, NY
Jaclyn Snikeris, BA, Chapel Hill, NC
Alissa J. Burge, MD, New York, NY
Joseph Nguyen, MPH, New York, NY
Hollis Potter, MD, New York, NY
Russell F. Warren, MD, New York, NY
Riley J. Williams, MD, New York, NY
Scott A. Rodeo, MD, New York, NY

Allogeneic juvenile cells appear to be an effective treatment for chondral lesions, with clinical significant improvement. Quantitative T2 mapping demonstrated immature repair tissue.

1:36 PM **PAPER: 182**
Enhanced MRI T2* Mapping Shows Articular Cartilage Matrix Changes After Anterior Cruciate Ligament Tear
Constance R. Chu, MD, Pittsburgh, PA
Ashley Williams, MS, Pittsburgh, PA
Robin West, MD, Presto, PA
Freddie H. Fu, MD, Pittsburgh, PA
Yongxian Qian, PhD, Pittsburgh, PA

ACLT increases osteoarthritis risk. Ultrashort echo time enhanced T2* MRI mapping shows subsurface matrix changes within normal appearing cartilage in patients with ACLT suggesting occult injury.

1:42 PM **PAPER: 183**
Can Intra-Articular Growth Hormone Improve Repair Tissue Quality After Marrow Stimulation Techniques?
Eric Strauss, MD, New York, NY
Bhavesh B. Joshi, DO, New York, NY
Robert J. Daher, MD, West Harrison, NY
Allan R. Dunn, MD, North Miami, FL
Laith M. Jazrawi, MD, New York, NY

Intra-articular growth hormone led to significant improvement in the gross and histologic appearance of repair tissue following surgical microfracture in the treatment of focal chondral lesions.

Discussion - 6 Minutes

1:54 PM **PAPER: 184**
Prediction of Prognosis in Conservative Treatment for Juvenile Osteochondritis Dissecans of the Femoral Condyle
Hiroshi Nakayama, MD, Nishinomiya, Japan
Shinichi Yoshiya, MD, Nishinomiya, Hyogo, Japan

In conservatively treated juvenile OCD, factors such as size and stage of the lesion, presence of discoid meniscus, age, and intensity of training significantly affect the prognosis.

2:00 PM **PAPER: 185**
Microfracture Treatment of Grade IV Knee Cartilage Lesions: Results at 15-year Follow Up in a Group of Athletes
Alberto Gobbi, MD, Milano, Italy
Georgios Karnatzikos, Milano, Italy

Microfracture can be a good option to treat small chondral defects in active individuals but competitive athletes should be advised that the improvement seen would decline with time.

2:06 PM **PAPER: 186**
◆ Protection of Blood Clot in Cartilaginous Microenvironment after Microfracture Enhances Cartilage Repairability
Byoung H. Min, MD, Suwon, Republic of Korea
Jun Young Chung, MD, Suwon, Republic of Korea
Kyoung Ho Yoon, MD, Seoul, Republic of Korea
Kyu-Sung Kwack, Suwon, Republic of Korea
Do Young Park, MD, Suwon, Republic of Korea
Tae Hun Kim, MD, Suwon, Republic of Korea

Compared to conventional microfracture, ECM biomembrane cover after microfracture resulted in superior outcome in the degree of cartilage repair and peripheral integration at two years of follow-up.

Discussion - 6 Minutes

2:18 PM **PAPER: 187**
Arthroscopic Delivery of Cancellous Tibial Autograft for Unstable Osteochondral Lesions in the Adolescent Knee
Christopher Espinoza-Ervin, MD, Dallas, TX
Henry B. Ellis Jr, MD, Dallas, TX
Philip L. Wilson, MD, Plano, TX

Arthroscopic delivery of proximal tibial cancellous autograft can safely and effectively be administered to unstable osteochondral lesions of the adolescent knee.

2:24 PM **PAPER: 188**
The Use of Platelet-Rich Plasma in Degenerative Lesions of the Knee: Results at Two-year Follow Up
Alberto Gobbi, MD, Milano, Italy
Georgios Karnatzikos, Milano, Italy

PRP intrarticular injections is effective in symptomatic arthritic knees and can act as a preventive agent of OA, by diminishing pain and improving symptoms and quality of life.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

2:30 PM **PAPER: 189**

Gene Therapy for Sustained Release of Bioactive Factors to Prevent Post-Traumatic Osteoarthritis

Nicole A. Friel, MD, Pittsburgh, PA
Hannah H. Lee, BS, Pittsburgh, PA
Michael O'Malley, MD, Pittsburgh, PA
Karin A. Payne, PhD, Aurora, CO
Xiao Xiao, PhD, Chapel Hill, NC
Constance R. Chu, MD, Pittsburgh, PA

Localized gene therapy for sustained intra-articular release of bioactive factors has potential for osteoarthritis prevention in anterior cruciate ligament injured joints.

Discussion - 6 Minutes

2:42 PM **PAPER: 190**

◆ Articular Cartilage Regeneration with Autologous Peripheral Blood Stem Cells: A Randomized Controlled Trial

Khay-Yong Saw, MD, Kuala Lumpur, Malaysia
Adam W. Anz, MD, Gulf Breeze, FL
Caroline S. Jee, PhD, Kuala Lumpur, Malaysia
Shahrin Merican, Damansara Heights,KL, Malaysia
S. Ahmad Roohi, MD, FRCS, Petaling Jaya, Malaysia
Paisal Hussin, MS, Serdang, Malaysia
Reza CS C. Ng, MD, Petaling Jaya, Malaysia
Kunaseegaran Ragavanaidu, MD, Shah Alam,, Malaysia

The addition of autologous peripheral blood progenitor cells to marrow stimulation produces cartilage that histologically approaches normal hyaline cartilage better than marrow stimulation alone.

2:48 PM **PAPER: 191**

Return to an Athletic Lifestyle Following Osteochondral Allograft Transplantation of the Knee

James S. Shaha, MD, Tripler AMC, HI
Jay B. Cook, MD, Leesburg, FL
Douglas J. Rowles, MD, Aiea, HI
Craig R. Bottoni, MD, Honolulu, HI
Steve Shaha, Draper, UT
Lt.Col John M. Tokish, MD, Kailua, HI

Osteochondral allograft transplantation was ineffective at returning an active duty population to duty or sport participation.

2:54 PM **PAPER: 192**

Revision Osteochondral Allografts: Do They Work?

Melissa T. Horton, BS, La Jolla, CA
Pamela A. Pulido, RN, BSN, La Jolla, CA
Julie C. McCauley, MPH, La Jolla, CA
William Bugbee, MD, La Jolla, CA

Secondary (revision) osteochondral allografting (OCA) of the knee is a viable treatment option for patients with a failed primary OCA who are still considered acceptable candidates for cartilage restoration.

Discussion - 6 Minutes

3:06 PM **PAPER: 193**

◆ A Novel Biomimetic Osteochondral Scaffold for the Treatment of Osteochondritis Dissecans

Elizaveta Kon, MD, Italy, Italy
Giuseppe Filardo, MD, Bologna, Italy
Alessandro Di Martino, MD, Bologna, Italy
Berardo Di Matteo, Med Student
Francesco Perdisa, MD, Bologna, Italy
Maria Letizia Merli, Bologna, Italy
Luca Andriolo, MD, Bologna, Italy
Francesco Tentoni, Riccione, Italy
Maurilio Marcacci, MD, Bologna, Italy

This study reports the interesting clinical efficacy at short term of a novel biomimetic osteochondral scaffold in treating osteochondritis dissecans of the knee.

3:12 PM **PAPER: 194**

Matrix Assisted Autologous Chondrocyte Transplantation: Mid-term Results and Prognostic Factors

Elizaveta Kon, MD, Italy, Italy
Giuseppe Filardo, MD, Bologna, Italy
Alessandro Di Martino, MD, Bologna, Italy
Francesco Iacono, MD, Bologna, Italy
Stefano Zaffagnini, MD, Bologna, Italy
Berardo Di Matteo, Med Student
Francesco Perdisa, MD, Bologna, Italy
Francesco Tentoni, Riccione, Italy
Maurilio Marcacci, MD, Bologna, Italy

Mid term matrix assisted chondrocyte transplantation determines interesting outcome especially in young active men affected by traumatic lesions.

3:18 PM **PAPER: 195**

◆ An Autologous Chondrocyte Tissue Implant (ACTI) for the Treatment of Chondral Defects in the Femur: Mid-term Results

Dennis C. Crawford, MD, Portland, OR
Thomas M. DeBerardino, MD, Farmington, CT
Claude T. Moorman III, MD, Durham, NC
Dean C. Taylor, COL, MD, Durham, NC
ChunBong B. Ma, MD, San Francisco, CA
James C. Chesnutt, MD, Portland, OR
Bradley J. Nelson, MD, Minneapolis, MN
Riley J. Williams, MD, New York, NY

We evaluated the mid-term results, safety and efficacy of a third-generation autologous chondrocyte tissue implant (ACTI) from preliminary multi-center, prospective randomized controlled trials.

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Wednesday, March 20

3:24 PM **PAPER: 829**

Novel Strategies to Enhance Microfracture Surgery: SDF and Sphingosine Scaffolds in Cartilaginous Defects

Noah Chinitz, MD, New York, NY
Anthony A. Catanzano, Seaford, NY
Neil V. Shah, BS, Brookville, NY
Pasquale Razzano, MS, Manhasset, NY
Zev Klapholz, Woodmere, NY
Nadeen Chahine, PhD, Manhasset, NY
Nicholas A. Sgaglione, MD, Great Neck, NY
Daniel A. Grande, PhD, Manhasset, NY

SDF and sphingosine are confirmed to chemoattract mesenchymal stem cells, and scaffolds coated with SDF and sphingosine display hyaline cartilage regenerates after a microfracture model in rat knees.

Discussion - 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room S102

Trauma II: Geriatric Fractures

Moderator(s): Paul E. Levin, MD, Bronx, NY
Gilbert R. Ortega, MD, Scottsdale, AZ

1:30 PM **PAPER: 196**

Geriatric Fractures About the Hip: Divergent Patterns in the Proximal Femur, Pelvis and Acetabulum

Matthew P. Sullivan, MD, Philadelphia, PA
Keith D. Baldwin, MD, Sicklerville, NJ
Derek J. Donegan, MD, Philadelphia, PA
Samir Mehta, MD, Philadelphia, PA
Jaimo Ahn, MD, PhD, Philadelphia, PA

The rates of geriatric acetabular, pelvic and subtrochanteric femur fractures are increasing and fragility hip fractures decreasing in the face of widespread bisphosphonate use.

1:36 PM **PAPER: 197**

A Modified Frailty Index: Correlation to One and Two-year Mortality in Geriatric Femoral Neck Fractures

Kushal V. Patel, MD, Temple, TX
Adam Shar, MD, Temple, TX
Zachery T. Hubert, BS, Riviera, TX
Timmothy R. Randell, MD, Temple, TX
Kindyle L. Brennan, PhD, Temple, TX
Daniel Jupiter, PhD, Temple, TX
Michael L. Brennan, MD, Temple, TX
Robert A. Probe, MD, Temple, TX
Matthew L. Davis, MD, FACS, Temple, TX

A modified frailty index from the Canadian Study of Health and Aging Frailty Index may play a role in assessing one- and two-year mortality in geriatric femoral neck fractures.

1:42 PM **PAPER: 198**

Are Dedicated Geriatric Hip Fracture Centers Justified Economically?

R Clement Carter, BSE, Philadelphia, PA
Jaimo Ahn, MD, PhD, Philadelphia, PA
Samir Mehta, MD, Philadelphia, PA
Joseph Bernstein, MD, Haverford, PA

Hip fracture care is profitable at high volumes, but small centers typically lose money on this care. Thus, most facilities would benefit from the regionalization of such care at dedicated centers.

Discussion - 6 Minutes

1:54 PM **PAPER: 199**

Does Continuing Clopidogrel Lead to Significant Complications in Patients Undergoing Hip Fracture Surgery?

Suresh Srinivasan, MBBS,MD, Leicester, United Kingdom
Kwang Chear Lee, MSc, MBBS, Leicester, United Kingdom
Radhakant Pandey, MS, Leicester, United Kingdom

Continuation of Clopidogrel during hip fracture surgery does not lead to significant complications.

2:00 PM **PAPER: 200**

◆ Outcomes Before, During and After Implementation of a Geriatric Hip Program: Is there a Learning Curve?

Cory A. Collinge, MD, Fort Worth, TX
Kindra D. McWilliam-Ross, MSN, APRN, Fort Worth, TX
Tara Weaver, RN, Fort Worth, TX

Most outcomes improved with our hip fracture program, however, hospital mortality increased during implementation.

2:06 PM **PAPER: 201**

Does a Geriatrics Service Improve Outcomes for Nonagenarians with Operatively Treated Hip Fractures?

Abbey Gore, MD, Arlington, VA
James N. DeBritz, MD, Washington, DC
Robert D. Golden, MD, Bethesda, MD

A team-oriented approach including a Geriatrics service can result in decreased length of stay for nonagenarians treated for hip fractures with a trend towards decreased post-operative complications.

Discussion - 6 Minutes

2:18 PM **PAPER: 202**

Mortality and Morbidity of Femur Fractures in High Energy Elderly Trauma Patients

Kushal V. Patel, MD, Temple, TX
Kwon Park, MD, Little Rock, AR
Daniel Jupiter, PhD, Temple, TX
Kindyle L. Brennan, PhD, Temple, TX
Matthew L. Davis, MD, FACS, Temple, TX
Michael L. Brennan, MD, Temple, TX

High energy femur fractures may impact mortality and morbidity in trauma patients aged 60 and greater.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

2:24 PM **PAPER: 203**

Is Operative Fixation of Orthopaedic Injuries in the Elderly Multitrauma Patient a Death Sentence?

Adham Abdelfattah, MD, Saint Louis, MO
Michael Del Core, BA, Saint Louis, MO
Lisa K. Cannada, MD, Clayton, MO
J. Tracy Watson, MD, Saint Louis, MO

Polytrauma geriatric patients with associated orthopaedic injuries are studied to define outcomes, complications and if requiring operative fixation improves mortality.

2:30 PM **PAPER: 204**

One-Year Mortality after Isolated Pelvic Fractures with Posterior Ring Involvement in Elderly Patients

Jesse E. Bible, MD, MHS, Nashville, TN
Jennifer M. Bauer, MD, Nashville, TN
Adam Wegner, MD, Sacramento, CA
Rishin Kadakia, Nashville, TN
Justin E. Richards, MD, Nashville, TN
Hassan R. Mir, MD, Nashville, TN

The 1-year mortality rate for elderly patients with isolated pelvic injuries with posterior ring involvement was found to be 12.9%.

Discussion - 6 Minutes

2:42 PM **PAPER: 205**

Outcome of Hemiarthroplasty in Stable (AO/OTA 31B1) Femoral Neck Fractures

Kaan Irgit, MD, Ankara, Turkey
Andrew L. Cornelius, MD, Danville, PA
Thomas R. Bowen, MD, Danville, PA
Daniel S. Horwitz, MD, Danville, PA

The outcomes of hemiarthroplasty in stable (AO/OTA 31B1) femoral neck fractures patients treated with hemiarthroplasty were compared with patients treated with osteosynthesis using cannulated screws.

2:48 PM **PAPER: 206**

Fate of Hip Stems after Operative Fixation of Periprosthetic Femoral Shaft Fractures

Mark J. Jo, MD, Montrose, CA
Jacob Didesch, MD, Newark, NJ
David J. Merriman, MD, Springfield, MO
Christopher McAndrew, MD, Saint Louis, MO
Michael J. Gardner, MD, Saint Louis, MO
William M. Ricci, MD, Saint Louis, MO

The objective of this study was to evaluate the long-term outcomes of patients that sustained a fracture about a hip arthroplasty stem and were treated with ORIF. The focus was on revision rates of the femoral stem.

2:54 PM **PAPER: 207**

Patient and Implant Survival Following 4,323 Hip Replacements for Acute Femoral Neck Fracture

Simon Jameson, Middlesbrough, United Kingdom
John Kyle, West Lothian, United Kingdom
Paul Baker, MB, ChB, Newcastle Upon Tyne, United Kingdom
James Mason, PhD, Stockton-on-Tees, United Kingdom
David Deehan, MD, FRCS, England, United Kingdom
Ian McMurtry, FRCS, Barnard Castle, United Kingdom
Mike R. Reed, MBBS, MD, Northumberland, United Kingdom

Analysis of 4323 THRs for fractured hip has shown a higher risk of revision when cementless implants are used.

Discussion - 6 Minutes

3:06 PM **PAPER: 208**

Staged Open Fracture Care of Geriatric Open Ankle Fractures Leads to Higher Risk of Amputation

Verena M. Schreiber, MD, Pittsburgh, PA
Matthew Tetreault, BA, Pittsburgh, PA
Ivan S. Tarkin, MD, Pittsburgh, PA
Peter Siska, MD, Pittsburgh, PA

Staged care with interval negative pressure dressing usage and secondary coverage procedure is associated with unacceptably high limb loss rate.

3:12 PM **PAPER: 209**

Locked Versus Unlocked Long Cephomedullary Intramedullary Nails in Stable Intertrochanteric Fractures

Patrick Kane, MD, Providence, RI
Bryan G. Vopat, MD, Providence, RI
David Paller, MS, Providence, RI
Sarath C. Koruprolu, MS, Providence, RI
Christopher T. Born, MD, Providence, RI

In a stable intertrochanteric fracture, unlocked cephalomedullary intramedullary nails display statistically significant higher yield torque while maintaining comparable peak torque as locked samples.

3:18 PM **PAPER: 210**

Dynamic Hip Screws Versus Intramedullary Nails for Extracapsular Hip Fractures in 2012: Systematic Review of RCTs

Akash Patel, MBBS, London, United Kingdom
Amarjit Anand, MBBS, BSc, London, United Kingdom
Bobby Anand, FRCS (Ortho), MBBS, North Wembley Middlesex, United Kingdom
Nirav K. Patel, BMedSc, MBChB, Middlesex, United Kingdom

This systematic review of recent RCTs comparing DHS and nailing for extracapsular hip fractures does not demonstrate superiority of either implant.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Wednesday, March 20

SURGICAL SKILLS COURSE

1:30 PM — 4:30 PM

4SK **Advanced Surgical Techniques for Sagittal Plane Spinal Deformity**

Room S402a

Moderator: Darrel S. Brodke, MD, Salt Lake City, UT
Todd J. Albert, MD, Philadelphia, PA
Carlo Bellabarba, MD, Seattle, WA
Theodore J. Choma, MD, Columbia, MO
Michael D. Daubs, MD, Santa Monica, CA

Learn thoracolumbar osteotomy and spine and pelvic fixation techniques, for the treatment of sagittal plane deformity, through didactic lectures, lab exercises and case discussions. Simulated bone models only.

5SK **Rotator Cuff: Surgical Skills**

Moderator: Peter J. Millett, MD, MSc, Vail, CO
Richard L. Angelo, MD, Woodinville, WA
Sepp Braun, MD, Munich, Germany
Scott A. Rodeo, MD, New York, NY
Anthony A. Romeo, MD, Chicago, IL

Room S402b

Current concepts in (arthroscopic) surgical repair of rotator cuff tears ranging from small to massive cuff tears: concepts background and hands-on lab session on simulated bone models.

3-HOUR INSTRUCTIONAL COURSE

1:30 PM — 4:30 PM

283 **An Orthopaedist's Introduction to the AMA Guides to Permanent Physical Impairment By Examples Using the 4th, 5th and 6th Edition**

Lakeside, Room E351

Moderator: J. M. Melhorn, Wichita, KS

The need for accurate impairment and disability evaluations continues to increase. Designed to select the most common musculoskeletal diagnoses and review how to evaluate and rate using the 4th, 5th and 6th editions of the Guides. This course will improve your efficiency and the quality of your evaluations.

284 **The Land of Ligaments: Navigating Sprains, Strains and Ruptures About the Foot and Ankle**

Lakeside, Room E350

Moderator: Steven L. Haddad, MD, Glenview, IL
Robert B. Anderson, MD, Charlotte, NC
Thomas O. Clanton, MD, Vail, CO
J. Chris Coetzee, MD, Golden Valley, MN
Mark Glazebrook, Halifax, NS, Canada

Delve into the simple and complex injuries to the syndesmosis, lateral collateral ligaments, deltoid ligament, and Lisfranc ligament. Master diagnostic and management strategies to achieve optimal reconstruction and appropriate return-to-play through didactic and case based approach.

INSTRUCTIONAL COURSE LECTURE

4:00 PM — 6:00 PM

261 **Preventing Leg Length Inequality and Instability after THA**

Room N227b

Moderator: Rafael J. Sierra, MD, Rochester, MN
Matthew Austin, MD, Philadelphia, PA
Carlos J. Lavernia, MD, Coral Gables, FL
Aaron G. Rosenberg, FACS, MD, Chicago, IL

The course will discuss the practical approach (preoperative preparation, surgical treatment) to preventing leg length inequality and instability after primary THA with some emphasis on the management of instability after THA.

◆262 **Let's Do a Revision Total Knee Arthroplasty**

Room S103b

Moderator: Craig J. Della Valle, MD, Chicago, IL
C L. Barnes, MD, Little Rock, AR
David J. Jacofsky, MD, Phoenix, AZ
Mark W. Pagnano, MD, Rochester, MN

Provide a practical approach to revision total knee arthroplasty including evaluation of the painful total knee replacement, exposure and surgical techniques.

263 **The Fab Five of the Foot and Ankle**

Moderator: David R. Richardson, MD, Memphis, TN
Mark J. Berkowitz, MD, Cleveland, OH
Eric M. Bluman, MD, Chestnut Hill, MA
Lew C. Schon, MD, Baltimore, MD

Room S104

Demonstration of five common foot and ankle procedures for proximal 5th metatarsal fractures, hallux rigidus, lateral ankle instability, subtle Lisfranc injury, and bunionettes, emphasizing surgical techniques.

264 **Running Your Practice Like a Business**

Room S401d

Moderator: Naven Duggal, MD, Boston, MA
Ross W. Simon, BA, Boston, MA

Manufacturing methodologies help organizations continually eliminate waste and increase value while 30% of the total cost of health care is wasted. Learn how to use these principles to improve quality and patient satisfaction in your orthopaedic practice.

265 **Getting Ready for ICD-10 and Meaningful Use Stage 2**

Room S405

Moderator: Jack M. Bert, MD, Woodbury, MN
William R. Beach, MD, Richmond, VA
Louis F. McIntyre, MD, White Plains, NY
Ranjan Sachdev, MD, Bethlehem, PA

Will examine the financial and operational impact ICD-10 and meaningful use stage 2 regulations will have on orthopaedic practices. The organization of ICD-10, cross walk from ICD-9 to ICD-10 and steps needed for successful conversion will be discussed. Significant changes proposed in Meaningful use 2 regulations and compliance risks posed by these regulations will also be discussed.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

266 **Operative Treatment of Fractures and Dislocations of the Hand: Contemporary Perspectives**

Room S503

Moderator: Andrew Jawa, MD, Cambridge, MA
Randipsingh R. Bindra, MD, Maywood, IL
David C. Ring, MD, Boston, MA
Alexander Yong Shik Shin, MD, Rochester, MN

Case-based course examining indications, contemporary surgical fixation techniques, and rehabilitation for evidence-based treatment of hand fractures and dislocations.

◆267 **Surgical Aspects of Spinal Growth Modulation in Scoliosis Correction**

Room S103a

Moderator: Viral V. Jain, MD, MBBS, Cincinnati, OH
Patrick J. Cahill, MD, Philadelphia, PA
Peter F. Sturm, MD, Cincinnati, OH
Eric Wall, MD, Cincinnati, OH
Peter O. Newton, MD, San Diego, CA

Surgical aspects of spinal growth modulation: Indications, surgical techniques, post-operative management, pearls and pitfalls, and salvage techniques of nitinol staples, titanium staple-screw and anterior spinal tether.

268 **Reverse Shoulder Arthroplasty: Beyond the Basics**

Room N228

Moderator: Gordon I. Groh, MD, Asheville, NC
Mark A. Frankle, MD, Temple Terrace, FL
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Michael A. Wirth, MD, San Antonio, TX

Reverse shoulder arthroplasty indications, techniques and results for disorders including fractures, failed hemi/total shoulder arthroplasty and prosthetic instability. Includes a review of pertinent biomechanics and biology.

269 **The Active Patient with GH Arthritis: How Do We Prevent It and How Do We Treat It**

Lakeside, Room E352

Moderator: Marc Safran, MD, Redwood City, CA
Wayne Z. Burkhead Jr, MD, Dallas, TX
Emilie V. Cheung, MD, Redwood City, CA
Anthony Miniaci, MD,FRCSC, Garfield Hts, OH

Includes case based discussion and presentations on non-arthroplasty options for the management of glenohumeral osteoarthritis in the active patient.

◆270 **Advanced Techniques in Cervical Spine Surgery**

Room S106b

Moderator: Nitin N. Bhatia, MD, Orange, CA
Gary Ghiselli, MD, Greenwood Village, CO
Bobby Tay, MD, San Francisco, CA
Warren D. Yu, MD, Washington, DC

Discuss indications and techniques for anterior and posterior cervical spinal surgery with an emphasis on recent advancements and options. Includes interactive audience participation and discussion.

271 **Hip Arthroscopy: Fundamental Techniques and Foundational Skills**

Room S501

Moderator: Dean K. Matsuda, MD, Los Angeles, CA
Victor M. Ilizaliturri Sanchez Jr, MD, Mexico City, Mexico
Marc J. Philippon, MD, Vail, CO
Thomas G. Sampson, MD, San Francisco, CA

Introduction to the expanding indications and techniques for hip arthroscopy while providing a firm foundation for further surgical skills development.

272 **Current Plating Techniques and Definitive Treatment Options for Fractures of the Tibial Plafond and Treatment of the Late and Failed Pilon**

Room S502

Moderator: Anthony S. Rhorer, MD, Scottsdale, AZ
Michael T. Archdeacon, MD, Cincinnati, OH
Cory A. Collinge, MD, Fort Worth, TX
Gilbert R. Ortega, MD, Scottsdale, AZ

Describe the staged treatment of tibial pilon fractures. Emphasis will be on modern plating techniques including standard and alternative operative approaches. Open treatment in combination with definitive external fixation and salvage of the late presentation and treatment failures.

273 **Non-union Evaluation and Treatment**

Room S504a

Moderator: Clifford B. Jones, MD, FACS, Grand Rapids, MI
Michael J. Gardner, MD, Saint Louis, MO
Joseph R. Hsu, MD, San Antonio, TX
Alan L. Jones, MD, Dallas, TX

The attendee should be able to appropriately work up, evaluate, treat with nail/plate/external fixation and utilize adjunctive grafting of non-unions.

274 **Bone and Soft Tissue Tumors for the General Orthopedic Surgeon: How to Diagnose, Manage and Avoid Errors**

Room S106a

Moderator: G. Douglas Letson, MD, Tampa, FL
David Cheong, MD, Tampa, FL
John P. Dormans, MD, Philadelphia, PA
H. T. Temple, MD, Miami, FL

Intended for the general orthopedic surgeon to help work up, diagnose and manage musculoskeletal lesions, avoid errors, and to refer when appropriate.

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Wednesday, March 20

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room S105

Sports Medicine/Arthroscopy III: Shoulder (Instability/AC Joint)
Moderator(s): Michael S. George, MD, Houston, TX
Kevin D. Plancher, MD, New York, NY

4:00 PM **PAPER: 211**
Simple Method of Glenoid Bone Loss Calculation Using Ipsilateral MRI
Brett D. Owens, MD, West Point, NY
Travis C. Burns, MD, San Antonio, TX
Scot Campbell, Lackland AFB, TX
Steven J. Svoboda, MD, West Point, NY
Kenneth L. Cameron, PhD, West Point, NY

This study found a correlation between glenoid height and width among the shoulder MRI of healthy subjects. The following formula can be used to estimate expected width from known height: W=1/3 H+15mm.

4:06 PM **PAPER: 212**
Recurrent Anterior Glenohumeral Instability with Bone Loss: Soft Tissue vs. Bone Block Transfer
Anand Panchal, DO, Chapel Hill, NC
Daryl C. Osbahr, MD, Baltimore, MD
Brent G. Parks, MSc, Baltimore, MD
Wiemi Douoguih, MD, Washington, DC

A tensioned, conjoined tendon transfer to the anterior glenoid with bone loss exhibited decreased anterior glenohumeral translation compared to a bone block transfer in a cadaveric biomechanical model.

4:12 PM **PAPER: 213**
The Role of the Subscapularis Muscle in Recurrence After Primary Open Bankart-neer Repair
Axel Gamulin, MD, Plan-les-Ouates, Switzerland
Romain Dayer, MD, Geneve, Switzerland
Anne Lubbeke-Wolff, MD, DSc, Geneva, Switzerland
Hermes Miozzari, MD, Geneva, Switzerland
Pierre J. Hoffmeyer, MD, Geneve, Switzerland

Histopathologic changes within the subscapularis muscle could be identified as a predictor of recurrence after primary open labral repair/capsulorrhaphy for posttraumatic anterior shoulder instability.

Discussion - 6 Minutes

4:24 PM **PAPER: 214**
Arthroscopic Remplissage for Humeral Defect in Anterior Shoulder Instability: Is It Needed?
Yong-Girl Rhee, MD, Seoul, Republic of Korea
Nam-Su Cho, MD, Seoul, Republic of Korea
Chongsuck Parke, MD, Sungnam, Republic of Korea
Jae Hyun Yoo, MD, Seoul, Republic of Korea

In arthroscopic repair for anterior instability with engaging Hill-Sach's lesion, repair of infraspinatus footprint by Remplissage procedure limits external rotation but reduces redisolocation rate.

4:30 PM **PAPER: 215**
What is the Contribution of the Conjoint Tendon to Shoulder Stability Following a Latarjet Procedure?
Lauren Crocco, MD, New York, NY
Michelle H. McGarry, MD, Long Beach, CA
Nick Jain, Irvine, CA
Thay Q. Lee, PhD, Long Beach, CA
Tony Wanich, MD, Englewd Clfs, NJ

The "sling effect" from the conjoint tendon following Latarjet reconstruction provides 27% to 39% of the stabilizing effect following Latarjet reconstruction.

4:36 PM **PAPER: 216**
The Latarjet Coracoid Transfer for Anterior Instability: Results in 66 Cases
Clayton H. Riley, MD, Little Rock, AR
Jose A. Romero, MS, San Juan, TX
John R. Burleson, MS, Houston, TX
Daniel O'Connor, PhD, Houston, TX
Hussein A. Elkousy, MD, Houston, TX
Gary M. Gartsman, MD, Houston, TX
Thomas B. Edwards, MD, Houston, TX

The Latarjet procedure for recurrent anterior instability consistently provides good results in functional outcomes.

Discussion - 6 Minutes

4:48 PM **PAPER: 217**
Injury of the Suprascapular Nerve During Latarjet Procedure: An Anatomic Study
Alexandre Laedermann, MD, Meyrin, Switzerland
Patrick J. Denard, MD, Medford, OR
Stephen S. Burkhart, MD, San Antonio, TX

The proximity of the suprascapular nerve to the posterior glenoid rim puts this nerve at risk during insertion of the screws used for the Latarjet procedure.

4:54 PM **PAPER: 218**
The Anatomy of the Long Head of the Biceps Tendon and Implications on Tenodesis
Waqas M. Hussain, MD, Davenport, IA
Deepak Reddy, MD, Chicago, IL
Alfred Atanda, MD, Philadelphia, PA
Morgan H. Jones, MD, Cleveland Heights, OH
Mark S. Schickendantz, MD, Cleveland, OH
Michael A. Terry, MD, Chicago, IL

Although we observed variation in the measurements of the biceps tendon, we were able to successfully quantify the longitudinal anatomy of the structure in respect to surgically relevant landmarks.

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Wednesday, March 20

5:00 PM **PAPER: 219**

Hidden Lesions of the Long Head of the Biceps Tendon: A Cadaveric Analysis and Case Series

Samuel A. Taylor, MD, New York, NY
Mahmoud M. Khair, MD, New York, NY
Lawrence Gulotta, MD, New York, NY
Christopher J. Dy, MD, New York, NY
Nikolas Baret, New York, NY
Ashley M. Newman, BS, Syracuse, NY
Andrew D. Pearle, MD, Rye, NY
Stephen J. O'Brien, MD, PLLC, New York, NY

Diagnostic arthroscopy fails to visualize a significant portion of the long head of the biceps tendon allowing clinically significant lesions to go unrecognized in a subset of patients.

Discussion - 6 Minutes

5:12 PM **PAPER: 220**

Surgical Treatment of Isolated Type II SLAP Lesions: Repair versus Biceps Tenodesis

Eugene Ek, MBBS, PhD, New York, NY
Lewis L. Shi, MD, Chicago, IL
Jeffrey D. Tompson, BA, Boston, MA
Michael T. Freehill, MD, Winston-Salem, NC
Jon J. Warner, MD, Boston, MA

We demonstrate that both biceps tenodesis and superior labral repair can provide good to excellent results if performed in appropriately selected patients with isolated Type II SLAP lesions.

5:18 PM **PAPER: 221**

SLAP Lesions in Adolescent Athletes: Do They Really Exist?

Benton E. Heyworth, MD, Boston, MA
Yi-Meng Yen, MD, Boston, MA
Kesley D. Tyson, MS, Boston, MA
Donald S. Bae, MD, Boston, MA
Mininder S. Kocher, MD, MPH, Boston, MA
Dennis E. Kramer, MD, Boston, MA

SLAP tears are rare in adolescents and are most commonly associated with glenohumeral instability pathology. When seen in isolation, subtle instability patterns may be present.

5:24 PM **PAPER: 222**

Injury to the Suprascapular Nerve in SLAP Repair: A Rotator Interval Portal is Not Safer than an Anterosuperior Portal

Ryan T. Morgan, MD, Baltimore, MD

When perforation of the glenoid occurred, 1 o'clock and 2 o'clock posterior suture anchors placed through the rotator interval portal were statistically significantly closer to the suprascapular nerve.

Discussion - 6 Minutes

5:36 PM **PAPER: 223**

Complications after Contemporary Acromioclavicular Joint Reconstructive Procedures

Frank Martetschlager, MD, Vail, CO
Marilee P. Horan, MPH, Vail, CO
Peter J. Millett, MD, MSc, Vail, CO

Acromioclavicular joint reconstructions with allograft show a higher survivorship rate at 1 year compared to suture button repair.

5:42 PM **PAPER: 224**

Biomechanical Evaluation of Clavicle Fracture Risk after Coracoclavicular Reconstruction Using Clavicle Tunnels

Guillaume D. Dumont, MD, Dallas, TX
Robert D. Russell, MD, Dallas, TX
William Pierce, Dallas, TX
William R. Hotchkiss, MD, Dallas, TX
Philip L. Wilson, MD, Plano, TX
William Robertson, MD, Dallas, TX
Justin R. Knight, MD, Dallas, TX

A biomechanical study showing increased risk of clavicle fracture in coracoclavicular ligament reconstruction constructs that utilize tunnels in the distal clavicle.

5:48 PM **PAPER: 225**

A Novel Biomechanical Study of Weaver-Dunn vs. Suture Throughout the Graft Techniques ACJ Fixation

Nadine L. Williams Jr, MD, Brooklyn, NY
Westley Hayes, MS, Brooklyn, NY
Burko Igor, Staten Island, NY
Akil P. Simon, Brooklyn, NY
Subrara Saha, PhD, Brooklyn, NY

ACJ separations reconstructed with tendon grafts augmented with UHMWPE incorporated throughout have more tensile strength and extension to failure than standard technique.

5:54 PM **PAPER: 832**

Operative versus Non-operative Treatment of Acute Dislocations of the Acromio-clavicular Joint

Michael D. McKee, MD, Toronto, ON, Canada
Stephane Pelet, MD, PhD, Québec, QC, Canada
Jean Lamontagne, MD, Saint-ferreol-les-Neiges, QC, Canada
Luc Bedard, MD, Quebec, QC, Canada
Emil H. Schemitsch, MD, Toronto, ON, Canada
Jeremy Hall, MD, FRCS (ORTHO), Toronto, ON, Canada
Milena Vicente, RN, Toronto, ON, Canada

Operative versus Non-operative Treatment of Acute Dislocations of the Acromio-clavicular Joint: Results of a Multi-centre Randomized, Prospective Clinical Trial.

Discussion - 6 Minutes

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Wednesday, March 20

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room N427

Adult Reconstruction Knee III: Unicompartmental Knee Arthroplasty
Moderator(s): Fred D. Cushner, MD, New York, NY
Alfred J. Tria Jr, MD, Princeton, NJ

4:00 PM **PAPER: 226**
Revision Unicompartmental Knee Arthroplasty to Total Knee Arthroplasty: Not Always a Slam Dunk
Cale Kassel, MD, Rochester, MN
Nathan Wetters, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL
Michael E. Berend, MD, Mooresville, IN
Keith R. Berend, MD, New Albany, OH
Rafael J. Sierra, MD, Rochester, MN

Re-revision rate after revision TKA from UKA was 4.7% at just over 4 years. The survivorship of a revised UKA to TKA is less than primary TKA and should be considered comparable to revision TKA.

4:06 PM **PAPER: 227**
Patient Specific Instrumentation in Unicompartmental Arthroplasty: A Prospective Randomized Study
Sebastian Parratte, MD, Marseille, France
Jean-Noel A. Argenson, MD, Marseille, France

patient specific instrumentation in UKA can be as accurate as manual instrumentation for frontal and sagittal alignment and better for rotation with potential limit for the depth of the tibial cut.

4:12 PM **PAPER: 228**
Oxford Unicompartmental Knee Fails at High Rate in a High-Volume Practice
William C. Schroer, MD, Saint Louis, MO
Paul Diesfeld, PA-C, Saint Louis, MO
Angela LeMarr, RN, Saint Louis, MO
Rachel R. Ingrassia, RN, O' Fallon, MO
Diane Morton, MS, Saint Louis, MO
Mary E. Reedy, RN, Saint Louis, MO

A high-volume knee arthroplasty practice had 12% failure in 83 Oxford unicompartmental knees from 2005-2008 with no radiographic evidence of loosening.

Discussion - 6 Minutes

4:24 PM **PAPER: 229**
Revision of UKA: Is There a Difference Compared to Primary TKA and Revision TKA?
Sebastian Parratte, MD, Marseille, France
Alexandre Lunebourg, MD, Marseille, France
Jean-Noel A. Argenson, MD, Marseille, France

Unicompartmental knee arthroplasty is a bone preservative technique but surgeons can not advocate that results of revision will be as good as a primary total knee arthroplasty.

4:30 PM **PAPER: 230**
Tibiofemoral Contact Mechanics Following Unicompartmental Knee Arthroplasty
Thomas J. Heyse, MD, Marburg, Germany
Scott M. Tucker, MS, BS, New York, NY
Yogesh Rajak, BA, New York, NY
Jun Kim, Danville, PA
Joseph D. Lipman, MS, New York, NY
Carl W. Imhauser, PhD, New York, NY
Geoffrey H. Westrich, MD, New York, NY

The contact area was significantly reduced and the contact stress significantly increased on the medial compartment with medial UKA.

4:36 PM **PAPER: 231**
◆ Improved Fixation in Cementless Unicompartmental Knee Arthroplasty: A Randomized Controlled Trial
Alexander D. Liddle, MBBS, Oxon, United Kingdom
Hemant G. Pandit, FRCS, Oxford, United Kingdom
Cathy Jenkins, MA
Benjamin J. Kendrick, MBBS, FRCS (Ortho)
Barbara Marks, Oxford, United Kingdom
Andrew J. Price, FRCS, Oxford, United Kingdom
Harinderjit Gill, PhD, Oxford/Oxon, United Kingdom
Christopher A. Dodd, FRCS, Oxford, United Kingdom
David W. Murray, MD, Oxford, United Kingdom

A Randomized Controlled Trial of 63 knees comparing cemented to cementless UKA, demonstrating improved fixation and equivalent or improved functional outcome with the cementless prosthesis.

Discussion - 6 Minutes

4:48 PM **PAPER: 232**
Minimum 10-year Follow Up of Repicci Unicompartmental Knee Arthroplasty
Lawrence Kohan, MD, Sydney, Australia
Clarice Field, PhD, Bondi Junction, Australia
Dennis Kerr, MB, Randwick, Australia

At minimum 10 years, average 12.5 years, Kaplan-Meier survivorship was 91.6%.

4:54 PM **PAPER: 233**
Simultaneous Versus Staged Bilateral Unicompartmental Knee Arthroplasty
Jerry Chen, MBBS, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Jiang Lei, MBBS, Singapore, Singapore
Hwei Chi Chong, Singapore, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Pak Lin Chin, FRCSEd, Singapore, Singapore
Shi-lu Chia, MBBS, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

While simultaneous bilateral UKA has the advantages of a shorter inpatient stay and lower hospitalization bills, there is a higher incidence of cardiopulmonary complications.

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Wednesday, March 20

5:00 PM **PAPER: 234**

Long-term Outcome of Unicompartmental Knee Replacement in a District General Hospital

Mathias Nagy, MD, Macclesfield, United Kingdom
Graham Keys, MBBS, FRCS (Ortho), Macclesfield, United Kingdom

Our results demonstrate excellent long term results in the first decade but high revision rate due to lateral compartment osteoarthritis in the second decade.

Discussion - 6 Minutes

5:12 PM **PAPER: 235**

Unicompartmental Knee Arthroplasty After High Tibial Osteotomy: Clinical and Radiographics Outcomes

Nathan Jacobson, MD, Taylor, MI
Gustavo Valenzuela, MD, Taylor, MI
Richard Valenzuela, MD, Plymouth, MI
Theodore D. Koreckij, MD, Dearborn, MI
Robert A. Teitge, MD, Dearborn, MI

Previous high tibial osteotomy does not adversely affect subsequent unicompartmental knee arthroplasty outcomes: function (Oxford Knee Score & Knee Society Scores), limb alignment, or patellar height.

5:18 PM **PAPER: 236**

The Effect of Deformity Correction on Knee Kinematics in Both Medial and Lateral Unicompartmental Knees

Yang-Chieh Fu, PhD, Athens, GA
Kathy J. Simpson, PhD, Athens, GA
Takahiko Kiyama, MD, Fukuoka, Japan
Scott A. Banks, PhD, Gainesville, FL
Tracy Kinsey, MPH, Athens, GA
Ormonde M. Mahoney, MD, Athens, GA

Medial and lateral knee reconstructions with varying degrees of soft tissue releases demonstrated similar kinematics during a step-up maneuver.

5:24 PM **PAPER: 237**

Comparative Study of UKA Performed Using Navigation System and Conventional Technique after Five-year Follow Up

Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Republic of Korea
Ji-Hyeon Yim, Jeonnam, Republic of Korea
Jae-Young Moon, MD, Hwasun-Gun, Republic of Korea
Kyung Soon Park, MD, Jeonnam, Republic of Korea
Taek R. Yoon, MD, PhD, Jeonnam, Republic of Korea

Although the navigation system in UKA can improve alignment accuracy of the lower extremity, there were no significant differences in functional outcomes and survival rate after 5 year-follow-up.

Discussion - 6 Minutes

5:36 PM **PAPER: 238**

Does Robotic Surgical Assistance Improve the Accuracy of Implant Placement in Unicompartmental Knee Arthroplasty?

Mark J. Blyth, FRCS, Stirlingshire, United Kingdom
Julie Smith, PhD, Glasgow, United Kingdom
Bryn Jones, MD, Glasgow, United Kingdom
Angus D. MacLean III, FRCS (Ortho), Scotland, United Kingdom
Iain Anthony, Glasgow, United Kingdom
Philip Rowe, Glasgow, United Kingdom

CT based analysis demonstrates that Robotic Assisted Unicompartmental Knee Arthroplasty greatly enhances the accuracy of implant placement that can be achieved during surgery.

5:42 PM **PAPER: 239**

Unicondylar Arthroplasty in Anterior Cruciate Ligament Deficient Knees

Gerard A. Engh, MD, Alexandria, VA
Debbie Ammeen, Alexandria, VA

Despite deficiency of the ACL, unicompartmental arthroplasty can be used to manage arthritis involving a single compartment of the knee.

5:48 PM **PAPER: 240**

The Survival of Medial and Lateral Unicompartmental Knee Replacements at Five Years is Equivalent

Paul Baker, MB, ChB, Newcastle Upon Tyne, United Kingdom
Simon Jameson, Middlesbrough, United Kingdom
David Deehan, MD FRCS, England, United Kingdom
Paul J. Gregg, Cleveland, United Kingdom
Martyn Porter, MD, Wigan, United Kingdom
Keith K. Tucker, FRCS, Norwich, United Kingdom

The mid-term survival of medial and lateral unicompartmental replacements are equivalent, supporting the on-going use of pooled data by registries when analyzing this implant type.

Discussion - 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room N426

Spine II: Lumbar

Moderator(s): Charles J. Banta II, MD, Dallas, TX
Joseph D. Smucker, MD, Iowa City, IA

4:00 PM **PAPER: 241**

◆ Clinical Complications Following rhBMP2 Use in a Minimally Invasive Transforaminal Lumbar Interbody Fusion

Miguel Pelton, BS, Chicago, IL
Tom D. Cha, MD, Boston, MA
Safdar N. Khan, MD, Columbus, OH
Kern Singh, MD, Chicago, IL

A retrospective review of all patients undergoing an MIS TLIF (single surgeon) at our institution revealed a 1.7% bone overgrowth rate with significant additional surgeon/ hospital costs.

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Wednesday

Wednesday, March 20

4:06 PM **PAPER: 242**

◆ rhBMP-2 in Posterior Lumbar Interbody Fusion: A Prospective Randomized Controlled Trial

Jan Sys, MD, Puurs, Belgium
Jef Michielsen, MD, Hoogstraten, Belgium

The high incidence of osteolysis and ectopic bone formation raises concerns with regard to the dosage of the rhBMP-2 and the binding of the product to the carrier.

4:12 PM **PAPER: 243**

The Thoracolumbar Fusion Risk Score: Predicting Postoperative Morbidity and Mortality

Jacqueline Munch, MD, Portland, OR
Natalie L. Zusman, BS, Portland, OR
Elizabeth Lieberman, BS, Lake Oswego, OR
Ryland Stucke, BS, Portland, OR
Sawyer G. Smith, BS, Happy Valley, OR
Courtney D. Bell, BS, Portland, OR
Travis Philipp, BA, Portland, OR
Alexander C. Ching, MD, Portland, OR
Jung U. Yoo, MD, Portland, OR

We have created a scoring system based on surgical variables that predicts the rate of major medical complications following elective thoracic/lumbar arthrodesis.

Discussion - 6 Minutes

4:24 PM **PAPER: 244**

The Fusion Risk Score: Preoperative Risk Evaluation in Thoracic and Lumbar Fusion Surgery

Nathan L. Hartin, MD, Crows Nest, Australia
Amir A. Mehbod, MD, Minneapolis, MN
Siddharth B. Joglekar, MD, Fresno, CA
Ensor E. Transfeldt, MD, Minneapolis, MN

The Fusion Risk Score is introduced to objectively assess baseline risk of spine fusion surgery preoperatively.

4:30 PM **PAPER: 245**

Postoperative Pain Control Using Epidural Catheter in Patients Undergoing Posterior Lumbar Interbody Fusion

Si Young Park, MD, PhD, Seoul, Republic of Korea
Jong-Hoon Park, MD, PhD, Seoul, Republic of Korea
Woongkyo Jeong, Seoul, Republic of Korea
Dae-Hee Lee, MD, Seoul, Republic of Korea
Tae K. Kim, MD, Seoul, Republic of Korea
Si Young Park, MD, PhD, Seoul, Republic of Korea
Seung B. Han, MD, Seoul, Republic of Korea

Postoperative pain control using epidural catheter seems to be a higher effective method after posterior lumbar interbody fusion.

4:36 PM **PAPER: 246**

Inconsistencies Between Abstracts and Manuscripts in Published Papers about Lumbar Spine Surgery

Jeffrey A. Lehmen, MD, Columbia, MO
Rachel M. Deering, MPH, BS, Boston, MA
Andrew K. Simpson, MD, Boston, MA
Charles S. Carrier, Bedford, NH
Christopher M. Bono, MD, Boston, MA

Inconsistencies between an abstract and manuscript can mislead readers' interpretation of findings and conclusions. This study compares RCT abstracts and manuscripts in recent lumbar spine literature.

Discussion - 6 Minutes

4:48 PM **PAPER: 247**

Adjacent and Subadjacent Segment Disease Following Instrumented Lumbar Fusion: A Predilection for Proximal Levels

Paul Celestre, MD, Louisville, KY
Scott Montgomery, MD, Venice, CA
Bayan Aghdasi, BA, Clovis, CA
Hirokazu Inoue, MD, Shimotsuke, Japan
Michael D. Daubs, MD, Santa Monica, CA
Jeffrey C. Wang, MD, Sherman Oaks, CA

In a retrospective review of patients undergoing lumbar fusion, adjacenet segment disease developed most commonly at the more proximal at risk levels.

4:54 PM **PAPER: 248**

DISK: A Novel Classification System of Lumbar Spine Adjacent Segment Degeneration

Ryan R. Jaggers, MD, Indianapolis, IN
Paul E. Kraemer, MD, Indianapolis, IN

A novel classification system for adjacent segment degeneration in the lumbar spine that comprehensively evaluates disc degeneration, instability, stenosis, and kyphosis was found to be reproducible.

5:00 PM **PAPER: 249**

Superior Articulating Facet Violation: Percutaneous versus Open Techniques

Sean Jones-Quaidoo, MD, Dallas, TX
Mladen Djurasovic, MD, Louisville, KY
Roger K. Owens II, MD, Louisville, KY
Leah Y. Carreon, MD, Louisville, KY

The use of a percutaneous method to insert pedicle screws resulted in a higher incidence facet joint violation compared to an open approach, even if only proximal screws are considered.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

5:12 PM **PAPER: 250**

The Effects of Lumbosacral Fusion on Sacroiliac Joint Biomechanics

Dinah Baria, PhD, Miami Beach, FL
Ronald W. Lindsey, MD, Galveston, TX
Robert P. Norton, MD, New York, NY
David N. Kaimrajh, Miami, FL
Edward L. Milne, Miami Beach, FL
Loren L. Latta, PhD, Plantation, FL

Movements at the sacroiliac joint measured in human cadavers with flexion/extension, torsion and axial compression loading on the lumbar spine were altered by progressive fusion of L4-5 and then L5-S1.

5:18 PM **PAPER: 251**

Degenerative Spondylolisthesis: The Effect of Facet Joint Morphology on Instability

Micah K. Sinclair, MD, Salt Lake City, UT
Alexander J. Ghanayem, MD, Maywood, IL
Bartosz Wojewnik, MD, Maywood, IL
Robert Havey, Hines, IL
Andy Lee, BS, Hines, IL
Leonard Voronov, PhD, Hines, IL
Gerard Carandang, Hines, IL
Avinash G. Patwardhan, PhD, Maywood, IL

This study evaluated the relationship of degenerative sponydlolisthesis to increased sagittal facet angulation concluding that increased facet angulation does not correlate with anterolisthesis.

5:24 PM **PAPER: 252**

Lumbar Facet Joint Motion in Patients with Degenerative Spondylolisthesis

Qi Yao, MD, Boston, MA
shaobai wang, PhD, Boston, MA
Jae-Hyuk Shin, MD, Boston, MA

We evaluated biomechanical effect of degenerative lumbar spondylolisthesis. The range of rotation of the facet joint decreased compared to the healthy subjects and DDD patients in DLS (L4-L5) level.

Discussion - 6 Minutes

5:36 PM **PAPER: 253**

Lumbar Facet Joint Subchondral Bone Density Distribution in Asymptomatic and Low Back Pain Subjects

Chien-Chou Pan, MD, Taichung, Taiwan
Peter Simon, MS, Chicago, IL
Alejandro Espinoza, PhD, Chicago, IL
Ryota Takatori, MD, PhD, Kyoto, Japan
Howard S. An, MD, Chicago, IL
Gunnar B. Andersson, MD, Chicago, IL
Nozomu Inoue, MD, Chicago, IL

In vivo measurements of lumbar facet joint subchondral bone density by means of CT-OAM showed significantly higher SBD in the facet joints center zone and in subjects with low back pain.

5:42 PM **PAPER: 254**

Modified Marmot Operation Versus Spinous Process Transverse Cutting Laminectomy for Lumbar Spinal Stenosis

Mamoru Kawakami, MD, Wakayama, Japan
Shin-ichi Nakao, MD, Wakayama, Japan
Daisuke Fukui, MD, Wakayama, Japan

Clinical outcomes in patients with degenerative lumbar spinal stenosis treated with modified Marmot operation were superior to those with spinous process transverse cutting laminectomy.

5:48 PM **PAPER: 255**

Spinal Stenosis with Lumbar Deformity: Surgical Failures with an ISP, Laminectomy, or Laminectomy and Fusion

Prokopis Annis, MD, Salt Lake City, UT
Michael D. Daubs, MD, Santa Monica, CA
Brandon Lawrence, MD, Salt Lake Cty, UT
Justin Hohl, MD, Sandy, UT
Jayme Hiratzka, MD, Portland, OR
Darrel S. Brodke, MD, Salt Lake City, UT

Failures with recurrent stenosis requiring revision surgery were significantly more common in patients treated with an Interspinous Process Spacer device for spinal stenosis and lumbar deformity.

5:54 PM **PAPER: 827**

Demineralized Bone Matrix Putty Performs Equivalent to Iliac Bone Graft in Experimental Spine Arthrodesis

Paul Kiely, MD, New York, NY
Antonio T. Brecevich, New York, NY
Fadi Taher, MD, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
Celeste Abjornson, PhD, New York, NY

The DBM putty proved equivalent to ABG in the posterolateral intertransverse rabbit model, and deserves consideration as an alternative to iliac crest autograft.

Discussion - 6 Minutes

Wednesday

• The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Wednesday, March 20

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room S102

Foot and Ankle I: In The Beginning: Basic Science, Trauma, and Diabetes
Moderator(s): Sandra E. Klein, MD, Saint Louis, MO
Brian C. Toolan, MD, Chicago, IL

4:00 PM **PAPER: 256**
Where Can Orthopaedic Hardware Safely Be Placed for Syndesmosis Fixation: An Anatomic Study
Franklin D. Shuler, MD, Huntington, WV
Daniel Woods, MD, Huntington, WV
Zach J. Tankersley, DPM, Huntington, WV
Justin Jones, MD, Huntington, WV
Clint McDaniel, Huntington, WV
Jacob Hamm, Huntington, WV
James Denvir, PhD, Huntington, WV

This study has clearly defined the TFCCZ and syndesmosis recess and statically validated that anatomical specimens can be used as a proxy for cadaveric dissection for these measurements.

4:06 PM **PAPER: 257**
MRI Evaluation of Calcaneal Osteotomy's Effect on Tarsal Tunnel and Proximity of Nerve Structures
Jason T. Bariteau, MD, Providence, RI
Benjamin G. Bruce, MD, Providence, RI
Matthew F. Sandusky, MD, Providence, RI
Peter Evangelista, MD, Providence, RI
Christopher W. DiGiovanni, MD, Providence, RI

Lateralizing calcaneal osteotomy significantly decreases tarsal tunnel volume that is not seen with medialization. Anterior osteotomy places nerve structures in closer proximity to osteotomy cut.

4:12 PM **PAPER: 258**
Validation of the Foot and Ankle Outcome Score for Adult Acquired Flatfoot Deformity
Haydee C. Brown, MD, New York, NY
Pallavi Nair, BS, Washington, DC
Lan Chen, MD, Chicago, IL
Elizabeth A. Young, Stony Brook, NY
Huong Do, MA, New York, NY
Stephen Lyman, PhD, New York, NY
Jonathan T. Deland, MD, New York, NY
Scott Ellis, MD, New York, NY

The Foot and Ankle Outcome Score (FAOS) is a subjective survey used frequently in foot and ankle literature. The aim of our study is to validate the FAOS for assessing outcomes with Adult Acquired Fl

Discussion - 6 Minutes

4:24 PM **PAPER: 259**
Potential Cytokine and Metabolite Biomarkers of Post-Traumatic Ankle Arthritis Synovial Fluid
Samuel B. Adams Jr, MD, Durham, NC
Dana L. Nettles, PhD, Durham, NC
Lynne C. Jones, PhD, Baltimore, MD
Gregory P. Guyton, MD, Baltimore, MD
Stuart D. Miller, MD, Baltimore, MD
Lew C. Schon, MD, Baltimore, MD

This study identified inflammatory cytokines and metabolites present in the synovial fluid of post-traumatic ankle arthritis.

4:30 PM **PAPER: 260**
Core Decompression for the Treatment of Atraumatic Osteonecrosis of the Distal Tibia and Talus
Qais Naziri, MD, Brooklyn, NY
Kimona Issa, MD, Santa Clarita, CA
Tarak S. Shah, Bristow, VA
Bradley M. Lamm, DPM, Luthvle Timonimonium, MD
Aaron J. Johnson, MD, Baltimore, MD
Lynne C. Jones, PhD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

The purpose of this study was to describe the clinical manifestations of ON involving the distal tibia and ankle, identify risk factors, and to evaluate the efficacy of percutaneous drilling.

4:36 PM **PAPER: 261**
Physiological Achilles Tendon Length and its Relation to Tibia Length
Claudio Rosso, MD, MSc, Binningen, Switzerland
Caroline Polzer, Dornach, Switzerland
Lukas Weisskopf, MD, Pratteln, Switzerland
Philipp Schuetz, Boston, MA
Ueli Studler, Basel, Switzerland
Victor Valderrabano, MD, Basel, Switzerland

Achilles Tendon Length.

Discussion - 6 Minutes

4:48 PM **PAPER: 262**
Outcomes of the Bridle Procedure for the Treatment of Traumatic Foot Drop
E. Scott Paxton, MD, Philadelphia, PA
Julienne Lippe, MD, Saint Louis, MO
Kay L. Bohnert, MS, Saint Louis, MO
David R. Sinacore, PT, PhD, Saint Louis, MO
Mary Hastings, ATC, DPT, Saint Louis, MO
Jeremy J. McCormick, MD, Saint Louis, MO
Sandra E. Klein, MD, Saint Louis, MO
Jeffrey E. Johnson, MD, Saint Louis, MO

Bridle procedure results in a high level of function in patients with traumatic foot drop. Post-op no patient required an AFO for walking.The majority of patients were satisfied with their result.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Wednesday, March 20

4:54 PM **PAPER: 263**

Contribution of the Medial Malleolus to Tibiotalar Joint Contact Characteristics

Craig R. Lareau, MD, Providence, RI
David Paller, MS, Providence, RI
Sarath C. Koruprolu, MS, Providence, RI
Jason T. Bariteau, MD, Providence, RI
Christopher W. DiGiovanni, MD, Providence, RI

Treatment of isolated medial malleolus fractures is controversial. This study demonstrates the importance of the medial malleolus in maintaining the normal contact characteristics of the ankle.

5:00 PM **PAPER: 264**

◆ In Vivo Osseous Incorporation of Fresh Osteochondral Allografts Treated with Bisphosphonates

Drew D. Moore, MD, Royal Oak, MI
Kevin Baker, PhD, Royal Oak, MI
Tristan Maerz, MS, Royal Oak, MI
Zachary Vaupel, MD, Royal Oak, MI
Paul T. Fortin, MD, Royal Oak, MI

Addition of nitrogenated bisphosphonates to fresh osteochondral allograft storage media enhances in vivo osseous incorporation of grafts.

Discussion - 6 Minutes

5:12 PM **PAPER: 265**

An Analysis of Pulmonary Embolism Following Ankle Fractures Treated Without an Operation Using a National Database

Simon Jameson, Middlesbrough, United Kingdom
Rankin S. Kenneth, MB, ChB, Newcastle Upon Tyne, United Kingdom
Philip James, PhD, Alcester, Warwickshire, United Kingdom
Scott Muller, MBBS, MD, Northumberland, United Kingdom
Mike R. Reed, MBBS, MD, Northumberland, United Kingdom
Amar Rangan, FRCS, Middlesbrough, United Kingdom

In 14777 patients with ankle fracture treated without an operation 90-day PE rate was 0.22%. Risk was 10x higher in patients with co-morbidities (2.1%). Fracture is not an indication for prophylaxis.

5:18 PM **PAPER: 266**

Efficacy of a Limited Approach to Intra-Articular Calcaneus Fractures

Milton T. Little, MD, New York, NY
Marschall B. Berkes, MD, New York, NY
Patrick C. Schottel, MD, New York, NY
Lionel E. Lazaro, MD, New York, NY
Lauren E. Lamont, MD, New York, NY
Nadine Pardee, BS, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

Retroscpective evaluation of a dual incision limited approach to intra-articular calcaneus fractures.

5:24 PM **PAPER: 267**

Complications after Popliteal Block for Foot and Ankle Surgery

Kuldeep Gadkari, MBBS, MS, Grand Rapids, MI
Donald R. Bohay, MD, Grand Rapids, MI
John G. Anderson, MD, Grand Rapids, MI
John D. Maskill, MD, Grand Rapids, MI
Michelle A. Padley, Grand Rapids, MI
Lindsey A. Behrend, BS, Grand Rapids, MI
William Braaksma, MD, Grand Rapids, MI

A retrospective chart review of complications in 220 patients who underwent foot and ankle procedures with a popliteal block for post-operative pain management.

Discussion - 6 Minutes

5:36 PM **PAPER: 268**

Comparative Cost of Limb Salvage vs. Amputation in Diabetics with Charcot Foot

Michael S. Pinzur, MD, Maywood, IL
Joseph A. Gil, MD, Providence, RI
Adam P. Schiff, MD, Maywood, IL

The cost of care of was compared between 76 diabetics who underwent surgical correction for Charcot foot as compared with transtibial amputation. The overall cost of care was similar.

5:42 PM **PAPER: 269**

Recurrence in the Treatment of Charcot Foot Arthropathy

Martin Berli, MD, Zürich, Switzerland
Georg Osterhoff, MD, Zurich, Switzerland
Thomas Boeni, MD, Zurich, Switzerland

This large series of Charcot arthropathy patients focuses on the recurrence of the disease after an extensive treatment with off-loading until complete disappearance of the symptoms was established.

5:48 PM **PAPER: 270**

Five Years Post Compression Arthrodesis in Infected Diabetic Charcot Ankle Joint

Ahmad S. Allam, Prof, Banha, Egypt

Combined joint debridement and compression arthrodesis is a successful method of limb salvage in infected diabetic Charcot ankle joints; obtaining a total satisfactory stable ankle in 85% of patients.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

SURGICAL SKILLS COURSE

7:00 AM — 10:00 AM

6SK **Osteotomy and Arthrodesis of the Forefoot and Hindfoot**
TICKET
Room S402a
Moderator: Simon Lee, MD, Chicago, IL
Kenneth Hunt, MD, Redwood City, CA
Todd A. Irwin, MD, Mount Clemens, MI
Jeremy J. McCormick, MD, Saint Louis, MO
Phinit Phistikul, MD, Iowa City, IA

Common surgical techniques for correction of hallux valgus and hindfoot arthrodesis will be presented with didactic lectures and hands-on procedures on simulated bone models.

7SK **Rotator Cuff: Surgical Skills**
Room S402b
Moderator: Peter D. McCann, MD, New York, NY
Stephen S. Burkhart, MD, San Antonio, TX
E L. Cain Jr, MD, Birmingham, AL
Sumant G. Krishnan, MD, Dallas, TX
Mark D. Lazarus, MD, Philadelphia, PA

Tear pattern recognition and mobilization techniques, surgical management of partial and massive tears, and tear fixation options are reviewed in both didactic presentations and case presentations by recognized experts. Participants apply these techniques in a saw bones lab, with the goal of improving surgical techniques to better patient outcomes and satisfaction. Simulated bone models only.

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 10:00 AM

301 **Complex Revision Total Hip Arthroplasty: An Advanced Course**
TICKET
Room S503
Moderator: Donald S. Garbuz, MD, MHSc, Vancouver, BC, Canada
William J. Hozack, MD, Philadelphia, PA
Bassam A. Masri, MD, FRCSC, Vancouver, BC, Canada
Robert T. Trousdale, MD, Rochester, MN

Cover the severest challenges in revision THA: B3 fractures, infected bone loss, severe pelvic and femoral bone loss and recurrent instability.

◆302 **Surgical Management of Articular Cartilage Defects of the Knee**
TICKET
Room N228
Moderator: Brian J. Cole, MD, MBA, Chicago, IL
William Bugbee, MD, La Jolla, CA
Christian Lattermann, MD, Richmond, KY
Tom Minas, MD, Chestnut Hill, MA

Overview of the indications and results of the current and near-term treatment options as alternatives for patients presenting with chondral defects, meniscal deficiency and malalignment. Case-based decision making encouraging audience participation.

◆303 **Infection in Arthroplasty: The Basic Science of Bacterial Biofilms in Its Pathogenesis, Diagnosis, Treatment and Prevention**
TICKET
Room S401d
Moderator: William V. Arnold, MD, Jenkintown, PA
Mark Shirtliff, PhD, Baltimore, MD
Paul Stoodley, PhD, Southampton, United Kingdom

The role of bacterial biofilms in periprosthetic infection will be discussed with particular attention toward current clinical treatment and future decisions.

304 **Anatomy of a Medical Liability Lawsuit: Practical Issues in Malpractice Avoidance**
TICKET
Room S104
Moderator: Thomas B. Fleeter, MD, Reston, VA
Theodore J. Clarke, MD, Denver, CO
Elliott H. Leitman, MD, Newark, DE
Joseph L. Messa Jr., Esq., Philadelphia, PA
Byron Mitchell, JD, Henrico, VA

A medical negligence defense attorney and orthopaedic experts in medical liability will present techniques and tips to use during medical negligence lawsuits and plaintiff's depositions.

305 **Differentiating Cervical Spine and Shoulder Pathology: Common Disorders and Key Points of Evaluation and Treatment**
TICKET
Room S502
Moderator: Thomas W. Throckmorton, MD, Germantown, TN
Paul E. Kraemer, MD, Indianapolis, IN
John E. Kuhn, MD, Nashville, TN
Rick C. Sasso, MD, Carmel, IN

Focus on the overlap of cervical spine and shoulder pathology and the diagnostic methods to differentiate between them.

306 **The Art and Science of Reviewing Manuscripts for Orthopaedic Journals**
TICKET
Room S405
Moderator: Jeffrey S. Fischgrund, MD, Southfield, MI
Christopher M. Bono, MD, Boston, MA
Alan S. Hilibrand, MD, Philadelphia, PA
William N. Levine, MD, New York, NY

Journal editors will help reviewers and authors learn how to craft more effective manuscripts by emphasizing specific assessment criteria for clinical, research and review articles.

307 **Hand and Wrist Trauma: A Case Based Approach to Simple Cases with Underlying Complex Considerations**
TICKET
Lakeside, Room E352
Moderator: Charles A. Goldfarb, MD, Saint Louis, MO
Martin I. Boyer, MD, Saint Louis, MO
Ryan P. Calfee, MD, Saint Louis, MO
Fraser J. Leversedge, MD, Durham, NC

Case-based course on trauma to the hand and wrist reviews diagnostic and treatment considerations, focusing on the underlying complexities of apparently simple injuries.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

308


Room S504a

Techniques for Correction of Lower Extremity Deformities in Children: A Case-Based Approach
Moderator: J. E. Gordon, MD, Saint Louis, MO
John G. Birch, MD, Dallas, TX
James J. McCarthy, MD, Cincinnati, OH
Peter M. Stevens, MD, Salt Lake City, UT

Case-based instructional course that emphasizes the indications, contraindications and complications of simple and complex pediatric lower extremity deformity correction techniques with faculty panel interaction.

309

Room S106b

Strategies to Enhance Value and Improve Patient Experience Through Patient Centered Care
Moderator: Kevin J. Bozic, MD, MBA, San Francisco, CA
Dwight W. Burney III, MD, Albuquerque, NM
James B. Rickert, MD, Bloomington, IN
Karen Zupko, Chicago, IL

Enhance the value of your practice and improve your patient experience ratings by considering strategies to improve patient experience through patient centered care.

310

Room S501

Diagnosis and Treatment of the Biceps-Labral Complex: The State of the Art 2013
Moderator: Stephen J. O'Brien, MD, New York, NY
Pascal Boileau, MD, Nice, France
Neal S. ElAttrache, MD, Los Angeles, CA
Gary M. Gartsman, MD, Houston, TX

Review of existing scientific knowledge needed to understand the anatomical, functional, and clinical information surrounding the Biceps-Labrum Complex; including diagnostic examination and tools.

311

Lakeside, Room E350

MRI of the Spine: Essentials for the Orthopaedic Surgeon
Moderator: A. J. Khanna, MD, Bethesda, MD
John A. Carrino, MD, Baltimore, MD
Khaled M. Kebaish, MD, Baltimore, MD

Review the essential and advanced concepts in spine MRI and provide attendees with a systematic approach to the evaluation of these studies.

312


Room S406

Advances In Anterior Cruciate Surgery: Current Concepts and Evolving Approaches
Moderator: Nicholas A. Sgaglione, MD, New Hyde Park, NY
Freddie H. Fu, MD, Pittsburgh, PA
Peter R. Kurzweil, MD, Long Beach, CA
Walter R. Shelton, MD, Jackson, MS

Review the current approach to ACL surgery in active individuals. Appropriate decision making in primary, complex and revision cases using practical guidelines and state-of-the-art technology will be addressed with case based discussion.

313

Room N227b

Management of Pelvic Fractures
Moderator: Milton L. Routt Jr, MD, Seattle, WA
Mark C. Reilly, MD, Newark, NJ
Michael D. Stover, MD, Chicago, IL
Raymond D. Wright Jr, MD, Lexington, KY

Current standards of pelvic ring injury evaluation, acute management, decision making, surgical techniques, and complication avoidance are presented in depth.

314

Room S106a

Thoracolumbar Fracture: Evaluation and Management from ER to Rehab
Moderator: Carlo Bellabarba, MD, Seattle, WA
Richard J. Bransford, MD, Seattle, WA
Darrel S. Brodke, MD, Salt Lake City, UT
Kirkham B. Wood, MD, Boston, MA

Controversies as to the optimal approach to evaluation and management of thoracolumbar fractures from the ER to post-operative care discussed.

FD3

Room N227a

Cliff Notes on Clinical Research: What You Need to Get Started
Moderator: John W. Sperling, MD, MBA, Rochester, MN
Leesa M. Galatz, MD, Saint Louis, MO
Bruce S. Miller, MD, MS, Assoc Prof, Ann Arbor, MI

Understand the scientific method and be able to design and complete a clinical research project. Formulate a clinically relevant hypothesis, perform a power analysis, collect and analyze data. Determine when the results are worth of submission as an abstract. This course is offered at no charge.

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room S105

Adult Reconstruction Hip IV: Revision THA/Tapers
Moderator(s): Scott Sporer, MD, Wheaton, IL
Kevin Fricka, MD, Alexandria, VA
Allan Van Zyl,MD, Bloemfontein, New Zealand

8:00 AM **PAPER: 271**

Radiographically Silent Loosening of the Acetabular Component in Total Hip Arthroplasty
Anay R. Patel, MD, Chicago, IL
Geoffrey Marecek, MD, Chicago, IL
Lalit Puri, MD, Glenview, IL

Radiographically silent loosening of the acetabular component was seen in 9 of 67 patients in our study. Adequate fixation of the acetabular component has not been clearly defined radiographically.

Thursday

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

8:06 AM **PAPER: 272**

3-D Computed Tomography as an Assessment of Periacetabular Osteolysis in Revision Total Hip Arthroplasty

Kyoung H. Moon, MD, Incheon, Republic of Korea
Man Hee Won, MD, Republic of Korea
Mung Ju Park, Incheon, Republic of Korea
Kang S. Joon Soon, MD, Incheon, Republic of Korea

3D CT is considered a useful method for assessing and measuring the periacetabular osteolysis. However, plain radiographic polyethylene wear measurement is not useful.

8:12 AM **PAPER: 273**

First-time Cup Revision - The Swedish Experience

Maziar Mohaddes, MD, Molndal, Sweden
Goran Garellick, MD, PHD, Goteborg, Sweden
Johan N. Karrholm, MD, Molndal, Sweden

Analysis of 19342 first time cup revisions from the Swedish Hip Arthroplasty shows reduced risk of re-revision, due to aseptic loosening, when uncemented fixation is used.

Discussion - 6 Minutes

8:24 AM **PAPER: 274**

TRAP 5b as Marker for Diagnosis of Osteolysis and Aseptic Loosening after Total Joint Replacement

Stefan Landgraeber, MD, Essen, Germany
Sebastian Warwas, Essen, Germany
Marcel Haversath, MD, Essen, Germany
Axel Marx, Sommerfeld, Germany
Henning Quitmann, MD, Essen, Germany
Marcus Jager, MD, PhD, Essen, Germany

Measurement of serum TRAP 5b may be a clinically relevant assay for monitoring patients after arthroplasty.

8:30 AM **PAPER: 275**

Combined Trabecular Metal Cup and Augment for Acetabular Revision: A Five-Year Follow-Up Study

Mansour Abolghasemian, MD, Toronto, ON, Canada
Suksan Tangsataporn, MD, Toronto, ON, Canada
Amir Sternheim, Toronto, ON, Canada
Paul R. Kuzyk, MD, FRCSC, Toronto, ON, Canada
David Backstein, MD, Toronto, ON, Canada
Oleg Safir, MD, Toronto, ON, Canada
Allan E. Gross, MD, FRCSC, Toronto, ON, Canada

Using trabecular metal cup supported by an augment for reconstructing deficient acetabuli was investigated at five year follow up. Good clinical and radiological results were obtained.

8:36 AM **PAPER: 276**

Pelvic Discontinuity; Comparing Midterm Results of Cup-cage Reconstruction to Conventional Cages

Mansour Abolghasemian, MD, Toronto, ON, Canada
Suksan Tangsataporn, MD, Toronto, ON, Canada
Hesham Abdelbary, MD, Toronto, ON, Canada
David Backstein, MD, Toronto, ON, Canada
Oleg Safir, MD, Toronto, ON, Canada
Allan E. Gross, MD, FRCSC, Toronto, ON, Canada

In a comparative retrospective study, we found that a cup-cage reconstruction is superior to a conventional cage in treating pelvic discontinuity during a hip revision arthroplasty in mid-term follow.

Discussion - 6 Minutes

8:48 AM **PAPER: 277**

Correlation of Aspiration Results with the Etiology of Aseptic Failure in Total Hip Arthroplasty

Peter N. Chalmers, MD, Chicago, IL
Kevin E. Hudak, MS, BS, MD, New Berlin, VA
Scott M. Sporer, MD, Wheaton, IL
Brett R. Levine, MD, Chicago, IL

Aspiration results and etiology of failure were correlated in patients undergoing revsion THA, revealing lymphocyte count >9% and segmented cell count <70% to be 93% sensitive for aseptic loosening.

8:54 AM **PAPER: 278**

Mortality after Septic and Aseptic Revision Total Hip Arthroplasty: A Matched-Cohort Study

Horim Choi, MD, Boston, MA
Benjamin Beecher, MD, Des Moines, IA
Henrik Malchau, MD, Boston, MA
Hany Bedair, MD, Newton, MA

Septic revision showed higher mortality than aseptic revision, but did not predict increased mortality. Older age and higher Charlson index were identified as risk factors associated with mortality.

9:00 AM **PAPER: 279**

Utility of Trephine Reamers in Revision Hip Arthroplasty

Vamsi Kancherla, MD, Bethlehem, PA
Daniel J. Del Gaizo, MD, Chapel Hill, NC
Scott M. Sporer, MD, Wheaton, IL
Wayne G. Paprosky, MD, Winfield, IL

The majority of patients that required the use of a powered trephine to remove a well fixed femoral component had a successful result without complication.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

9:12 AM **PAPER: 280**

Fretting and Corrosion in an Exchangeable Neck Modular Hip System - A Cause for Concern

Dennis Molloy, FRCS (Ortho), MPH, Belfast, Northern Ireland, United Kingdom

Surgeons using modular hip systems with a titanium stem and cobalt-chrome neck should be vigilant with radiological and serum ion level follow-up of patients. Early failures may be encountered.

9:18 AM **PAPER: 281**

The Taper Junction Contributes One Third of the Total Volumetric Material Loss in Large Diameter Metal-on-Metal Hips

Alister Hart, FRCS, London, United Kingdom
Ashley Matthies, BSc, London, United Kingdom
Paul J. Bills, PhD, MSc, Huddersfield, United Kingdom
Radu Racasan, PhD, Huddersfield, United Kingdom
Gordon W. Blunn, MD, Middlesex, United Kingdom
Liam Blunt, PhD, Huddersfield, United Kingdom
John Skinner, FRCS, London, United Kingdom

The taper junction is an important source of implant-derived metal debris but in the majority of cases contributes significantly less to the overall volumetric material loss than the bearing surfaces.

9:24 AM **PAPER: 282**

Taper Damage on Modular Components of Retrieved Metal-on-Metal Total Hip Arthroplasty Devices

Genymphas Higgs, Philadelphia, PA
Josa Hanzlik, MS, Philadelphia, PA
Daniel MacDonald, Philadelphia, PA
Gregg R. Klein, MD, Paramus, NJ
Javad Parvizi, MD, FRCS, Philadelphia, PA
Michael A. Mont, MD, Baltimore, MD
Matthew J. Kraay, MD, Cleveland, OH
Clare M. Rimnac, PhD, Cleveland, OH
Steven M. Kurtz, PhD, Philadelphia, PA

The fretting and corrosion damage that has raised concern at the head-stem interface, is also prevalent at the many additional modular components in contemporary MOM THA's.

Discussion - 6 Minutes

9:36 AM **PAPER: 283**

Trunnion Wear and Corrosion: The Real Issue in Large Head Metal on Metal Total Hip Failures

Nader A. Nassif, MD, New York, NY
Danyal Nawabi, MD, FRCS (Orth), New York, NY
Kirsten Stoner, M.S., New York, NY
Marcella Elpers, BS, New York, NY
Timothy M. Wright, PhD, New York, NY
Douglas E. Padgett, MD, New York, NY

Trunnion Wear and Corrosion is prevalent and leads to increased tissue damage.

9:42 AM **PAPER: 284**

Adverse Local Tissue Reactions Arising from Corrosion at the Neck-Body Junction in a Modular Neck Stem

Herbert J. Cooper, MD, New York, NY
Robert M. Urban, Chicago, IL
Richard L. Wixson, MD, Chicago, IL
Robert M. Meneghini, MD, Fishers, IN
Joshua J. Jacobs, MD, Chicago, IL

Adverse local tissue reactions can occur as a result of cobalt-alloy debris generated by fretting and crevice corrosion at the modular neck-body junction in a dual-tapered stem design.

9:48 AM **PAPER: 285**

Surgical Indications for Re-revision in Total Hip Replacement (THR) Patients Younger than Age Fifty

Krishna R. Tripuraneni, MD, Albuquerque, NM
Michael J. Archibeck, MD, Albuquerque, NM
Joshua T. Carothers, MD, Albuquerque, NM
Richard E. White Jr, MD, Albuquerque, NM

Re-revision THA in age <50 patients is due to polyethylene wear in this cohort and was the major indication for initial revision as well.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room N427
Sports Medicine/Arthroscopy IV: Patella/Meniscus

Moderator(s): Peter G. Gerbino II, MD, Monterey, CA
Scott E. Powell, MD, Burbank, CA

8:00 AM **PAPER: 286**

Risk Factors for Recurrent Instability Following Acute Patellofemoral Dislocation

Laura Lewallen, MD, Rochester, MN
Amy L. McIntosh, MD, Rochester, MN
Diane L. Dahm, MD, Rochester, MN

In this large retrospective review of acute patellar dislocations, young patients with trochlear dysplasia were at highest risk for recurrent instability.

8:06 AM **PAPER: 287**

Comparison of Four Patellar Height Measurement Methods for the Diagnosis of Recurrent Patellar Dislocation (RPD)

Shinya Ishizuka, MD, Nagoya City, Japan
Tadahiro Sakai, Nagoya, Japan
Hideki Hiraiwa, MD, PhD, Nagoya, Japan
Takashi Hamada, Nagoya City, Japan
Mtoshige Nakashima, Nagoya, Japan
Yohei Ono, MD, Greenville, NC
Satoshi Yamashita, MD, Nagoya City, Japan
Naoki Ishiguro, MD, Nagoya, Japan

In this case-control study, we assessed whether four commonly used patellar height index act as predictor of RPD. Our results showed that IS and mIS index could be the optimal predictors of RPD.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

8:12 AM **PAPER: 288**

Does Kinesio Taping Affect Patellofemoral Contact Pressures?

Miguel Ramirez, MD, Baltimore, MD
Brent G. Parks, MSc, Baltimore, MD

In a cadaveric model, kinesio taping was able to reduce patellofemoral contact pressures by 8.4%, suggesting there may be a benefit for Kinesio taping in patients with patellofemoral syndrome.

Discussion - 6 Minutes

8:24 AM **PAPER: 289**

Trochlear Dysplasia Associated with Less Progression of Osteoarthritis Following Patellofemoral Arthroplasty

Michael Kalisvaart, MD, Rochester, MN
Seth Slettedahl, MS, Rochester, MN
Diane L. Dahm, MD, Rochester, MN

Patients with preoperative trochlear dysplasia experienced less progression of tibiofemoral degenerative joint disease than patients without trochlear dysplasia at a mean follow-up of 3.5 years.

8:30 AM **PAPER: 290**

The Effect of ACL Graft Selection on in vivo 3D Patellar Kinematics During Robotic Tibial Rotation Using Dynamic CT

Shaun Stinton, PhD, Atlanta, GA
Cale Jacobs, PhD, Lexington, KY
Tommy J. Cunningham, MS, Atlanta, GA
Thomas Branch, MD, Atlanta, GA

Harvesting BTB ACL autografts alters patellofemoral kinematics to a greater degree than hamstring autografts. Patellar tendon shortening can cause the patella to be dragged by the tibial tubercle.

8:36 AM **PAPER: 291**

Twelve Knees of Patellar Stress Fracture in Athletes: Influence of Patellar Height

Tatsuhiro Toratani, MD, Kanazawa, Japan
Junsuke Nakase, MD, Kanazawa, Japan
Masahiro Kosaka, MD, Kanazawa, Japan
Yoshinori Ohashi, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Katsuhiko Kitaoka, MD, Kanazawa, Japan

Evaluated12 knees with transverse patellar stress fractures. The average fracture line level was 27.2±5.8% and higher patellar height contributes to stress fractures of the patella.

Discussion - 6 Minutes

8:48 AM **PAPER: 292**

Repair of Lateral Meniscus Posterior Horn Detachment Lesions: A Biomechanical Evaluation

Carl Schillhammer, MD, Syracuse, NY
Frederick Werner, M Eng, Syracuse, NY
John Cannizzaro, MD, Cazenovia, NY
Matthew G. Scuderi, MD, East Syracuse, NY

A biomechanical study showing reduced tibial plateau contact pressures after repairing posterior horn detachment lesions of the lateral meniscus to bone via a tibial tunnel.

8:54 AM **PAPER: 293**

Biomechanical Consequences of a Complete Radial Tear Adjacent to the Medial Meniscus Posterior Root Attachment Site

Jeffrey R. Padalecki, MD, Austin, TX
Kyle Jansson, Vail, CO
Sean Smith, MSc, Vail, CO
Casey Pierce, MD, Paterson, NJ
Grant Dornan, MSc, Vail, CO
Coen A. Wijdicks, PhD, Vail, CO
Robert F. LaPrade, MD, PhD, Vail, CO

Repair of poster horn radial tears with an in-situ pullout technique restored joint mechanics to the intact state in spite of shortening the functional circumferential length of the medial meniscus.

9:00 AM **PAPER: 294**

Factors Associated with Meniscus Root Tears

Lauren M. Matheny, Vail, CO
Andrew C. Ockuly, Vail, CO
Robert F. LaPrade, MD, PhD, Vail, CO
J. Richard Steadman, MD, Vail, CO
Karen K. Briggs, MPH, Vail, CO

The findings of this study show that patients with meniscal root tears had tears of the ACL, MCL, or FCL than concomitant tears of the PCL.

Discussion - 6 Minutes

9:12 AM **PAPER: 295**

Effects of Partial Menisectomy on Tibiofemoral Kinematics and Cartilage Biochemistry: An MRI Study

Lee Morse, MD, San Francisco, CA
Samuel J. Wu, BS, San Francisco, CA
Brian T. Feeley, MD, San Francisco, CA
Richard Souza, ATC, PhD, PT, San Francisco, CA

Using MRI we show that arthroscopic partial meniscectomy effects changes in cartilage biochemistry in as early as 6 months with loss of proteoglycan and disruption of the collagen network.

9:18 AM **PAPER: 296**

Does High Knee Flexion Cause Separation of Meniscal Repairs?

David L. Lin, MD, Sugar Land, TX
Sarah S. Ruh, BS, Houston, TX
Hugh L. Jones, Houston, TX
Azim Karim, MD, Houston, TX
Philip C. Noble, PhD, Houston, TX
David M. Lintner, MD, Houston, TX
Patrick C. McCulloch, MD, Houston, TX

Rehab protocols limit ROM following meniscal repairs due to concerns of tear separation. We evaluated the effects of high flexion on cadaveric knees having meniscal tears using RSA techniques.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

9:24 AM **PAPER: 297**

Prospective Assessment of MRI vs. Ultrasound for Diagnosis of Meniscal Pathology

Cristi R. Cook, DVM, MS, Columbia, MO
James P. Stannard, MD, Columbia, MO
Gavin M. Vaughn, MD, Columbia, MO
Nichole Wilson, RN, Columbia, MO
Brandon L. Roller, MD, Naples, FL
Aaron M. Stoker, MS, PhD, Columbia, MO
Prakash S. Jayabalan, MD, Pittsburgh, PA
Keiichi Kuroki, DVM, PhD, Columbia, MO
James L. Cook, DVM, PhD, Columbia, MO

Ultrasonography is a useful tool for diagnosis of meniscal pathology with potential advantages over MRI.

Discussion - 6 Minutes

9:36 AM **PAPER: 298**

Arthroscopic Meniscal Allograft Transplantation with a Single Tibial Tunnel and Without Bone Plugs

Maurilio Marcacci, MD, Bologna, Italy
Giulio Maria Marcheggiani Muccioli, MD, Bologna, Italy
Alberto Grassi, MD, Bologna, Italy
Tommaso Bonanzinga, MD, Bologna, Italy
Marco Nitri, MD, Bologna, Italy
Maurizio Busacca, MD, Bologna, Italy
Antonio Scarale, MD, Bologna, Italy
Francesco Iacono, MD, Bologna, Italy
Stefano Zaffagnini, MD, Bologna, Italy

Arthroscopic meniscal allograft transplanatation with a single tibial tunnel and without bone plugs significantly reduced pain and improved knee function in 92% of pts at min. 4-year follow-up.

9:42 AM **PAPER: 299**

Is Osteotomy Necessary for Primary Varus Knees Treated for Medial Meniscal Allograft Transplantation?

Su-Chan Lee, MD, Seoul, Republic of Korea
Duck-Hyun Choi, MD, Seoul, Republic of Korea
Byoung-Yoon Hwang, MD, Republic of Korea

This study was to examine whether outcomes differed in patients having MMT with differing degrees of preoperative knee alignment.

9:48 AM **PAPER: 300**

Return to High-Level Sport Following Meniscal Allograft Transplantation

Peter N. Chalmers, MD, Chicago, IL
Vasili Karas, MD, Durham, NC
Seth Sherman, MD, Columbia, MO
Brian J. Cole, MD, MBA, Chicago, IL

A description of the results of meniscal allograft transplantation in young athletes, specifically with respect to return to their pre-injury level of play.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room N426

Shoulder and Elbow II: Rotator Cuff II

Moderator(s): David L. Glaser, MD, Philadelphia, PA
Keith Kenter, MD, Cincinnati, OH

8:00 AM **PAPER: 301**

Rehabilitation Following Arthroscopic Rotator Cuff Repair: A Prospective, Randomized Trial

Jay D. Keener, MD, Saint Louis, MO
Leesa M. Galatz, MD, Saint Louis, MO
Ken Yamaguchi, MD, Chesterfield, MO

This prospective randomized trial found no benefit to clinical outcome or healing for two distinct types of rehabilitation following arthroscopic repair of small and medium sized rotator cuff tears.

8:06 AM **PAPER: 302**

Is the Delayed Operation Effective for the Patient with Rotator Cuff Tear Concomitant Stiffness?

Yang-Soo Kim, MD, Seoul, Republic of Korea

Immediate arthroscopic rotator cuff repair with capsular release yielded significantly better functional outcome than delayed operation in the rotator cuff tear concomitant stiffness.

8:12 AM **PAPER: 303**

The Effect of Longer Immobilization After Rotator Cuff Repair: Randomized Clinical Trial

Min Soo Shon, MD, Seoul, Republic of Korea
Kyoung-Hwan Koh, MD, Seoul, Republic of Korea
Tae Kang Lim, MD, Gunpo, Republic of Korea
Seungwon Lee, MD, Seoul, Republic of Korea
Young Eun Park, Seoul, Republic of Korea
Jae-Chul Yoo, MD, Seoul, Republic of Korea

there were no difference between 4W and 8W of immobilization in healing on MRI, range-of-motion, and clinical outcome since 6 months after arthroscopic rotator cuff repair.

Discussion - 6 Minutes

8:24 AM **PAPER: 304**

The Effect of Vitamin D Deficiency on Rotator Cuff Healing in a Rat Model

Michael E. Angeline, MD, Williams Bay, WI
Shen-Ying R. Ma, MD, New York, NY
Cecilia Pascual Garrido, MD, Denver, CO
Clifford Voigt, MD, New York, NY
Xiang-Hua Deng, MD, New York, NY
Russell F. Warren, MD, New York, NY
Scott A. Rodeo, MD, New York, NY

The findings from this study suggest that low vitamin D levels may negatively affect early healing at the rotator cuff repair site in a rat model.

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Thursday, March 21

8:30 AM **PAPER: 305**

The Contribution of Oxidative Stress on Degeneration of Rotator Cuff Enthesis

Daichi Morikawa, MD, Bunkyo-Ku, Japan
Yoshiaki Itoigawa, MD, Rochester, MN
Hidetoshi Nojiri, Tokyo, Japan
Hirotaka Sano, MD, PhD, Sendai, Japan
Eiji Itoi, MD, Sendai, Japan
Yoshifumi Saijo, MD, PhD, Sendai, Japan
Takayuki Kawasaki, MD, PhD, Tokyo, Japan
Kazuo Kaneko, MD, Tokyo, Japan
Takahiko Shimizu, PhD, Chiba, Japan

An antioxidant enzyme, Sod1, deficiency induced degeneration and reduction of mechanical properties in rotator cuff, suggesting that oxidative stress may cause rotator cuff tear due to degeneration.

8:36 AM **PAPER: 306**

Isolation and Characterization of Human Mesenchymal Stem Cells from Shoulder Tissues

Hajime Utsunomiya, MD, Kitakyushu, Japan
Soshi Uchida, MD, PhD, Kitakyushu, Japan
Ichiro Sekiya, MD, PhD, Tokyo, Japan
Akinori Sakai, MD, PhD, Kitakyushu, Japan
Kuniaki Moridera, Kitakyusyu, Japan
Toshitaka Nakamura, Kitakyushu, Japan

Human shoulder mesenchymal tissues obtained from subacromial bursa have mesenchymal stem cell properties in terms of expandability and differentiation potential among patients with rotator cuff tear.

Discussion - 6 Minutes

8:48 AM **PAPER: 307**

A Quality Assessment of the Rotator Cuff Randomized Controlled Trials Utilizing the Consort Criteria

Frank McCormick, MD, Chicago, IL
Gregory L. Cvetanovich, MD, Chicago, IL
Jaehon M. Kim, MD, Baltimore, MD
Anthony A. Romeo, MD, Chicago, IL
Matthew T. Provencher, MD, San Diego, CA

Future randomized studies of rotator cuff disorders should consider full use of CONSORT Criteria in order to provide meaningful and clinically impactful patient care decision making.

8:54 AM **PAPER: 308**

Changes of Muscular Atrophy and Fatty Infiltration Immediately After Rotator Cuff Repair: Time-Zero MRI Study

Tae Kang Lim, MD, Gunpo, Republic of Korea
Kyoung-Hwan Koh, MD, Seoul, Republic of Korea
Min Soo Shon, MD, Seoul, Republic of Korea
Young Eun Park, Seoul, Republic of Korea
Seung Won Lee, MD, Seoul, Republic of Korea
Jae-Chul Yoo, MD, Seoul, Republic of Korea
Tae Kang Lim, MD, Gunpo, Republic of Korea

Our study demonstrated that higher degrees of the MA and FI could improve immediately after successful tendon repair.

9:00 AM **PAPER: 309**

Patient Age and Activity Affect Satisfaction and Shoulder Function in Failed Rotator Cuff Repairs

Hyun Min Kim, MD, Hershey, PA
Jon-Michael E. Caldwell, BS, New York, NY
John Buza
Leslie A. Fink, MD, New York, NY
Christopher S. Ahmad, MD, New York, NY
Louis U. Bigliani, MD, New York, NY
William N. Levine, MD, New York, NY

Younger patients with higher physical demands are less satisfied and experience poorer shoulder function than older patients when their rotator cuff repair fails.

Discussion - 6 Minutes

9:12 AM **PAPER: 310**

◆ Atorvastatin Increases the Biomechanical Strength of the Repaired Rotator Cuff by the Cyclooxygenase-2 Mechanism

Ofir Chechik, MD, Ramat Hasharon, Israel
Oleg Dolkart, PhD, Tel Aviv, Israel
Fadi Y. Alhajajra Sr, Tel Aviv, Israel
Roy Gigi, MD, Tel - Aviv, Israel
Gavriel Mozes, MD, Tel Aviv, Israel
Eran Maman, MD, Tel Aviv, Israel

Beneficial effect of atorvastatin on repaired RC was mediated by a COX-2–dependent mechanism. This evidence may also provide potential insight into the reported negative effects of COX-2 inhibitors on tendon healing.

9:18 AM **PAPER: 311**

◆ Human Dermal Allograft for Reconstruction of Massive Rotator Cuff Tears: Functional and MRI Results of 109 Patients

Randy R. Clark, MD, Saint George, UT
Joseph P. Burns, MD, Los Angeles, CA
Stephen J. Snyder, MD, Van Nuys, CA
Brian Dierckman, MD, Westfield, IN

Human Dermal Allograft For Reconstruction of Irreparable Massive Rotator Cuff Tears: Functional and Magnetic Resonance Imaging Results of 109 Patients.

9:24 AM **PAPER: 312**

Effects of Platelet-Rich Plasma and Indomethacin on the Strength of Rotator Cuff Repair

Molly C. Meadows, New York, NY
Christopher Ferry, BS, New York, NY
David M. Levy, MD, New York, NY
Thomas R. Gardner, MCE, New York, NY
Takeshi Teratani, MD, PhD, Tsushima, Japan
Christopher S. Ahmad, MD, New York, NY

Our biomechanical data suggest that intra-operative PRP may strengthen rotator cuff repair in rats and that NSAIDs do not negatively impact the efficacy of PRP.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

9:36 AM **PAPER: 313**

Effect of Rotator Cuff Tears on Genomic, Histologic and Biomechanic Properties of the Long Head of the Biceps Tendon

James E. Moravek Jr, MD, Palos Hills, IL
Brett P. Wiater, MD, Birmingham, MI
Michael Kurdziel, MS, Royal Oak, MI
Tristan Maerz, MS, Royal Oak, MI
Kevin Baker, PhD, Royal Oak, MI
J M. Wiater, MD, Beverly Hills, MI

Rotator cuff tears may alter structural and mechanical properties of the long head of the biceps tendon.

9:42 AM **PAPER: 314**

Where Does the Apoptosis Begin in the Supraspinatus Tendon?

Yang-Soo Kim, MD, Seoul, Republic of Korea

Torn supraspinatus tendon showed the significantly increased apoptotic activity compared to normal rotator cuff tendon. However, apoptosis occurs regardless of location in the torn supraspinatus tendon.

9:48 AM **PAPER: 315**

Peripheral Cytokine Markers in a Novel Rat Periprosthetic Shoulder Infection Model

Scott Nodzo, MD, Buffalo, NY
Paul R. Knight III, MD, PhD, Buffalo, NY
Thomas A. Russo, MD, Buffalo, NY
Bruce Davidson, PhD, Buffalo, NY
Ruth A. Olson III, Buffalo, NY
Jadwiga D. Helinski, Buffalo, NY
Ravi Alluri, MD, Williamsville, NY
Thomas Duquin, MD, Buffalo, NY

We developed a novel rodent model for prosthetic shoulder infection which can be used to evaluate peripheral blood cytokine levels as possible diagnostic markers.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room S102

Practice Management/Rehabilitation II: Risk Management and Health Care Policy

Moderator(s): Thomas A. Malvitz, MD, Grand Rapids, MI
Paul Saiz, MD, Las Cruces, NM

8:00 AM **PAPER: 316**

The Dosage of Articular C-reactive Protein (CRP): A New Marker of the Osteo-articular Infection?

Bressy Guillaume, Reims, France
Jean-Baptiste Oudart, Reims, France
Leroux Bertrand, Coulonges Cohan, France
Saidou Diallo, Reims, France
Xavier Ohl, MD, Reims, France
Maquart X. François-Xavier, MD, PhD, Reims, France
Karim Madi, MD, Reims, France
Ramont Laurent, Reims, France
Emile Dehoux, MD, Gap, France

The interest of the intra-articular CRP like a new infection marker.

8:06 AM **PAPER: 317**

Risk Factors for Readmission of Orthopaedic Surgical Patients

Elizabeth A. Dailey, MD, Seattle, WA
Amy M. Cizik, MPH, Seattle, WA
Jesse N. Kasten, MA, Seattle, WA
Jens R. Chapman, MD, Seattle, WA
Michael J. Lee, MD, Seattle, WA

Retrospective study examining 3,264 orthopaedic surgical admissions to evaluate orthopaedic surgical patients' risk factors for readmission.

8:12 AM **PAPER: 318**

In Hip and Knee Arthroplasty, Rivaroxaban Causes More Wound Leakage than Low Molecular Weight Heparin

Raghuram Thonse, MBBS, MS, Heswall, United Kingdom
Darren Ebreo, MBBS, Norwich, Norfolk, United Kingdom
Nicola Blucher, BA, MBBS, Chester, United Kingdom
Adam J. Farrier, MB, ChB, Gold Coast, Australia
Jane C. Seeley, MBBS, Liverpool, United Kingdom

Rivaroxaban (compared to LMWH) leads to increased wound discharge with a trend towards increased wound related complications when used for VTE prophylaxis following primary hip and knee arthroplasty.

Discussion - 6 Minutes

8:24 AM **PAPER: 319**

◆ Real-World Study of Dabigatran Etexilate for Thromboprophylaxis in Over 5,000 Hip or Knee Replacement Patients

Simon Frostick, MD, Liverpool, United Kingdom
Nadia Rosencher, MD, Paris, France
Martin Feuring, MD, Ingelheim, Germany
Satu Salmio, RN, Helsinki, Finland
Eva Kleine, MSc, Helsinki, Finland
Martina Brueckmann, MD, Ingelheim, Germany
Andreas Clemens, MD, Ingelheim, Germany
Charles Marc Samama, MD, PhD, Paris, France

Dabigatran etexilate administered to patients undergoing total hip or total knee replacement following recommendations of the European label was safe and well tolerated in a routine clinical setting.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

8:30 AM **PAPER: 320**

Heparin Induced Thrombocytopenia Following Lower Limb Arthroplasty

Jonathan D. Craik, BSc, MbChB, Surrey, United Kingdom
Andrew Cobb, MD, Surrey, United Kingdom

This study demonstrates that platelet count monitoring for heparin induced thrombocytopenia is not justified following lower limb arthroplasty.

8:36 AM **PAPER: 321**

Physical Therapy Mandates by Medicare Administrative Contractors: Effective or Wasteful?

Thomas K. Fehring, MD, Charlotte, NC
Susan M. Odum, Charlotte, NC
Keith Fehring, MD, Richmond, VA
David A. Halsey, MD, South Burlington, VT

Physical therapy mandates by Medicare Contractors are ineffective and costly.

Discussion - 6 Minutes

8:48 AM **PAPER: 322**

Using Near Miss Analysis to Prevent Wrong-Site Surgery

Joseph A. Bosco III, MD, New York, NY
Lorraine Hutzler, BA, New York, NY
Richard S. Yoon, MD, New York, NY
Michael J. Alaia, MD, New York, NY

A program designed to educate physicians to the importance of decreasing near misses for wrong site surgery is effective.

8:54 AM **PAPER: 323**

Objective Structured Clinical Exams (OSCE) Aid Communication Skills Training in Orthopaedic Residency

Donna P. Phillips, MD, New York, NY
Kenneth A. Egol, MD, New York, NY
Sondra Zabar, MD, New York, NY
Raj Karia, MPH, New York, NY
Joseph D. Zuckerman, MD, New York, NY

We tested the feasibility of OSCE administration in a large orthopaedic training program and sought areas for resident and programmatic improvement in teaching and evaluating communication skills.

9:00 AM **PAPER: 324**

Decreasing Total Joint Implant Costs and Physician Specific Cost Variation Through Negotiation

Joseph A. Bosco III, MD, New York, NY
Lorraine Hutzler, BA, New York, NY
James D. Slover, MD, New York, NY
Joseph D. Zuckerman, MD, New York, NY

An institutional wide initiative to decrease total joint implant pricing is effective in reducing the total costs of implants and also physician specific cost variation.

Discussion - 6 Minutes

9:12 AM **PAPER: 325**

Patterns of Costs and Spending Among Orthopaedic Surgeons Across the United States: A National Survey

Vasanth Sathiyakumar, Nashville, TN
Amir A. Jahangir, MD, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Hassan R. Mir, MD, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

This survey study of 2000 Orthopaedists demonstrates that across the US approximately $8.2 billion yearly is spent on imaging, labs, referrals, and admissions.

9:18 AM **PAPER: 326**

Outcomes of Hip Fracture Surgery in Stroke Patients

Yong-chan Ha, Prof, Seoul, Republic of Korea
Jae-Hwi Nho, Dongnam-Gu, Republic of Korea
Young-Kyun Lee, MD, Seongnam-Si, Republic of Korea
Kyung H. Koo, MD, Seoul, Republic of Korea
You-Sung Suh, Seoul, Republic of Korea

In hip fracture surgery, patients with stroke have high risk concerning complications, and stroke was found to be associated with high mortality rate.

9:24 AM **PAPER: 327**

Trends in Orthopaedics: An Analysis of Medicare Claims, 2000-2010

Daniel Belatti, Iowa City, IA
Phinit Phisitkul, MD, Iowa City, IA

An in-depth analysis of Medicare Part B claims from 2000-2010 reveals modest growth in orthopaedic payments with significant exceptions.

Discussion - 6 Minutes

9:36 AM **PAPER: 328**

Disparity in Total Joint Arthroplasty Patient Factors and Post-Operative Outcomes Based on Insurance Payer Type

Christopher T. Martin, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
Steve S. Liu, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Richard C. Johnston, MD, Iowa City, IA

Both pre and post-operative outcomes differ between insurance payer types in total joint arthroplasty and investigation into these diferences would be useful in informing health policy decisions

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

9:42 AM **PAPER: 329**

Disparity in Access to Care and Pre-Operative Patient Characteristics Between Insurance Type in Joint Arthroplasty

Christopher T. Martin, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
Steve S. Liu, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Richard C. Johnston, MD, Iowa City, IA

Disparities in pre-operative patient characteristics exist between insurance payer types in total joint arthroplasty, and further research is needed to better inform health policy decisions.

9:48 AM **PAPER: 330**

Door Openings Cause Contamination of the Operating Room Setup

Eric B. Smith, MD, Merion Station, PA
Ibrahim Raphael, MD, Philadelphia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Kyle J. Dolan, Havertown, PA
Sittisak Honsawek, MD, PhD, Bangkok, Thailand
Elizabeth Younkins, RN, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Restricting the number of door openings and performing surgeries under the LAF may decrease infection risks following TJA.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room S103

Tumor/Metabolic Disease I: Developments in Orthopaedic Oncology

Moderator(s): Carol D. Morris, MD, New York, NY
R. Lor Randall, MD, Salt Lake City, UT

8:00 AM **PAPER: 331**

Successful Prosthetic Rehabilitation Following Hip Disarticulation or Hemi-Pelvectomy

Michael Kralovec, MD, Rochester, MN
Karen L. Andrews, MD, Rochester, MN
Matthew Houdek, MD, Rochester, MN
Courtney E. Sherman, MD, Ponte Vedra, FL
Thomas C. Shives, MD, Rochester, MN
Peter S. Rose, MD, Rochester, MN
Franklin H. Sim, MD, Rochester, MN

Prosthestic Rehabilitation following hip disarticulation or hemi-pelvectomy is a viable option. Successful patients had long survival. Obesity and old age do not exclude patients from success.

8:06 AM **PAPER: 332**

The Financial Burden of Re-excising Incompletely Excised Sarcomas - A Cost Analysis

Vignesh Alamanda, BS, Nashville, TN
Kristin Archer, PhD, Nashville, TN
Shannon Mathis, Nashville, TN
Jesse Ehrenfeld, MD, MPH, Nashville, TN
Jennifer L. Halpern, MD, Nashville, TN
Herbert S. Schwartz, MD, Nashville, TN
Ginger E. Holt, MD, Nashville, TN

The financial costs of re-excision of soft tissue sarcomas (STS) are staggeringly high and if correctly diagnosed and resected properly, it would save on average $48,208 per patient.

8:12 AM **PAPER: 333**

Transcutaneous Application of CO2 Induced Mitochondrial Apoptosis in Human Malignant Tumors

Yasuo Onishi, MD, Hyogo, Japan
Teruya Kawamoto, MD, PhD, Kobe, Japan
Takeshi Ueha, Hyogo, Japan
Hitomi Hara, Kobe, Japan
Mitsunori Toda, MD, Kobe, Hyogo, Japan
Risa Harada, MD, Hyogo, Japan
Masaya Minoda, MD
Masahiro Kurosaka, MD, Kobe, Japan
Toshihiro Akisue, MD, Kobe, Japan

Transcutaneous application of CO2 induced mitochondrial apoptosis and inhibited tumor growth in human tumor xenografts. Our CO2 therapy may be a novel therapeutic tool for human malignancies.

Discussion - 6 Minutes

8:24 AM **PAPER: 334**

◆ Efficacy of Newly Developed Platinum Complexes Against Osteosarcoma

Kentaro Igarashi, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Hideji Nishida, MD, Kanazawa City, Japan
Hiroaki Kimura, MD, PhD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Shingo Shimozaki, MD, Kanazawa, Japan
Takashi Kato, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

We developped two novel platinum complexes. Both complexes showed strong anti-osteosarcoma activity in vitro and in vivo.

8:30 AM **PAPER: 335**

Cancer is Not Increased after Cell Therapies with Bone Marrow Concentrated Mesenchymal Stem Cells

Philippe Hernigou, PhD, Creteil France, France
Alexandre Poignard, MD, Creteil, France
Charles Henri Flouzat-Lachaniette, MD, Creteil, France

We found no increased cancer risk in patients after application of regenerative cell based therapies with bone marrow concentrated mesenchymal stem cells up to 21 years of follow-up.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

8:36 AM **PAPER: 336**

Proximal Tibia Tumor Megaprostheses: Implant Survival and Function in 225 Cases from a Single Institution

Pietro Ruggieri, Bologna, Italy
Elisa Pala, MD, Bologna, Italy
Andreas Mavrogenis, MD, Athens, Greece
Teresa Calabrò, Bologna, Italy
G. Douglas Letson, MD, Tampa, FL

An analysis of 225 megaprostheses of proximal tibia for bone tumors showed a 78% implant survival at 10 years and good functional results. Rotating hinge knees had significantly better results.

Discussion - 6 Minutes

8:48 AM **PAPER: 337**

Quality of Life Among Sarcoma Patients: Limb Amputation Versus Limb Salvage Procedures

Travis C. Heare, MD, Aurora, CO
Patrick Carry, Aurora, CO
Amy Monreal, BA, Aurora, CO
Shelley Dell'Orfano, NP, RN, MS, Aurora, CO
Ryan Mooney, PA-C, Denver, CO
Mary Ann Hensley, RN, Aurora, CO
Megan B. Nelson, MD, Louisville, KY

Following primary tumor resection, SF-36 mental health component scores are significantly higher among subjects that underwent an amputation compared with a limb salvage procedure.

8:54 AM **PAPER: 338**

Approach to Treatment of Langerhans Cell Histiocytosis: Is Biopsy Alone Enough?

Jessica C. Rivera, MD, Fort Sam Houston, TX
Amy Monreal, BA, Aurora, CO
Patrick Carry, Aurora, CO
Shelley Dell'Orfano, NP, RN, Aurora, CO
Ryan Mooney, PA-C, Denver, CO
Mary Ann Hensley, RN, Aurora, CO
Travis C. Heare, MD, Aurora, CO

While the treatment of LCH is debated, biopsy alone for unifocal disease can be both diagnostic and therapeutic allowing for predictable and rapid resolution of pain symptoms.

9:00 AM **PAPER: 339**

Surgery of Pelvic Chondrosarcomas: A Review of 235 Cases from a Single Institution

Pietro Ruggieri, Bologna, Italy
Andrea Angelini, MD, Bologna, Italy
Gabriele Drago, MD, Bologna, Italy
Carlo Romagnoli, MD, Bologna, Italy
Marco Manfrini, MD, Bologna, Italy

Agressive surgery of pelvic chondrosarcoma results in long-term survival.Tumor grade and stage correlate with survival. Local recurrences are influenced by site, histologic grade and surgical margins.

Discussion - 6 Minutes

9:12 AM **PAPER: 340**

Failure Rates of Internal Fixation of Femur Fractures after Soft Tissue Sarcoma Resection and Radiation

Amir Sternheim, Toronto, ON, Canada
Jasjit Lochab, MBBS, Toronto, ON, Canada
Patrick W. O'Donnell, MD, Lexington, KY
William C. Eward, MD, Durham, NC
Anthony M. Griffin, MSc, Toronto, ON, Canada
Jay Wunder, MD, Toronto, ON, Canada
Peter Ferguson, MD, Toronto, ON, Canada

Internal fixation of pathologic fractures of the femur after radiation for sarcoma has an extremely high complication rate. These fractures are often fixed in community hospitals.

9:18 AM **PAPER: 341**

Activation of Peroxisome Proliferator-activated Receptor Gamma is a Novel Therapy for Giant Cell Tumor of Bone

Akihiko Takeuchi, MD, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Toshiharu Shirai, MD, Kanazawa, Japan
Katsuhiro Hayashi, MD, Nagoya, Japan
Hideji Nishida, MD, Kanazawa City, Japan
Yoshikazu Tanzawa, PhD, Kanazawa, Japan
Hiroaki Kimura, MD, PhD, Kanazawa, Japan
Yasuhiko Yamamoto, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Activation of PPARγwas found to induce apoptosis or adipocytic differentiation in GCTB cells, suggesting its therapeutic effect on GCTB.

9:24 AM **PAPER: 342**

◆ Complications and Survival after Surgery of Skeletal Metastases in 301 Patients with Breast Cancer

Ruediger Weiss, Stockholm, Sweden
Rikard C. Wedin, MD, PhD, Stockholm, Sweden

The reoperation rate was 14% and the 1-year patient survival was 45% after surgery of skeletal metastases in 301 patients with breast cancer.

Discussion - 6 Minutes

9:36 AM **PAPER: 343**

◆ Acridine Orange Therapy as a New Less-invasive Limb Salvage Surgery for Rhabdomyosarcomas and Synovial Sarcomas

Takao Matsubara, MD, Tsu City, Mie, Japan
Katsuyuki Kusuzaki, MD, Kyoto, Japan
Akihiko Matsumine, MD, PhD, Tsu City, Mie, Japan
Kunihiro Asanuma, MD, Tsu, Japan
Tomoki Nakamura, MD, PhD, Tsu-City, Mie, Japan
Akihiro Sudo, Prof., Tsu City, Mie, Japan

Acridine Orange Therapy supported by photodynamic and radiodynamic therapy, to 7 rhabdomyosarcomas and 10 synovial sarcomas improved limb function by preserving normal tissues without local recurrence.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

9:42 AM **PAPER: 344**

Skeletal and Extraskeletal Mesenchymal Chondrosarcoma: A Review of 37 Cases

Satoshi Kawaguchi, MD, Houston, TX
Israel Weiss, MD, Raanana, Israel
Patrick P. Lin, MD, Houston, TX
Winston Huh, MD, Houston, TX
Bryan S. Moon, MD, Houston, TX
Robert L. Satcher Jr, MD, Houston, TX
Valerae O. Lewis, MD, Houston, TX

Thirty-seven cases of mesenchymal chondrosarcoma were analyzed. Five- and 10-year overall survival was 51% and 37%, respectively. Treatment without radiotherapy was significantly associated with poor recurrence free survival.

9:48 AM **PAPER: 345**

The Prognosis of Patients with Primary Osteosarcoma Who Have Undergone Unplanned Therapy

Po-Kuei Wu, MD, Taichung, Taiwan
Cheng-Fong Chen, MD, Taipei, Taiwan
Chien-Lin Liu, MD, Taipei, Taiwan
Tain H. Chen, MD, Taipei City, Taiwan
Wei-Ming Chen, MD, Taipei, Taiwan

Unplanned treatment for high-grade OS can result in failure of local control and earlier systemic metastases.

Discussion - 6 Minutes

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 11:00 AM

381 **Problems and Procedures in Pediatric Trauma: Case Based Learning**

TICKET

Moderator: Ken J. Noonan, MD, Madison, WI
Donald S. Bae, MD, Boston, MA
Michelle S. Caird, MD, Ann Arbor, MI
John M. Flynn, MD, Philadelphia, PA
Steven L. Frick, MD, Orlando, FL

Room S103a

Case presentations of pediatric trauma and complications will guide audience response and discussion. Technical methodology will be provided as tools for treatment of challenging trauma.

382 **Limited Incision and Less Invasive Surgical Approaches for Total Hip Arthroplasty**

TICKET

Lakeside, Room E351

Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Keith R. Berend, MD, New Albany, OH
Richard A. Berger, MD, Chicago, IL
Stephen B. Murphy, MD, Boston, MA
Christopher L. Peters, MD, Salt Lake City, UT

The spectrum of less invasive and limited incision approaches for THA are reviewed with video vignettes, discussion of pros and cons, case examples and clinical outcomes.

INSTRUCTIONAL COURSE LECTURE

10:30 AM — 11:30 AM

FD4 **Writing an Abstract that Gets Accepted**

TICKET

Room N227a

Moderator: Craig J. Della Valle, MD, Chicago, IL
Mark W. Pagnano, MD, Rochester, MN
Javad Parvizi, MD, FRCS, Philadelphia, PA

Understand the abstract submission and review process in order to increase the likelihood of acceptance. Learn how to write an abstract that is focused, concise and clear so that your message is "heard" by the reviewers. This course is offered at no charge.

INSTRUCTIONAL COURSE LECTURE

10:30 AM — 12:30 PM

321 **Periprosthetic Fractures Around the Hip and Knee: Contemporary Techniques of Internal Fixation and Revision**

TICKET

Room S104

Moderator: George J. Haidukewych, MD, Orlando, FL
Kenneth J. Koval, MD, Orlando, FL
Richard F. Kyle, MD, Minneapolis, MN
Frank A. Liporace, MD, Englewood Cliffs, NJ

Contemporary indications and techniques of internal fixation and revision for periprosthetic fractures around total hip and total knee arthroplasty will be presented.

322 **Ensuring a Winner: The A,B,C's of Primary Total Knee Arthroplasty**

TICKET

Room S501

Moderator: Steven J. MacDonald, MD, London, ON, Canada
Michael E. Berend, MD, Mooresville, IN
John J. Callaghan, MD, Iowa City, IA
Jay R. Lieberman, MD, Los Angeles, CA

Presentations will include information on patient selection, achieving reproducible limb alignment, balancing the varus and valgus knee, appropriate component sizing and positioning and best cementing techniques. Interesting cases of primary TKA will be presented.

323 **The Synovial Joint: Structure, Function, Injury and Repair, Osteoarthritis**

TICKET

Room S504a

Moderator: Alan J. Grodzinsky, PhD, Cambridge, MA
Joseph A. Buckwalter, MD, Iowa City, IA
Henry J. Mankin, MD, Brookline, MA

Concise review of current understanding of the biology and biomechanics of articular cartilage. Provide a basis for current understanding of osteoarthritis and cartilage repair. Provide the basis for understanding current clinical approaches to providing biologic resurfacing of articular cartilage and restoration of synovial joint function.

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Thursday, March 21

324 **Foot and Ankle Fusions: You Can't Always Replace Us**
TICKET
Lakeside, Room E352
Moderator: Eric M. Bluman, MD, Chestnut Hill, MA
Christopher P. Chiodo, MD, Boston, MA
J. Chris Coetzee, MD, Golden Valley, MN
Jeffrey E. Johnson, MD, Saint Louis, MO

Cover foot and ankle fusions, including indications, surgical techniques, current controversies, as well as pearls and pitfalls will be reviewed.

325 **Acute Elbow Trauma: A Logical Evidence-Based Approach to Complex Elbow Injuries**
TICKET
Room S106b
Moderator: Michael D. McKee, MD, Toronto, ON, Canada
Ken Faber, MD, London, ON, Canada
Mark A. Mighell, MD, Tampa, FL
Aaron Nauth, MD, Toronto, ON, Canada

Use high-level evidence based prospective and randomized studies to provide attendee's with a well supported clinical approach to fractures of the distal humerus, fracture of the elbow and complex elbow fracture dislocations.

326 **Extremity Amputations: Principles, Techniques, and Recent Advances**
TICKET
Room S402a
Moderator: Carol D. Morris, MD, MS, New York, NY
Edward A. Athanasian, MD, New York, NY
Valerae O. Lewis, MD, Houston, TX
Benjamin K. Potter, MD, Bethesda, MD

Review general principles of performing successful upper and lower extremity amputations. Pre-operative considerations and surgical technique emphasized. Cases will be utilized to illustrate key points and highlight recent advances in prosthetic design.

327 **Contemporary Management of Dupuytren's Contracture**
TICKET
ASSH
Room S502
Moderator: Marco Rizzo, MD, Rochester, MN
Prosper Benhaim, MD, Los Angeles, CA
Lawrence C. Hurst, MD, Stony Brook, NY
Peter J. Stern, MD, Cincinnati, OH

Comprehensive review of the pathophysiology and management of Dupuytren's contracture with treatment focus on surgical intervention, needle aponeurotomy and collagenase.

◆328 **Cerebal Palsy: Clinical Decision Making and Current Orthopaedic Surgical Management**
TICKET
Room S401d
Moderator: Jon R. Davids, MD, Sacramento, CA
Henry G. Chambers, MD, San Diego, CA
Robert M. Kay, MD, Los Angeles, CA
Unni G. Narayanan, MBBS, MSc, FRCSC, Toronto, ON, Canada

Comprehensive overview of the management of children with cerebral palsy, emphasizing pathophysiology, natural history, and biomechanics; and treatment through the integration of orthopaedic surgery, tone management, and objective outcomes assessment.

329 **Contemporary Medico-Legal Issues in Orthpaedic Surgery**
TICKET
Room S402b
Moderator: Michael Suk, MD, Danville, PA
Michael T. Archdeacon, MD, Cincinnati, OH
B S. Bal, MD, Columbia, MO

Registrants will gain essential information in important medico-legal topics including EMTALA, call compensation, disruptive physicians, contemporary medical staff issues, the essentials of liability and tips on how to survive a deposition.

330 **Strategic Positioning and Marketing**
TICKET
Room S503
Moderator: Eric N. Berkowtiz, PhD, Amherst MA

Session will focus on developing market responsive strategies to attract patients, referrals and managed care subscribers. Understanding how to develop market responsive strategic plans along with recognizing what physicians, patients, and other customers are buying from your organization is essential in an evolving health care market. As health care moves from a fee-for-service to managed care market, the strategies involving promotion, pricing, and distribution of services must also be refined and will be reviewed. Identify market needs, understand how physicians and patients make choices among organizations, determine your marketplace differential. Learn strategies for market research, pricing and advertising. Develop methods for controlling patient flow and enhancing bargaining strategy.

◆331 **Shoulder Arthroplasty: The State of the Art**
TICKET
Room N227b
Moderator: David M. Dines, MD, Great Neck, NY
Wayne Z. Burkhead Jr, MD, Dallas, TX
Edward V. Craig, MD, New York, NY
Gregory P. Nicholson, MD, Chicago, IL

Present a contemporary overview of shoulder arthroplasty with specific emphasis on pathologic anatomy, indications, techniques and complications.

332 **Modern Techniques in the Treatment of Patients with Metastatic Spine Disease**
TICKET
Room S405
Moderator: Jacob M. Buchowski, MD, MS, Saint Louis, MO
Ziya L. Gokaslan, Baltimore, MD
Josh Yamada, MD, New York, NY

Focus on which patients with spinal metastatic disease may benefit from surgery vs. radiation therapy. In addition advanced spine surgical techniques will be presented.

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Thursday, March 21

333 **Biceps Tendon: Problems and Surgical Techniques**


Moderator: Robert A. Pedowitz, MD, PhD, Santa Monica, CA
Larry D. Field, MD, Jackson, MS
Benjamin Shaffer, MD, Washington, DC
Nikhil N. Verma, MD, Chicago, IL

Room S406

Cover biceps tendon disorders (including SLAP lesions, degeneration, instability), focusing upon arthroscopic and open surgical methods for treatment of these common disorders.

334 **Challenges in the Management of Fractures in Adolescents: A Case Based Approach**

Moderator: Susan A. Scherl, MD, Omaha, NE
R. D. Blasier, MD, Little Rock, AR
Bernard D. Horn, MD, Philadelphia, PA
Kelly L. Vanderhave, MD, Ann Arbor, MI

Lakeside, Room E350

Case-based presentations on adolescent fracture patterns, including information regarding technique pearls, complications associated with treatment of the fracture in adolescents and management of those complications.

335 **Advances in Treatment and Understanding of Musculoskeletal Infections**


Moderator: David W. Lowenberg, MD, Redwood City, CA
L. S. Levin, MD, Philadelphia, PA
J. Tracy Watson, MD, Saint Louis, MO

Room S106a

Understanding of emerging technologies in better diagnosis and management of musculoskeletal infections. Strategies for the comprehensive care of the bone and soft tissue in limb infections will be emphasized.

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room S105

Adult Reconstruction Knee IV: Total Knee Arthroplasty
Moderator(s): Jeffrey A. Geller, MD, New York, NY
Giles R. Scuderi, MD, New York, NY

10:30 AM **PAPER: 346**

Differences in Short-Term Complications Between Spinal and General Anesthesia for Primary Total Knee Arthroplasty
Andrew J. Pugely, MD, Iowa City, IA
Christopher T. Martin, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
Sergio A. Mendoza-Lattes, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

Spinal anesthesia for primary Total Knee Arthroplasty is associated with decreased short term complications, especially in patients with multiple comorbidities.

10:36 AM **PAPER: 347**

Public Awareness of Medicare Surgeon Reimbursement for THA and TKA
Mary I. O'Connor, MD, Jacksonville, FL
Joel A. Tucker, MD, Gulfport, MS
Carolyn Scott, Ponte Vedra Beach, FL
Colleen S. Thomas, MS, Jacksonville, FL

Public perception of Medicare reimbursement to surgeons for THA and TKA showed that of nearly 700 respondents the estimated surgical fee was $5000 and 62% felt the actual fee was lower than expected.

10:42 AM **PAPER: 348**

Continuous Passive Motion After Total Knee Arthroplasty: A Randomized Controlled Trial Comparing Three Protocols
Clifford K. Boese, MD, Council Bluffs, IA
Sheila Lawton, NP, RN, MS, Council Bluffs, IA
Marcia Weis, Council Bluffs, IA
Tamra Phillips, DPT, Council Bluffs, IA
Theresa J. Gallo, PA-C, Council Bluffs, IA
Carla Plantikow, MSc., Council Bluffs, IA

After comparing three different protocols for continuous passive motion use after total knee arthroplasty, we did not discover any significant differences in post-operative recovery indicators.

Discussion - 6 Minutes

10:54 AM **PAPER: 349**

The Effect of Obesity on Direct Medical Costs in Total Knee Arthroplasty
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Sue L. Visscher, PhD, Rochester, MN
Walter K. Kremers, PhD, Rochester, MN
James Naessens, MPH, Rochester, MN
David G. Lewallen, MD, Rochester, MN

Obesity and costs in TKA.

11:00 AM **PAPER: 350**

A Randomized, Prospective Study Evaluating the Effect of Patellar Eversion on Outcomes in Total Knee Arthroplasty
Derek R. Jenkins, MD, Rochester, MN
Jose A. Rodriguez, MD, New York, NY
Amar S. Ranawat, MD, New York, NY
Michael M. Alexiades, MD, Manhattan, NY
Ajit J. Deshmukh, MD, New York, NY
Takumi Fukunaga, DPT, ATC, New York, NY
Michelle L. Greiz, New York, NY
Parthiv A. Rathod, MD, Flushing, NY
Malachy P. McHugh, PhD, New York, NY

Short and long term outcomes of total knee arthroplasty patients surgically exposed with patellar eversion were statistically similar to those patients exposed by laterally retracting the patella.

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Thursday, March 21

11:06 AM **PAPER: 351**

Primary Knee Arthroplasty Outcomes in Females Before and After Availability of the Gender-Specific Component

Alexander P. Sah, MD, Fremont, CA
John T. Dearborn, MD, Fremont, CA

While gender-specific components overhang less, and is reflected radiographically, outcomes are not improved based on objective measurements.

Discussion - 6 Minutes

11:18 AM **PAPER: 352**

Do We Need Computer-Assisted Navigation to Improve the Survival of Total Knee Arthroplasty? Results at 10.8 Years

Young-Hoo Kim, MD, Seoul, Republic of Korea
Jangwon Park, MD, Seoul, Republic of Korea

After 10.8 years follow-up of 520 patients (1,040 knees), computer-assisted TKA did not improve the clinical function, alignment and survivorship of the components compared with conventional TKA.

11:24 AM **PAPER: 353**

All-Polyethylene Tibial Component Lowers Risk of Revision: Analysis of 27,657 Primary Total Knee Arthroplasties

Vivek Mohan, MD, Newport Beach, CA
Maria C. Inacio, MS, San Diego, CA
Robert S. Namba, MD, Corona Del Mar, CA
Dhiren S. Sheth, MD, Irvine, CA
Liz Paxton, MA, San Diego, CA

Fixed bearing monoblock all-polyethylene tibial components had a 49% lower risk of revision for all-causes and a 41% lower risk of aseptic revision when compared to modular tibial constructs.

11:30 AM **PAPER: 354**

Long-Term Survival of Different Tibia Implant Designs in Primary Total Knee Arthroplasty

Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
Cathy D. Schleck, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
Miguel E. Cabanela, MD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN

Implant comparisons in TKA.

Discussion - 6 Minutes

11:42 AM **PAPER: 355**

Influence of Femoral Block on Quadriceps Strength Recovery (QSR) After Total Knee Replacement

Stephane Pelet, MD, PhD, Québec, QC, Canada
Michele Angers, MD, Quebec, QC, Canada
Etienne Belzile, MD, Quebec,QC, Canada
Jessica Vachon, MD, Quebec,QC, Canada

Femoral block has a negative influence on quadriceps strength recovery at short and mid-term follow-up and should not yet be recommended for analgesia after TKR.

11:48 AM **PAPER: 356**

Ten to 20-year Results of Cemented Primary Total Knee Replacement Using a Contemporary Prosthesis

Mathias Nagy, MD, Macclesfield, United Kingdom
Graham Keys, MBBS, FRCS (Ortho), Macclesfield, United Kingdom

Our results demonstrate excellent long term results using this contemporary implant with high patient satisfaction and low complication and revision rate.

11:54 AM **PAPER: 357**

A Randomized Clinical Trial of 260 TKA: Porous-Metal Tibial Components were Reliable and Durable at Five Years

Luis Pulido, MD, Rochester, MN
Matthew P. Abdel, MD, New York, NY
David G. Lewallen, MD, Rochester, MN
Joaquin Sanchez-Sotelo, MD, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Arlen D. Hanssen, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN

At 5 years in this randomized clinical trial involving 260 TKA, highly porous metal tibial components provided reliable and durable fixation.

Discussion - 6 Minutes

12:06 PM **PAPER: 358**

Patient Specific Guides Do Not Improve Accuracy in Total Knee Arthroplasty

Jan Dujardin, Deerlijk, Belgium
Hilde Vandenneucker, MD, Pellenberg-Lubbeek, Belgium
Nele Arnout, MD, Edegem, Belgium
Thomas Luyckx, MD, Bertem, Belgium
Stijn Ghijselings, MD, Leuven, Belgium
Steven A. Claes, MD, Pellenberg, Belgium
Johan Bellemans, MD, Langdorp, Belgium
Jan M. Victor, MD, GENT, Belgium

Patient Specific Guides do not improve accuracy in TKA.

12:12 PM **PAPER: 359**

Long Term (35 Years) Outcome Analysis of the Young Total Knee Patient: Minimum 20 Years

W. Norman Scott, MD, New York, NY
Chris D. Bryce, MD, Gilbert, AZ
William J. Long, MD, New York, NY
Rodney W. Benner, MD, Zionsville, IN
Christopher S. Hollenbeak, PhD, Hershey, PA
Giles R. Scuderi, MD, New York, NY
Fred D. Cushner, MD, New York, NY

Cemented posterior stabilized TKA is an effective treatment option with durable results for end-stage OA in younger patients. This study should provide comparison for more modern operative techniques.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

12:18 PM **PAPER: 360**

Balanced Flexion/Extension Gaps are Not of Equal Size

Ormonde M. Mahoney, MD, Athens, GA
Tracy Kinsey, MPH, Athens, GA

Artifactual widening of the flexion gap occurs during gap balancing that should be corrected for proper TKA size selection.

Discussion - 6 Minutes

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room N427

Sports Medicine/Arthroscopy V: ACL, PCL, Multiligament

Moderator(s): Robert G. Marx, MD, New York, NY
Nicholas A. Sgaglione, New Hyde Park, NY

10:30 AM **PAPER: 361**

Analysis of 16,192 Anterior Cruciate Ligament Reconstructions from a Community-Based Registry

Gregory B. Maletis, MD, Baldwin Park, CA
Maria C. Inacio, MS, San Diego, CA
Jamie L. Desmond, San Diego, CA
Tadashi T. Funahashi, MD, Irvine, CA

Anterior cruciate ligament registries benchmark the demographics, graft choices and complications with ACL reconstructions.

10:36 AM **PAPER: 362**

Anatomic Single Graft ACL Reconstruction Restores Knee Kinematics Under Novel Pivot Shift Simulation

Samuel P. Harms, MD, Duluth, MN
Andrew W. Jetter, BS, Cincinnati, OH
Frank R. Noyes, MD, Cincinnati, OH
Edward S. Grood, PhD, Sarasota, FL

This is the first report of a knee joint robotic simulator reproducing the true clinical pivot shift motions to examine ACL function and ACL graft behaviors. The anatomic ACL graft restored translations and rotations to a normal state.

10:42 AM **PAPER: 363**

Anteromedial vs. Transtibial Portal in ACL Reconstruction: Clinical and Radiographic Relevance

Rocco Papalia, MD, PhD, Rome, Italy
Francesco Franceschi, MD, Rome, Italy
Giacomo Rizzello, MD, Rome, Italy
Angelo Del Buono, MD, Rome, Italy
Edoardo Franceschetti, MD, Italy
Sebastiano Vasta, MD
Biagio Zampogna, MD, Rome, Italy
Nicola Maffulli, London, United Kingdom
Vincenzo Denaro, MD, Rome, Italy

Anteromedial portal ACL reconstruction better restores the native anatomical footprint, a results in a higher return to sport activity rate.

Discussion - 6 Minutes

10:54 AM **PAPER: 364**

Fixation Strength of the Different Tendon Length within Tibial Tunnel in Anterior Cruciate Ligament Reconstruction

Hee S. Kyung, MD, Daegu, South Korea
Dong-Lyul L. Yang, MD, Daegu, South Korea
Sang-Ho Cheon, Daegu, South Korea
Hyun-Joo Lee, MD, Daegu, South Korea

The initial fixation of soft-tissue graft with 2γgraft had similar graft slippage to with 4γgraft and had a high strength for accelerated rehabilitation after ACL reconstruction.

11:00 AM **PAPER: 365**

Anterior Cruciate Ligament Regeneration Using Mesenchymal Stem Cells and Collagen Type I Scaffold in a Rabbit Model

David Figueroa, MD, Santiago, Chile
Maximiliano Espinosa, MD, Santiago, Chile
Rafael Calvo, MD, Santiago, Chile
Alex Vaisman, MD, Santiago, Chile
Maximiliano Scheu, MD, Santiago, Chile
Juan José Valderrama, MD, Santiago, Chile
Marcela P. Gallegos, MD, Santiago, Chile
Paulette Conget, PhD, Santiago, Chile

Our hypothesis was that MSC seeded in a collagen scaffold can regenerate ACL in a rabbit model. A 33% of ACL regeneration was observed using MSC seeded in collagen scaffold.

11:06 AM **PAPER: 366**

Clinical Results of Quadriceps Tendon Anterior Cruciate Ligament Reconstruction after Minimum Two Years Follow Up

Sang E. Park, MD, PhD, Goyangsi, South Korea
Sang Won Mun, Goyangsi, South Korea
Min Kyu Kim, Goyangsi, South Korea
Do Hyun Yeo, MD, Goyangsi, South Korea

Quadriceps ACL has a benefit for rotational instability than that of quadriple hamstring ACL reconstruction.

Discussion - 6 Minutes

11:18 AM **PAPER: 367**

Anatomic Femoral Tunnel Drilling in PCL Reconstruction: Inside-Out versus Outside-In Drilling

Thomas Keller, MD, Charlottesville, VA
Marc Tompkins, MD, Minneapolis, MN
Matthew Milewski, MD, Farmington, CT
Stephen F. Brockmeier, MD, Charlottesville, VA
Cree Gaskin, MD, Charlottesville, VA
Joe Hart, PhD, ATC, Charlottesville, VA
Winston Evatt, Charlottesville, VA
Mark D. Miller, MD, Charlottesville, VA

OI and IO techniques achieved equal accuracy in placing the femoral tunnel within the native PCL footprint. IO drilling produced tunnel orientations likely to result in less graft angulation.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

11:24 AM **PAPER: 368**

Magnetic Resonance Imaging Analysis of Tunnel Location for Fibular Collateral Ligament Reconstruction

Kyle C. Bohm, MD, Minneapolis, MN
Robby S. Sikka, MD, Minneapolis, MN
Bret D. Yonke, MD, Bloomington, MN
Joel L. Boyd, MD, Minneapolis, MN
Marc Tompkins, MD, Minneapolis, MN

Current strategies used to reconstruct the FCL do not result in anatomic tunnel position and reconstruction.

11:30 AM **PAPER: 369**

Clinical and Radiologic Outcomes of PCL Reconstruction Using Transtibial and Tibial Inlay Techniques

Eun K. Song, MD, Hwasun-Gun, South Korea
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Ji-Hyeon Yim, Jeonnam, Republic of Korea
Jae-Young Moon, MD, Hwasun-Gun, South Korea

The transtibial tunnel and tibial inlay technique showed relatively good functional and stability results without any significant differences.

Discussion - 6 Minutes

11:42 AM **PAPER: 370**

Radiographic Landmarks for Tunnel Positioning in Posterior Cruciate Ligament Reconstructions

Adam Johannsen, BS, Falcon Heights, MN
Colin J. Anderson, MD, Aurora, CO
Coen A. Wijdicks, PhD, Vail, CO
Lars Engebretsen, MD, Oslo, Norway
Robert F. LaPrade, MD, PhD, Vail, CO

This study established a set of clinically relevant radiographic guidelines for anatomic reconstruction of the PCL.

11:48 AM **PAPER: 371**

Minimum 10-year Follow-up of Acute, Isolated Posterior Cruciate Ligament Injury Treated Nonoperatively

K. Donald Shelbourne, MD, Indianapolis, IN
Melanie K. Clark, Shelbyville, IN
Tinker Gray, MA, ELS, Indianapolis, IN

-20 year results of nonoperatively treated isolated PCL injuries showed medial compartment narrowing was not evident and results were not different based on grades of laxity.

11:54 AM **PAPER: 372**

Return to Play in Athletes after Non-operative Management of Acute Isolated Posterior Cruciate Ligament Injuries

Harry Laing, London, United Kingdom
Sandesh Gulhane, MBBS, London, United Kingdom
Fares S. Haddad, FRCS, London, United Kingdom

Medium term review suggests that non-operative management of acute isolated PCL injuries is associated with very good clinical outcomes and return to sport.

Discussion - 6 Minutes

12:06 PM **PAPER: 373**

Th Effect of the Platelet Rich Plasma on the Medial Collateral Ligament Repair in a Rat Model

Oleg Dolkart, PhD, Tel Aviv, Israel
Eyal Amar, MD, Tel Aviv, Israel
Morsi Khashan, Jaffa Tel Aviv, Israel
Guy Morag, MD, Ramat Gan, Israel
Moshe Salai, MD, Tel Aviv, Israel
Nimrod Snir, MD, New York, NY

The addition of PRP was not sufficient to accelerate healing of the injured MCL repair. The use of PRP to supplement repair of the MCL is ineffective in this animal model.

12:12 PM **PAPER: 374**

The Knee Multi-Ligament Quality of Life (ML-QOL) Questionnaire - Development and Testing

Jaskarndip Chahal, MD, Mississauga, ON, Canada
Daniel Whelan, MD, Toronto, ON, Canada
Peter B. MacDonald, MD, Winnipeg, MB, Canada
Bruce A. Levy, MD, Rochester, MN
Peter M. Smith, PhD, Toronto, ON, Canada
Susan Jaglal, PhD, Toronto, ON, Canada
Aileen M. Davis, PhD, Toronto, ON, Canada

This study describes the development and testing of measurement properties of a novel disease-specific outcome instrument for patients with multi-ligament knee injuries.

12:18 PM **PAPER: 375**

Proximal Tibiofibular Joint Instability in the Setting of a Multiligamentous Knee Injury

Michael Merrick, MD, Grand Rapids, MI
Jeffrey M. Bradley, MD, Carmel, IN
Michael R. Jabara, MD, Grand Rapids, MI

We reviewed 72 consecutively treated multiligamenous knee injuries and found 6 patients had proximal tibiofibular joint disruption. Recognizing this injury is crucial in fibula-based reconstructions.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room N426

Trauma III: Pelvis and Acetabulum
Moderator(s): Edward Perez, MD, Memphis, TN
Frederic B. Wilson, MD, Phoenix, AZ

10:30 AM **PAPER: 376**
One-Year Mortality after Isolated Acetabular Fractures in Elderly Patients
Jesse E. Bible, MD, MHS, Nashville, TN
Adam Wegner, MD, Sacramento, CA
Jennifer M. Bauer, MD, Nashville, TN
Rishin Kadakia, Nashville, TN
Justin E. Richards, MD, Nashville, TN
Hassan R. Mir, MD, Nashville, TN

The mortality rates for elderly patients with isolated acetabular fractures were found to be lower than those reported previously for hip fractures and acetabular fractures with concurrent injuries.

10:36 AM **PAPER: 377**
Acetabular Fractures in the Elderly: 20-year Survivorship and Predictive Factors
Moritz Tannast, Bern, Switzerland
Joseph M. Schwab, MD, Milwaukee, WI
Joel M. Matta, MD, Santa Monica, CA

The 20-year survivorship of the hip after fixation of displaced acetabular fractures was 60% for a patient population > 60 years of age. Negative predictive factors differed from a younger patient.

10:42 AM **PAPER: 378**
◆ Severe Pelvic Ring Disruption and Mortality: Does the Type of Early Management Matter?
Dirk-Jan Hofstee, MD, Melbourne, Australia
Belinda Gabbe, PhD, Melbourne, Australia
Max P. Esser, MD, Malvern, Australia
Andrew T. Bucknill, FRCS, Parkville, Australia
Richard De Steiger, MD, Richmond, Australia
Matthias K. Russ, MD, Ashburton, Australia
Chris R. Handley, Melbourne, Australia
Peter A. Cameron, MD, MBBS, Melbourne, Australia

This cohort study compared two trauma centre protocols of early intervention for the haemodynamically unstable pelvic fracture patient, and found comparable risk-adjusted mortality.

Discussion - 6 Minutes

10:54 AM **PAPER: 379**
Anatomic Determinants of Sacral Dysmorphism and Implications for Safe Iliosacral Screw Placement
Scott Kaiser, MD, San Francisco, CA
Joseph Liu, MD, New York, NY
Michael J. Gardner, MD, Saint Louis, MO
Milton L. Routt Jr, MD, Seattle, WA
Saam Morshed, MD, San Francisco, CA

Principal component analysis of 100 pelvis CT scans demonstrated a link between coronal and axial angulation of the first sacral segment and the ability to safely place a trans sacral screw.

11:00 AM **PAPER: 380**
Is Closed Reduction and Percutaneous Fixation of Type 3 Posterior Ring Injuries as Accurate as ORIF?
Adam D. Lindsay, MD, Boston, MA
Paul Tornetta III, MD, Boston, MA
Amna Diwan, MD, Houston, TX
David C. Templeman, MD, Minneapolis, MN

We compared CRPP vs. ORIF of type 3 posterior ring injuries with the hypothesis that CRPP would be equivalent to ORIF in quality of reduction.

11:06 AM **PAPER: 381**
◆ Transiliac-Transsacral Screw Fixation in Type C Pelvic Ring Injuries Decreases Early Post-Operative Failure
Gregory Y. Blaisdell, MD, Tampa, FL
James C. Krieg, MD, Seattle, WA
Milton L. Routt Jr, MD, Seattle, WA

This study demonstrated a decrease in fixation failure in Type C pelvic ring injuries stabilized with transiliac-transsacral screw fixation as compared to standard iliosacral style screws.

Discussion - 6 Minutes

11:18 AM **PAPER: 382**
The Role of Computed Tomography for Post-op Neuro Evaluation of Percutaneous Sacroiliac Screw Fixation
Richelle C. Takemoto, MD, Pittsburgh, PA
Dima Raskolnikov, BS, New York, NY
Toni M. McLaurin, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY

Percutaneous SI screws may have formainal penetration of upto 2.1mm before causing neuro deficit and do not need removal.

11:24 AM **PAPER: 383**
Pelvic Computed Tomography Obtained Prior to Hip Reduction Increased Time to Reduction, Cost and Radiation Exposure
Brigham K. Au, MD, Irving, TX
Marissa Daniels, BA, Dallas, TX
Rahul Banerjee, MD, FACS, Dallas, TX

Pelvic CT obtained prior to hip reduction in patient with acetabular fracture dislocations increased the time to reduction, cost, and radiation exposure.

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Thursday, March 21

11:30 AM **PAPER: 384**

Quantification of Bony Pelvic Exposure through the Modified Stoppa Approach

Jesse E. Bible, MD, MHS, Nashville, TN
Ankeet Choxi, BS, Nashville, TN
Rishin Kadakia, Nashville, TN
Jason M. Evans, MD, Franklin, TN
Hassan R. Mir, MD, Nashville, TN

The modified Stoppa approach allows for safe exposure of the majority (79%) of the inner true bony pelvis including the entire pelvic brim and 80% of the quadrilateral surface.

Discussion - 6 Minutes

11:42 AM **PAPER: 385**

Pelvic Infection After Trauma: Prevalence, Pathogenicity and Outcomes

Vincenzo Ciriello, Roma, Italy
Suribabu Gudipati, MBBS, MRCS, Wakefield, United Kingdom
Petros Z. Stavrou, N. Erythrea, Athens, Greece
Nikolaos K. Kanakaris, MD, Leeds, United Kingdom
Stylianos Theocharakis, Voula, Athens, Greece
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom

Pelvic Infection After Trauma: Prevalence, Pathogenicity and Outcomes.

11:48 AM **PAPER: 386**

Infection Rate and Treatment of Transpelvic Gunshot Wounds

Brigham K. Au, MD, Irving, TX
John C. Chao, MD, Dallas, TX
Sheena R. Black, MD, Dallas, TX
Adam J. Starr, MD, Dallas, TX

Prophylactic irrigation and debridement of pelvic fractures associated with a gunshot wound and bowel/bladder injury is not necessary to prevent osteomyelitis.

11:54 AM **PAPER: 387**

Minimal Invasive Para-rectal Approach for Reduction of Anterior Displaced Acetabular Fractures

Osama Farouk, MBBS, MSc, Assiut, Egypt
Ayman Kamal, Assiut, Egypt
Mahmoud Y. Badran, Assiut, Egypt
Wael El-Adly, Assiut, Egypt
Kamal A. EL-Gafary, Asyuit, Egypt

We report the use of a mini-open pararectal anterior approach to manipulate and reduce anteriorly displaced transverse acetabular fractures with percutaneous lag screw fixation in 8 patients.

Discussion - 6 Minutes

12:06 PM **PAPER: 388**

Injury Severity Score is Predictive of Hetertopic Ossification Incidence and Severity in Fracture of the Acetabulum

Earnest C. Casstevens, Cincinnati, OH
Michael T. Archdeacon, MD, Cincinnati, OH
Ryan Finnan, MD, Cincinnati, OH
Brett W. McCoy, MD, Cleveland, OH

This prospective, case-matched study of acetabular fracture patients demonstrates increased incidence and severity of hetertopic ossification in patients with an ISS score greater than 30.

12:12 PM **PAPER: 389**

Incidence and Risk Factors of Symptomatic Peripartum Diastasis of Pubic Symphysis

Yong-chan Ha, Prof, Seoul, Republic of Korea
Tae-young Kim, PhD, Anyang, Republic of Korea
Jeong Joon J. Yoo, MD, Seoul, Republic of Korea
Young-Kyun Lee, MD, Seongnam-Si, Republic of Korea
Ji-Hoon Baek, Sungnam-Si, Republic of Korea
Byung-Ho Yoon, Seoul, Republic of Korea
Kyung-Hoi H. Koo, MD, Seoul, Republic of Korea

Symphysis pubis diastasis is more frequent than generally acknowledged. Pregnant women with multiple gestations should be informed about the potential risk of pubic symphysis diastasis.

12:18 PM **PAPER: 390**

Examination Under Anesthesia for Posterior Wall Acetabular Fracture: A Survey of the OTA Membership

John Riehl, MD, Orlando, FL
Kenneth J. Koval, MD, Orlando, FL
George J. Haidukewych, MD, Orlando, FL

The purpose of this survey was to learn more about the criteria and methods of performing EUA for "intermediate" sized PW fractures and to find what criteria surgeons use to determine hip instability.

Discussion - 6 Minutes

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room S102

Spine III: Deformity

Moderator(s): Norman B. Chutkan, MD, Augusta, GA
Burt Yaszay, MD, San Diego, CA

10:30 AM **PAPER: 391**

Screening Magnetic Resonance Imaging in Adolescent Idiopathic Scoliosis Patients Should be Standard of Care

Richard E. McCarthy, MD, Little Rock, AR
Edgar St. Amour, MD, MSc, Little Rock, AR
Jason M. Rogers, MD, Little Rock, AR

Preoperative screening MRI's of the entire spine were reviewed for neuro-axis (N-A) abnormality in 248 consecutive AIS pts. 15% had an MRI diagnosed N-A abnormality with 34% (5% of all pts) requiring neurosurgical inteverntion.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

10:36 AM **PAPER: 392**

Motion of the Unfused Lumbar Segments Remains Increased Up to Six Years After Fusion for AIS

Michelle Marks, NMD, Tucson, AZ
Tracey Bastrom, MA, San Diego, CA
Maty Petcharaporn, BS, San Diego, CA
Suken A. Shah, MD, Wilmington, DE
Amer Samdani, MD, Philadelphia, PA
Baron Lonner, MD, New York, NY
Firoz Miyanji, MD, Vancouver, BC, Canada
Peter O. Newton, MD, San Diego, CA

Inter-vertebral motion of the unfused distal segments was measured at varying post-operative time-points (up to 6 years) in 165 patients with Adolescent Idiopathic Scoliosis (AIS) who underwent poster.

10:42 AM **PAPER: 393**

Better Understanding Postoperative Changes in Adolescent Idiopathic Scoliosis Using 3D Reconstructions

Krishna R. Cidambi, MD, San Diego, CA
Shoji Seki, MD, Toyama, Japan
Carrie Bartley, MA, San Diego, CA
Maty Petcharaporn, BS, San Diego, CA
Tracey Bastrom, MA, San Diego, CA
Burt Yaszay, MD, San Diego, CA
Peter O. Newton, MD, San Diego, CA

3D reconstructions of 2D radiographs permit improved analysis of deformity and correction in AIS.

Discussion - 6 Minutes

10:54 AM **PAPER: 394**

Halo-Gravity Traction in Skeletal Dysplasia Patients with Severe Kyphoscoliosis: Outcomes and Complications

Sina Pourtaheri, MD, Paterson, NJ
Suken A. Shah, MD, Wilmington, DE
William G. Mackenzie, MD, Wilmington, DE
Laurens Holmes, PhD, DrPH, Wilmington, DE

Among children with skeletal dysplasia and severe kyphoscoliosis, halo-gravity traction is safe and improves coronal balance, apical translation, thoracic height, and kyphosis.

11:00 AM **PAPER: 395**

◆ Natural History of Scoliosis in Osteogenesis Imperfecta

Alireza Anissipour, DO, Chicago, IL
Kim W. Hammerberg, MD, Chicago, IL
Theodore Kostiuk, DO, Chicago, IL
Peter A. Smith, MD, Chicago, IL

Higher rates of progression are observed in types III and IV osteogenesis imperfecta compared to type I. Bisphosphonate therapy should be used early on to modulate curve progression in type III OI.

11:06 AM **PAPER: 396**

Adult Lumbar Degenerative Scoliosis Less than 40°: Outcomes with Minimum Two-Year Follow Up

Justin J. Park, MD, Elkridge, MD
Leah Y. Carreon, MD, Louisville, KY
Steven D. Glassman, MD, Louisville, KY

Our results show patients with adult lumbar degenerative scoliosis curves less than 40 degrees presenting with back and leg pain benefit from decompression and fusion.

Discussion - 6 Minutes

11:18 AM **PAPER: 397**

Proximal Junctional Kyphosis in Adult Deformity Surgery: Identification of Mechanisms and Risk Factors

Keishi Maruo, MD, Nishinomiya, Japan
Sumant Samuel, MBBS, MS, Vellore, India
William W. Schairer, San Francisco, CA
Serena S. Hu, MD, San Francisco, CA
Praveen V. Mummaneni, San Francisco, CA
Vedat Deviren, MD, San Francisco, CA
Sigurd H. Berven, MD, San Francisco, CA

Fracture at the UIV was the most common mechanism of PJK. Predictive factors for PJK include increase of lumbar lordosis more than 30 degrees, mismatch of pelvic incidence and lumbar lordosis.

11:24 AM **PAPER: 398**

S2 Alar-Iliac Screws for Sacro-pelvic Fixation in Adult Deformity: A Prospective Study with Minimum 5-year Follow Up

Khaled M. Kebaish, MD, Baltimore, MD
Mostafa H. El Dafrawy, MD, Baltimore, MD
Hamid Hassanzadeh, MD, Baltimore, MD
Paul D. Sponseller, MD, Baltimore, MD
Floreana A. Naef, Baltimore, MD

A prospective long term study to evaluate clinical and radiographic outcome of S2 Alar-Iliac (S2AI) technique for sacropelvic fixation in adult deformity following long posterior fusion to the sacrum.

11:30 AM **PAPER: 399**

RhBMP-2 is Superior to Iliac Crest Bone Graft for Long Construct Sacropelvic Fusions in Adult Spinal Deformity

Han Jo Kim, MD, Saint Louis, MO
Jacob M. Buchowski, MD, MS, Saint Louis, MO
Lukas P. Zebala, MD, Saint Louis, MO
Linda A. Koester
Stuart H. Hershman, MD, Miami, FL
Addisu Mesfin, MD, Rochester, NY
Keith H. Bridwell, MD, Saint Louis, MO
Jeremy L. Fogelson, MD, Rochester, MN

is superior to ICBG in fusion rates. The efficacy is dose dependent with doses greater than 5mg/level have the highest rates for fusion.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

11:42 AM **PAPER: 400**

Longitudinal Radiographic Assessment of Maintenance of Sagittal Plane Correction after 3-Column Spinal Osteotomy

Mostafa H. El Dafrawy, MD, Baltimore, MD
Virginie Lafage, PhD, New York, NY
Richard A. Hostin, MD, Plano, TX
Christopher Ames, MD, San Francisco, CA
Justin S. Smith, MD, Charlottesville, VA
Vedat Deviren, MD, San Francisco, CA
Frank J. Schwab, MD, New York, NY
Khaled M. Kebaish, MD, Baltimore, MD

42 adults with sagittal plane deformity treated with 3 column spinal osteotomy were reviewed to assess maintenance of sagittal alignment correction. Those patients achieving ideal global alignment at 6w mostly maintainthis at 1 yr post-op.

11:48 AM **PAPER: 401**

Pelvic Compared to Sacrum Only Fixation in Lumbar Pedicle Subtraction Osteotomy Multicenter Radiographic Analysis

Mostafa H. El Dafrawy, MD, Baltimore, MD
Khaled M. Kebaish, MD, Baltimore, MD
Eric O. Klineberg, MD, Sacramento, CA
Virginie Lafage, PhD, New York, NY
Frank J. Schwab, MD, New York, NY
Richard A. Hostin, MD, Plano, TX
Oheneba Boachie-Adjei, MD, New York, NY
Christopher Ames, MD, San Francisco, CA

We compare ASD patients who underwent lumbar PSO with instrumentation extended to the ilium to those patients fused to the Sacrum. Iliac fixation is associated with more favorable radiographic correct.

11:54 AM **PAPER: 402**

The Impact of the Change of Pelvic Obliquity After Total Hip Arthroplasty on the Coronal Alignment of the Spine

Yuichiro Abe, MD, PhD, Eniwa, Hokkaido, Japan
Satomi Abe, MD, Eniwa, Hokkaido, Japan
Takeshi Masuda, MD, Sapporo, Japan
Taiki Kanno, MD, Hokkaido, Japan
Shigenobu Sato, MD, Hokkaido, Japan
Hiroyuki Yasuda, MD, Eniwa, Japan
Takahiko Hyakumachi, MD, Hokkaido, Japan
Yasushi Yanagibashi, MD, Eniwa, Japan

The Impact of the Change of Pelvic Obliquity After THA on the Coronal Alignment of the Spine.

Discussion - 6 Minutes

12:06 PM **PAPER: 403**

Clinical Improvement Through Surgery for Adult Spinal Deformity (ASD): Who is Likely to Benefit Most?

Bertrand Moal, MS, New York, NY
Frank J. Schwab, MD, New York, NY
Christopher Ames, MD, San Francisco, CA
Justin S. Smith, MD, Charlottesville, VA
Jamie S. Terran, BS, New York, NY
Robert A. Hart, MD, Portland, OR
Christopher I. Shaffrey, MD, Charlottesville, VA
Virginie Lafage, PhD, New York, NY

For 154 ASD patients, the clinical improvement at 1 year was evaluated. 29 % of patients did not experience improvement. Patients with severe disability were more likely to perceive improvement.

12:12 PM **PAPER: 404**

Health Impact Comparison of Different Disease States and Population Norms to Adult Spinal Deformity

Kaiming G. Fu, MD, PhD, Charlottesvle, VA
Robert S. Bess, MD, Castle Rock, CO
Frank J. Schwab, MD, New York, NY
Christopher I. Shaffrey, MD, Charlottesville, VA
Virginie Lafage, PhD, New York, NY
Douglas C. Burton, MD, KS City, KS
Robert A. Hart, MD, Portland, OR
Praveen V. Mummaneni, San Francisco, CA

All Adult Spinal Deformity (ASD) age generational groups had SF-36 PCS below US population generational means. ASD had similar PCS MID impact upon US population as cancer, diabetes and heart disease.

12:18 PM **PAPER: 405**

Factors Predicting Cost-Effectiveness of Adult Spinal Deformity Surgery at Two Years Follow Up

Charla R. Fischer, MD, New York, NY
Baron Lonner, MD, New York, NY
Jamie S. Terran, BS, New York, NY
Brian J. McHugh, MD, Stamford, CT
Steven D. Glassman, MD, Louisville, KY
Keith H. Bridwell, MD, Saint Louis, MO
Frank J. Schwab, MD, New York, NY
Virginie Lafage, PhD, New York, NY

Cost-effectiveness analysis was performed on 499 patients who underwent surgery for adult spinal deformity to identify factors predictive of cost/QALY less than $100,000/QALY at 2 years follow-up.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room S103

Pediatrics II: Trauma-Infection-Miscellaneous
Moderator(s): Kerwyn Jones, MD, Akron, OH
Peter D. Pizzutillo, MD, Philadelphia, PA

10:30 AM **PAPER: 406**
Monteggia Fractures in Children: A Multi-Center Examination of Treatment Strategy and Outcomes
David Ramski, Washington, DC
William P. Hennrikus, BA, Boston, MA
Donald S. Bae, MD, Boston, MA
Keith D. Baldwin, MD, Sicklerville, NJ
Neeraj M. Patel, MD, MPH, MBS, New York, NY
Peter M. Waters, MD, Boston, MA
John M. Flynn, MD, Philadelphia, PA

Treatment based on an ulnar stability strategy yielded superior results for acute Monteggia fractures. Recurrent instability is more common with transverse and oblique fractures without surgical care.

10:36 AM **PAPER: 407**
Long-Term Functional Result of Neurological Complications of Paediatric Supracondylar Fractures
Maria Valencia, MD, Madrid, Spain
Luis Moraleda, MD, Madrid, Spain

Although long-term functional results of neurological injuries after a supracondylar fracture were excellent, almost half of the patients referred paresthesias, mostly in the ulnar nerve territory

10:42 AM **PAPER: 408**
Medial Ulnar Collateral Ligament Origin in the Skeletally Immature Elbow: An Anatomical Study
Nicholas Larsen, MD, Memphis, TN
Alice Moisan, BSN, RN, Memphis, TN
Jeffrey R. Sawyer, MD, Germantown, TN
William C. Warner Jr, MD, Germantown, TN
James H. Beaty, MD, Memphis, TN
Derek M. Kelly, MD, Memphis, TN

The anterior bundle of the medial ulnar collateral ligament (MUCL) is the main stabilizer of the elbow in flexion. Treatment of displaced medial epicondyle fractures in the skeletally immature remains.

Discussion - 6 Minutes

10:54 AM **PAPER: 409**
Measurement of Radiation Exposure When Using the Mini C-Arm to Reduce Pediatric Upper Extremity Fractures
William L. Hennrikus Jr, MD, Hershey, PA
Michael Sumko, DO, Harrisburg, PA
Jennifer Slough, BS, Hershey, PA
Douglas G. Armstrong, MD, Hershey, PA

Radiation exposure when using the mini c-arm for reduction of pediatric fractures has been under estimated in previous literature.

11:00 AM **PAPER: 410**
Pain During Office Removal of K Wires in Children
Scott M. Sorenson, MD, Hershey, PA
William P. Hennrikus, BA, Boston, MA
William L. Hennrikus Jr, MD, Hershey, PA

The results of this study suggest that the removal of K wires in the office is safe and acceptable.

11:06 AM **PAPER: 411**
National Access to Care for Children with Fractures
Christopher A. Iobst, MD, Key Biscayne, FL
Dillon Arango, BA, Doral, FL
Dale Segal, BS, Hallandale Beach, FL

The access to care for children with fractures is becoming more difficult across the country regardless of insurance status.

Discussion - 6 Minutes

11:18 AM **PAPER: 412**
Pathomorphologic Findings of Wrist Arthroscopy in Children and Adolescents with Chronic Wrist Pain
Sebastian Farr, MD, Vienna, Austria
Franz Grill, Prof, Vienna, Austria
Werner Girsch, MD, Vienna, Austria

Wrist arthroscopy in children and adolescents with chronic wrist pain revealed TFCC lesions in a high percentage. However, the majority of these lesions have not been correctly identified by MRI.

11:24 AM **PAPER: 413**
Predictors of Microsurgical Reconstruction in Brachial Plexus Birth Palsy
Apurva Shah, MD, MBA, Iowa City, IA
Donald S. Bae, MD, Boston, MA
Leslie A. Kalish, ScD, Boston, MA
Peter M. Waters, MD, Boston, MA

Prospective multicenter investigation of infants with brachial plexus birth palsy evaluating which demographic, perinatal and examination characteristics predict need for microsurgical reconstruction.

11:30 AM **PAPER: 414**
Outcomes and Failure Factors in Surgical Treatment for Osteochondritis Dissecans of the Capitellum
Masahiro Kosaka, MD, Kanazawa, Japan
Junsuke Nakase, MD, Kanazawa, Japan
Tatsuhiro Toratani, MD, Kanazawa, Japan
Yoshinori Ohashi, MD, Kanazawa, Japan
Katsuhiko Kitaoka, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

As a result of 33 operations for osteochondritis dissecans of the capitellum, it was considered to be important to reconstruct the lateral wall of the capitellum for achieving good results.

Discussion - 6 Minutes

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Thursday, March 21

11:42 AM **PAPER: 415**

Predicting Methicillin Resistant Staphylococcus Aureus Septic Arthritis in Children

Shiva P. Daram, BS, Houston, TX
John R. Dawson, MD, Chattanooga, TN
Scott B. Rosenfeld, MD, Houston, TX

We present a clinical prediction algorithm to determine which cases of pediatric septic arthritis are likely due to MRSA, in order to help guide initial antibiotic coverage.

11:48 AM **PAPER: 416**

Effectiveness of MRSA Nasal Screening in Pediatric Orthopaedic Surgery

Kyong S. Min, MD, Lakewood, WA
Paul M. Caskey, MD, Spokane, WA
Bryan J. Tompkins, MD, Spokane, WA
Ronda Cordill, RN, CIC, MPH, Spokane, WA
Glen O. Baird, MD, Spokane, WA

In the pediatric orthopaedic patient population, universal screening for MRSA does not decrease the rate of surgical site infection.

11:54 AM **PAPER: 417**

Can an Algorithm Really Predict Methicillin Resistant Staphylococcus Aureus Osteomyelitis in Children?

Scott B. Rosenfeld, MD, Houston, TX
Stuart M. Michnick, BS, Houston, TX

We used a patient population in a region where MRSA is prevalent to test a previously described algorithm and develop a new algorithm for predicting MRSA osteomyelitis in children.

Discussion - 6 Minutes

12:06 PM **PAPER: 418**

Prediction of Surgical Intervention in Children with Osteomyelitis Based on Clinical and Laboratory Parameters

Dominick Tuason, MD, E Brunswick, NJ
Lawson A. Copley, MD, Dallas, TX
Taylor T. Gheen, BA, Dallas, TX
David Q. Sun, BS, Plano, TX
Rong Huang, Dallas, TX

Swollen extremity, CRP > 9.9 mg/dL, and respiratory rate > 27 predict the need for surgery to treat osteomyelitis. Initial CRP > 19.8 and persistent fever on antibiotics predict multiple surgeries.

12:12 PM **PAPER: 419**

Incidence of Venous Thromboembolism (VTE) in the Elective Pediatric Orthopaedic Patient

Nancy H. Miller, MD, Aurora, CO
Mark Hotchkiss, BA, Aurora, CO
Bryan McNair, MS, Aurora, CO
Georgette Siparsky, PhD, Aurora, CO
Gaia Georgopoulos, MD, Aurora, CO

Analyses of a multi-hospital administrative database showed the risk of VTE in elective pediatric orthopaedic surgery is 0.065%. Risk increases with age, and with miscellaneous and atypical diagnoses.

12:18 PM **PAPER: 420**

Venous Thromboembolism in Children: A Survey of Pediatric Orthopaedic Society of North America (POSNA) Members

Sanjeev Sabharwal, MD, Chatham, NJ
Marian Passannante, PhD, Newark, NJ

More than half of active POSNA members reported having at least one case of VTE amongst pediatric patients in their practice.

12:24 PM **PAPER: 831**

Childhood Fracture Begets Childhood Fracture: A Population-based Study of Longitudinal Fracture Patterns

Benjamin Escott, MBBS, Toronto, ON, Canada
Bheeshma Ravi, MD, Toronto, ON, Canada
Dorcas Beaton, OT, Toronto, ON, Canada
Teresa To, Toronto, ON, Canada
Andrew Howard, MD, Toronto, ON, Canada

Children who experience one fracture are more likely to experience another new fracture during childhood and into young adulthood.

Discussion - 6 Minutes

SYMPOSIUM

1:30 PM — 3:30 PM

Grand Ballroom

◆ Essential Surgical Techniques for Total Hip Arthroplasty: A Video-Based Symposium (P)

Moderator: Daniel J. Berry, MD, Rochester, MN

Comprehensive discussion of acetabular and femoral reconstructive techniques focusing on pros-cons, pitfalls of each technique. Primarily video based focusing on essential surgical techniques to ensure success of the hip reconstruction.

I. Preoperative Templating
Douglas A. Dennis, MD, Denver, CO

II. Surgical Exposure
Anterolateral – Michael E. Berend, MD, Moorseville, IN
Posterior – William A. Jiranek, MD, Richmond, VA
Direct Anterior – Joel M. Matta, MD, Santa Monica, CA

III. Preparation and Acetabular Component Placement
Mark W. Pagnano, MD, Rochester, MN

IV. Femur
Cemented Stem – John J. Callaghan, MD, Iowa City, IA
Fully-Coated Stem – C. Anderson Engh, MD, Alexandria, VA
Proximally Tapered Stem – Richard H. Rothman, MD, Philadelphia, PA
Short Stem – Keith R. Berend, MD, New Albany, OH

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

V. Revision Total Hip Arthroplasty Exposure
Extended Trochanteric Posterior-Based Osteotomy – Wayne G. Paprosky, MD, Winfield, IL
Extended Trochanteric Anterior-Based Osteotomy – Arlen D. Hanssen, Rochester, MN

VI. Cup Revision
Cavitary Defects – Aaron G. Rosenberg, MD, FACS, Chicago, IL
Segmental Defects – Donald S. Garbuz, MD, MHSc, Vancouver, BC, Canada
Pelvic Disassociation – David G. Lewallen, MD, Rochester, MN
Cup Cage Reconstruction – Allen E. Gross, MD, FRCSC, Toronto, ON, Canada

VII. Femoral Revision
Impaction Grafting – Dougls E. Padgett, MD, New York, NY
Fully-Coated Stems – Wayne G. Paprosky, MD, Winfield, IL
Modular Stems – William J. Maloney, MD, Redwood City, CA
Femoral Head Size, Composition, Insertion Technique – Craig J. Della Valle, MD, Chicago, IL

VIII. Discussion

SYMPOSIUM
1:30 PM — 3:30 PM
Room S406

Health Care Advocacy: Why and How (Q)
Moderator: John M. Froelich, MD, Denver, CO

Local and national health care policy decisions are going to be made with or without you. Learn more about the advocacy process and how to play an active role in shaping the policies that will affect your ability to practice in the future.

I. AAOS Political Action Committee (PAC) – The True Importance of the PAC and My Experience on Capitol Hill
Stuart L. Weinstein, MD, Iowa City, IA

II. From the Ground Up – The Impact of Health Care Advocacy On My Practice and How I Built the Relationships to Influence Change
David Teuscher, MD, Beaumont, TX

III. Insider Trading – Blunt Discussions From a Former Congressional Staffer about the True Impact of Advocacy and How To Effectively Develop Key Relationships
Thomas Bowen, Chicago, IL

IV. Q & A
All Faculty

SYMPOSIUM
1:30 PM — 3:30 PM
Room S105

Medical-Legal Considerations in Managing Patients with Musculoskeletal Tumors (R)
Moderator: Carol D. Morris, MD, MS, New York, NY

Review common causes of litigation against the general orthoapedic surgeon in the treatment and referral of potential musculoskeletal neoplasms. Common pitfalls in managing these patients will be highlighted along with a strategy to avoid such consequences.

I. Medical Legal Considerations In Orthopedic Practice
B. Sonny Bal, MD, Columbia, MO

II. Common Pitfalls In Managing Patients with Musculoskeletal Tumors with Corresponding Alternative Strategies
Joseph Benevenia, MD, Newark, NJ

III. Orthopaedic Oncology Malpractice: An Attorney's Perspective
Elizabeth M. D'Elia, Esq, RN, New York, NY

IV. Panel

INSTRUCTIONAL COURSE LECTURE

1:30 PM — 3:30 PM

341 TICKET
Room N227b
Hip Replacement or Hip Resurfacing: What's Best for My Young Patients?
Moderator: Thomas P. Schmalzried, MD, Los Angeles, CA
Michael A. Mont, MD, Baltimore, MD
Ryan Nunley, MD, Saint Louis, MO
Thomas P. Vail, MD, San Francisco, CA

Outline and debate the current indications, contra-indications, benefits and risks of hip resurfacing compared to contemporary total hip replacement.

342 TICKET
Room N228
Innovative Techniques and Frontiers in Revision Total Knee Arthroplasty
Moderator: Paul F. Lachiewicz, MD, Chapel Hill, NC
Michael P. Bolognesi, MD, Durham, NC
Jess H. Lonner, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Describe the indications and techniques for the use of metaphyseal cones, stems, and different levels of constraint in revision knee arthroplasty. New techniques for patella revision and the diagnosis of prosthetic joint infection will be covered.

Thursday

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

343
Management of Acute (Traumatic) and Chronic Charcot Foot and Ankle Disease: A Surgical Algorithm
Room S106b
Moderator: Vincent J. Sammarco, MD, Cincinnati, OH
Dolfi Herscovici Jr, DO, Temple Terrace, FL
Dror Paley, MD, West Palm Beach, FL

Explores the operative treatment of Charcot foot and ankle deformity. Includes both acute (traumatic) and chronic management, with special consideration for managing fractures in diabetics. Indications and techniques for internal and external fixation presented including the treatment of infection, dynamic correction with external fixation, plantar plate, locking plate and axial screw fixation for fusions.

344
PIP Joint Fracture Dislocations: Evaluation and Treatment Options
Room S103a
Moderator: Julie E. Adams, MD, Minneapolis, MN
O A. Barron, MD, New York, NY
Ryan P. Calfee, MD, Saint Louis, MO
Robert J. Strauch, MD, New Rochelle, NY

Strategies for evaluation and treatment of proximal interphalangeal joint injuries are discussed. Individual treatment options discussed with emphasis on indications, contraindications, postoperative rehabilitation, complications and anticipated outcomes. Cases and interactive discussion with audience participation. Challenges of evaluation and treatment include discerning which treatment option is most appropriate.

345
Pediatric Sports Medicine Operative Challenges and Solutions: A Case Based Approach
Room S405
Moderator: Mininder S. Kocher, MD, MPH, Boston, MA
Donald S. Bae, MD, Boston, MA
Michael T. Busch, MD, Atlanta, GA
Eric Wall, MD, Cincinnati, OH

This ICL uses a case-based interactive format with expert faculty to discuss hot topics in pediatric sports medicine from the shoulder to the foot.

346
Strategic Positioning and Marketing
Room S502
Moderator: Eric N. Berkowtiz, PhD, Amherst MA

Session will focus on developing market responsive strategies to attract patients, referrals and managed care subscribers. Understanding how to develop market responsive strategic plans along with recognizing what physicians, patients, and other customers are buying from your organization is essential in an evolving health care market. As health care moves from a fee-for-service to managed care market, the strategies involving promotion, pricing, and distribution of services must also be refined and will be reviewed. Identify market needs, understand how physicians and patients make choices among organizations, determine your marketplace differential. Learn strategies for market research, pricing and advertising. Develop methods for controlling patient flow and enhancing bargaining strategy.

347
Open Revision Surgery for Failed Arthroscopic Shoulder Surgery: A Lost Art Resurrected
Lakeside, Room E350
Moderator: Wayne Z. Burkhead Jr, MD, Dallas, TX
Todd Moen, MD, Dallas, TX
Michael J. Pagnani, MD, Nashville, TN
Michael A. Wirth, MD, San Antonio, TX

Increased knowledge about and the correct performance of these techniques may help the surgeon avoid failure in certain cases when applied as primary surgery. The indications and technical aspects of this lost art will be emphasized.

348
Arthroscopic Rotator Cuff Repair: An Evolution of Techniques. Are Our Patients Really Benefiting?
Room S501
Moderator: Leesa M. Galatz, MD, Saint Louis, MO
Christopher S. Ahmad, MD, New York, NY
Bradford Parsons, MD, New York, NY
Olivier Verborgt, MD, PhD, Wilrijk, Belgium

Evidence based discussion of controversial issues surrounding rotator cuff repair including the latest science of tendon healing and augmentation opportunities, and the effect of surgical approach and devices on results. Latest techniques for repair are demonstrated. International faculty offers a unique commentary on future directions and the impact of economics on surgical decision making.

349
Realignment Planning in Adult Deformity: The Newest Tools, Formulas and Techniques to Get It Right
Room S504a
Moderator: Thomas J. Errico, MD, New York, NY
Robert S. Bess, MD, Castle Rock, CO
Virginie Lafage, PhD, New York, NY
Justin S. Smith, MD, Charlottesville, VA

Treatment of adult spinal deformity focusing on clinical data and new tools to help improve surgical planning, outcomes and avoid complications.

350
High Tibial Osteotomy and Distal Femoral Osteotomy: Indications, Techniques and Post-Op Management for the Treatment of Arthrosis and Cartilage Deficiency
Room S106a
Moderator: Chadwick C. Prodromos, MD, Glenview, IL
Annunziato Amendola, MD, Iowa City, IA
Roland P. Jakob, MD, Motier, Switzerland

This course provides complete guidelines on how to use high tibial osteotomy and distal femoral osteotomy as primary treatment for arthrosis and as a necessary adjunct to un-weight the knee in conjunction with cartilage restoration procedures.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

351 **Pediatric Orthopaedic Trauma: Principles of Management**


Moderator: Shital Parikh, MD, Cincinnati, OH
James H. Beaty, Memphis, TN
Charles T. Mehlman, DO, MPH, Cincinnati, OH
David L. Skaggs, MD, Los Angeles, CA

Room S104

Discuss the fundamentals of pediatric orthopaedic trauma management in general and for specific injuries, providing guidelines for management.

◆352 **Treatment of Periprosthetic Fractures**

Moderator: Jeremy Hall, MD, FRCS (ORTHO), MEd, Toronto, ON, Canada
Richard Jenkinson, MD, Toronto, ON, Canada
Aaron Nauth, MD, Toronto, ON, Canada
Markku Nousiainen, MD, Toronto, ON, Canada

Practical treatment of upper and lower extremity periprosthetic fractures will be illustrated and discussed using a case-based approach.

INSTRUCTIONAL COURSE LECTURE

1:30 PM — 2:30 PM

FD5 **The Art of Using PowerPoint for Effective Presentations**

Moderator: Roy W. Sanders, MD, Tampa, FL
Paul Tornetta III, MD, Boston, MA

Room N227a

This hands on session will focus on utilizing PowerPoint especially for the medical professional. Learn tips and tricks that you can use to enhance your teaching skills when participating in educational sessions for your colleagues and for patient education both individually and community wide.

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room N427

Adult Reconstruction Knee V: Primary Total Knee Arthroplasty
Moderator(s): William L. Griffin, MD, Charlotte, NC
Ormonde M. Mahoney, MD, Athens, GA

1:30 PM **PAPER: 421**

The Ergonomics of Efficient Surgical Technique in Total Knee Replacement
Stuart M. Michnick, BS, Houston, TX
Philip C. Noble, PhD, Houston, TX
Gaurav S. Sharma, BA, Houston, TX
Holly Adams, PA, PA-C, Houston, TX
Sabir Ismaily, Houston, TX
Robert E. Booth Jr, MD, Philadelphia, PA
Kenneth B. Mathis, MD, Houston, TX

By knowing which phase of a TKR procedure results in the most errors and how those errors are committed, a training exercise can be developed that allows the surgical teams to increase efficiency.

1:36 PM **PAPER: 422**

Cruciate Retaining Versus Posterior Stabilized Bilateral Total Knee Replacements: Gait And Fluoro Analyses
Lisa Berti
Francesco Cenni, Bologna, Italy
Claudio Belvedere, PhD, Bologna, Italy
Alberto Leardini, Bologna, Italy
Gabriele Bove, Roma, Italy
Giorgio Bove, Roma, Italy
Francesco Bove, MD, Roma, Italy
Sandro Giannini, MD, Bologna, Italy

This study reported the combination between three-dimensional gait and fluoroscopic analyses for assessing the functional performance of two different total knee replacement designs implanted bilaterally on the same subjects.

1:42 PM **PAPER: 423**

Vascular Anatomy of the Patella: Implications for Total Knee Arthroplasty Surgical Approaches
Lionel E. Lazaro, MD, New York, NY
Michael B. Cross, MD, New York, NY
Nadine Pardee, BS, New York, NY
Peter K. Sculco, MD, New York, NY
Craig Klinger, BS, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

Standard surgical dissection during TKA can completely compromise the patellar vascular supply. Careful management of the soft tissue has the potential to preserve the vascular supply to the patella.

Discussion - 6 Minutes

1:54 PM **PAPER: 424**

Intra-Operative Assessment of Mid-Flexion Instability in Total Knee Arthropalsty
Yukihide Minoda, MD, Osaka, Japan
Shigeru Nakagawa, MD, Osaka, Japan
Akio Kobayashi, MD, Nara, Japan
Yoshinori Kadoya, MD, Sakai, Japan
Kazuhide Tomari, MD, Oita, Japan
Makoto Kondo, MD, Nara, Japan
Ryo Sugama, MD, Osaka, Japan
Takahiro Noguchi, MD, Fukuoka, Japan
Yasuo Higuma, MD, Oita, Japan

We carried out multicenter study of intra-operative assessment of joint gap in 259 TKAs. This study clearly showed that joint gap became loose in mid-flexion range after implantation.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

2:00 PM **PAPER: 425**

RCT Multicenter Comparison of Primary TKA Using Patient Specific Versus Conventional Instrumentation

Moussa Hamadouche, PhD, Paris, France
Lamine Abane, MD, Paris, France
Stephane Boisgard, PhD, Clermont Ferrand, France
Stephane Descamps, Clermont-Ferrand, France
Jean Levai Sr, MD, Clermont Ferrand, France
Jean-Pierre Courpied, PhD, Paris, France
Philippe Anract, MD, Paris, France

This RCT compares clinical results, alignment, and components positioning using conventional versus patient specific (MRI and standing long-leg radiograph based) instrumentation in primary TKA.

2:06 PM **PAPER: 426**

Do Patients Return to Work After Total Knee Arthroplasty?

Adolph V. Lombardi Jr, MD, New Albany, OH
Ryan Nunley, MD, Saint Louis, MO
Keith R. Berend, MD, New Albany, OH
Erin Ruh, MS, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO
William G. Hamilton, MD, Alexandria, VA
Craig J. Della Valle, MD, Chicago, IL
Javad Parvizi, MD, FRCS, Philadelphia, PA
Robert L. Barrack, MD, Saint Louis, MO

A high percentage of patients return to their previous occupation following total knee arthroplasty (TKA).

Discussion - 6 Minutes

2:18 PM **PAPER: 427**

Why are Total Knees Failing Today? Etiology of Total Knee Revision in 2010 and 2011

William C. Schroer, MD, Saint Louis, MO
Keith R. Berend, MD, New Albany, OH
C. Lowry Barnes, MD, Little Rock, AR
Michael P. Bolognesi, MD, Durham, NC
Ryan Nunley, MD, Saint Louis, MO
Michael E. Berend, MD, Mooresville, IN
Adolph V. Lombardi Jr, MD, New Albany, OH

In a multicenter study, 36% of knee failures occurred within two years of surgery. Aseptic loosening, instability and infection account for 67% of knee failures.

2:24 PM **PAPER: 428**

Risk Factors for Early Revision of Total Knee Arthroplasty

Christopher J. Dy, MD, New York, NY
Kevin J. Bozic, MD, MBA, San Francisco, CA
Douglas E. Padgett, MD, New York, NY
Timothy M. Wright, PhD, New York, NY
Robert G. Marx, MD, New York, NY
Ting-Jung Pan, MPH, New York, NY
Huong Do, MA, New York, NY
Stephen Lyman, PhD, New York, NY

Patient , hospital, and community risk factors for early revision total knee arthroplasty were identified using a population based appoach.

2:30 PM **PAPER: 429**

Prevalence of Comorbidities and Clinical Outcomes in Total Knee Arthroplasty Patients 80 Years of Age and Older

Jung Ha Lee, MD, Seoul, Republic of Korea
Min Soo Je, Gyeonggi-Do, Republic of Korea
Moon Jong Chang, MD, Gyeonggi-Do, Republic of Korea
Sang C. Seong, MD, Seoul, Republic of Korea
Tae Kyun Kim, MD, Gyeonggi-Do, Republic of Korea
Chong Bum Chang, MD, PhD, Gyeonggi-Do, Republic of Korea
Yeon Gwi Kang, MD, Gyeonggi-Do, Republic of Korea
Ho Hyun Won, Gyeonggi-Do, Republic of Korea

With careful patients selection and patient care to minimize medical complication, TKA is a valuable treatment for symptomatic advanced knee osteoarthritis in patients over 80 years of age.

Discussion - 6 Minutes

2:42 PM **PAPER: 430**

Does Obesity Influence Clinical Outcomes at Nine Years Following Total Knee Arthroplasty?

Rachel Collins, Edinburgh, United Kingdom
Phil Walmsley, FRCS, Fife, United Kingdom
Anish Amin, FRCS MBChB, Edinburgh, United Kingdom
Ivan Brenkel, FRCS, Dunfermline, United Kingdom
Robert A. Clayton, MB, ChB, Kirkaldy, United Kingdom

445 TKAs were followed up at 9 years. Obesity did not influence complication rates or prosthesis survivorship. Obese patients had substantial, sustained improvements in outcome scores at 9 years.

2:48 PM **PAPER: 431**

Risk Factors for Total Knee Arthroplasty Aseptic Revision

Robert S. Namba, MD, Corona Del Mar, CA
Monti Khatod, MD, Santa Monica, CA
Maria C. Inacio, MS, San Diego, CA
Guy Cafri, PhD, La Jolla, CA
Liz Paxton, MA, San Diego, CA
Tim T. Brox, MD, Fresno, CA

Survival and risk of aseptic revision were assessed in 69469 primary total knee arthroplasties. Patient, implant, and surgical characteristics were associated with risk of aseptic revision.

2:54 PM **PAPER: 432**

Total Knee Arthroplasty with the Uncemented Trabecular Metal Tibia

Mika Niemelainen, MD, Tampere, Finland
Eerik T. Skytta, MD, PhD, Tampere, Finland
Ville M. Remes, MD, Helsinki, Finland
Keijo Makela, MD, Turku, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland

Uncemented trabecular metal tibia has excellent mid-term survival.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

3:06 PM **PAPER: 433**

◆ Topical Tranexamic Acid in Total Knee Arthroplasty: A Double-Blind, Randomized, Placebo Controlled Trial

Andrew G. Georgiadis, MD, Royal Oak, MI
Stephanie Muh, MD, Birmingham, MI
Robb M. Weir, MD, Novi, MI
Craig Silverton, DO, Detroit, MI
Michael W. Laker, MD, Birmingham, MI

Topical tranexamic acid significantly decreases blood loss in total knee arthroplasty.

3:12 PM **PAPER: 434**

Can Tranexamic Acid and Hydrogen Peroxide Reduce Blood Loss in Cemented Total Knee Arthroplasty

Jerry Chen, MBBS, Singapore, Singapore
Inderjeet S. Rikhraj, MD, Singapore, Singapore
Zhou Zhihong, MD, Singapore, Singapore
Yew Lok Woo, MD, Holland Close, Singapore
Darren Tay, MBBS, FRCS (Ortho), Singapore, Singapore
Pak Lin Chin, FRCSEd, Singapore, Singapore
Shi-lu Chia, MBBS, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Despite its lower cost, we cannot justify hydrogen peroxide irrigation as an alternative to intra-articular tranexamic acid to reduce blood loss during total knee arthroplasty.

3:18 PM **PAPER: 435**

Outcome of Total Knee Arthroplasty in Obese Patients

Chin Tat Lim, MBBS, Singapore, Singapore
Bernard Lau, MBBS, Singapore, Singapore
Li Heng Hee, MBBS, Singapore, Singapore
Krishna Lingaraj, MBBS, Singapore, Singapore

TKA in obesity has been associated with inferior clinical scores. Our prospective study shows no difference in range of movement, clinical scores and complications between obese and non-obese patients.

Discussion - 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room N426

Spine IV: Trauma/ Tumor

Moderator(s): Jacob M. Buchowski, MD, MS, Saint Louis, MO
Michael Vives, MD, Mendham, NJ

1:30 PM **PAPER: 436**

Does Computed Tomography Angiography of the Head and Neck Matter in Cervical Trauma?

John C. Hagedorn II, MD, Morgantown, West VA
Scott D. Daffner, MD, Morgantown, West VA
Sanford E. Emery, MD, MBA, Morgantown, West VA
John C. France, MD, Morgantown, West VA

CTA Head/Neck exposes cervical trauma patients to unnecessary radiation and dye, because even when a vertebral artery injury is present outcomes and treatment of the cervical injury is unchanged.

1:36 PM **PAPER: 437**

Cervical Spine Research Society Member Survey of Vertebral Artery Injuries

Mark Eskander, MD, Kennett Sq, PA
Jesse L. Even, MD, Arlington, TX
James T. Dunlap, MD, Dayton, OH
Joon Y. Lee, MD, Pittsburgh, PA
Timothy T. Ward, MD, Pittsburgh, PA
James Kang, MD, Pittsburgh, PA
William F. Donaldson III, MD, Pittsburgh, PA

The incidence of VAI during cervical spine surgery reported from this survey (0.06%).

1:42 PM **PAPER: 438**

Motion Generated in the Unstable Upper Cervical Spine During the Head Tilt-Chin Lift and Jaw Thrust Maneuvers

Mark L. Prasarn, MD, Bellaire, TX
MaryBeth Horodyski, EdD, ATC, LAT, Gainesville, FL
Bryan P. Conrad, Gainesville, FL
Geoffrey Konopka, MD, MPH, Houston, TX
Gianluca Del Rossi, PhD, Tampa, FL
Glenn R. Rechtine II, MD, Pinellas Park, FL

The jaw thrust maneuver results in less motion at an unstable C1-2 injury as compared to the head tilt-chin lift maneuver and should be used in the setting of a suspected spine injured patient.

Discussion - 6 Minutes

1:54 PM **PAPER: 439**

The Influence of Insurance Status on the Surgical Treatment of Acute Spinal Fractures

Samuel Bederman, MD, PhD, Orange, CA
Michael C. Daly, Newport Beach, CA

Patients with traumatic spine fractures were more likely to receive surgery if they were insured, regardless of the presence of neurologic injury or fracture location.

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Thursday, March 21

2:06 PM **PAPER: 441**

Current Cervical Spine Clearance Protocols in Level I Trauma Centers in the United States

Alexander Theologis, MD, San Francisco, CA
Robert G. Dionisio, BS, San Francisco, CA
Robert C. Mackersie, San Francisco, CA
Robert T. McClellan, MD, San Francisco, CA
Murat Pekmezci, MD, San Francisco, CA

Of participating Level I trauma centers in the United States, 54% have a cervical spine clearance protocol. The protocols were variable and many were not in agreement with current recommendations.

Discussion - 6 Minutes

2:18 PM **PAPER: 442**

Operative vs. Non-operative Treatment of Thoracolumbar Burst Fractures: 15-20 Year Follow Up

Kirkham B. Wood, MD, Boston, MA
Brian D. Shannon, MD, New Wilmington, PA
Glenn R. Buttermann, MD, Mahtomedi, MN
Christopher C. Harrod, MD, Baton Rouge, LA
Avraam L. Ploumis, MD, PHD, Plagiari, Thessaloniki, Greece
Amir A. Mehbod, MD, Minneapolis, MN

Patients with thoracolumbar burst fractures have improved outcomes at 17 years when treated non-operatively.

2:24 PM **PAPER: 443**

Fusion vs. Nonfusion for Surgically Treated Thoracolumbar and Lumbar Burst Fractures - A Prospective Trial

Po H. Chou, MD, Taipei, Taiwan
Hsiao-Li Ma, MD, Taipei, Taiwan
Shih-Tien Wang, MD, Taipei, Taiwan
Chien-Lin Liu, MD, Taipei, Taiwan
Ming-Chau Chang, MD, Taipei City, Taiwan
Wing-Kwong Yu, MD, Taipei, Taiwan

The posterior fusion with autograft may not be routinely performed in surgically treated thoracolumabr and lumbar burst fractures.

2:30 PM **PAPER: 444**

Clinical Relationship Between Cervical Spinal Canal Stenosis and Spinal Cord Injury Without Major Bony Injury

Tsuneaki Takao, MD, Iizuka, Japan
Takeshi Maeda, Iizuka, Japan
Eiji Mori, MD, Fukuoka, Japan
Itaru Yugue, MD, Iizuka Fukuoka, Japan
Osamu Kawano, MD
Hiroaki Sakai, MD
Yuichiro Morishita, MD, PhD, Iizuka, Japan
Tetsuo Hayashi, MD, Fukuoka, Japan
Keiichiro Shiba, MD, Iizuka, Japan

A congenitally narrow cervical spinal canal might be an important risk factor for cervical spinal cord injury (CSCI). However, prophylactic surgical management of cervical spinal canal stenosis (CSCS).

Discussion - 6 Minutes

2:42 PM **PAPER: 445**

Odontoid Nonunions: Implications of the "Second Fall"

Timothy A. Moore, MD, Shaker Heights, OH
Michael P P. Steinmetz, MD, Cleveland, OH

The treatment of acute type II odontoid fractures in the elderly (age > 70) is controversial. These fractures are inherently unstable due to the loss of bony and ligamentous restraints to translation of C1 on C2.

2:48 PM **PAPER: 446**

Factors Associated with Nonunion in 100 Consecutive Type 2 and Type 3 Odontoid Fractures in Elderly Patients

Michael Merrick, MD, Grand Rapids, MI
Casey L. Smith, MD, Grand Rapids, MI
Debra Sietsema, PhD, Grand Rapids, MI
Tan Chen, BA, Grand Rapids, MI
Clifford B. Jones, MD, FACS, Grand Rapids, MI
James R. Stubbart, MD, Ada, MI
Scott S. Russo, MD, Grand Rapids, MI

Factors predictive of nonunion in older patients with odontoid fractures include: type 2 odontoid fractures, posteriorly displaced fractures, non-operative treatment, males, and low-energy mechanisms.

2:54 PM **PAPER: 447**

Higher Rates of Union in Older Patients with Type 2 and Type 3 Odontoid Fractures Treated with Teriparatide

Michael Merrick, MD, Grand Rapids, MI
Casey L. Smith, MD, Grand Rapids, MI
Debra Sietsema, PhD, Grand Rapids, MI
Tan Chen, BA, Grand Rapids, MI
Tammy Beckett, NP, Grand Rapids, MI
Clifford B. Jones, MD, FACS, Grand Rapids, MI
James R. Stubbart, MD, Ada, MI
Scott S. Russo, MD, Grand Rapids, MI

Teriparatide may lead to higher union rates in type 2 and type 3 odontoid fractures. More studies with larger sample sizes including other contributing factors are needed to confirm this finding.

Discussion - 6 Minutes

3:06 PM **PAPER: 448**

Morbidity and Mortality after Vertebral Augmentation and Non-Operative Management of Vertebral Fractures

Avram A. Edidin, PhD, Portola Valley, CA
Kevin Ong, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Steven M. Kurtz, PhD, Philadelphia, PA

VCF patients in the Medicare population who received vertebral augmentation therapies experienced lower mortality and overall morbidity than those who received conservative management.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

3:12 PM **PAPER: 449**

Total En Bloc Spondylectomy at Three or More Levels: Clinical Outcome

Katsuhito Yoshioka, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Takashi Ota, MD, Kanazawa, Japan
Kazuya Shinmura, MD, Ishikawa, Japan
Noriaki Yokogawa, MD, Ishikawa, Japan
Katsuro Tomita, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Good clinical results of the reconstruction were achieved in all 15 patients who underwent whole three or more levels total en bloc spondylectomy.

3:18 PM **PAPER: 450**

Novel Technique of Total En Bloc Spondylectomy Enhancing Antitumor Immunity for Spinal Tumors

Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Hideji Nishida, MD, Kanazawa City, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Hiroyuki Hayashi, MD, Kanazawa, Japan
Takashi Ota, MD, Kanazawa, Japan
Kazuya Shinmura, MD, Ishikawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

We newly developed second-generation TES enhancing antitumor immunity to prolong patient's survival. Antitumor immunity was enhanced after this surgery in more than 75% of the cases.

Discussion - 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room S102

Pediatrics III: Spine
Moderator(s): Craig P. Eberson, MD, Providence, RI
Michael G. Vitale, MD, Brooklyn, NY

1:30 PM **PAPER: 451**

A Comprehensive Evaluation of the Utility of Post-Operative Radiographs Following Pediatric Scoliosis Correction

David N. Shau, BS, Norman, OK
Jesse E. Bible, MD, MHS, Nashville, TN
Stephen P. Gadomski II, BS, Nashville, TN
Richard Samade, PhD, Nashville, TN
Sheyan Armaghani, MD, Nashville, TN
Gregory A. Mencio, MD, Nashville, TN
Clinton J. Devin, MD, Nashville, TN

Routine radiographs provide low utility in guiding treatment course in asymptomatic patients following scoliosis surgery in adolescents, regardless of the curve pathology.

1:36 PM **PAPER: 452**

Do Findings on Post-Operative Radiographs Result in the Need for Additional Surgery after Posterior Spinal Fusion?

Grant Garcia, MD, New York, NY
Min J. Park, MD, MSc, Philadelphia, PA
Keith D. Baldwin, MD, Sicklerville, NJ
John M. Flynn, MD, Philadelphia, PA
David A. Spiegel, MD, Philadelphia, PA

Isolated postoperative x-rays did not lead to any change in management, and consideration should be given to current protocols for imaging following PSF.

1:42 PM **PAPER: 453**

Inclusion of the Proximal Thoracic Curve Does Not Provide Better Shoulder Balance in All Lenke 2 Curves

Daniel J. Sucato, MD, Dallas, TX
Anna McClung, RN, Dallas, TX

This study demonstrates greater likelihood of including the PT curve when the Lenke classification and pedicle screws are used for Lenke type 2 curves without improved shoulder balance at 2 years.

Discussion - 6 Minutes

1:54 PM **PAPER: 454**

◆ Are More Screws Better? A Systematic Review of the Implant Density and Curve Correction in AIS

Annalise N. Larson, MD, Rochester, MN
Carl-Eric Aubin, PhD, Montreal, QC, Canada
David W. Polly Jr, MD, Minneapolis, MN
Charles Gerald T. Ledonio, MD, Minneapolis, MN
Baron Lonner, MD, New York, NY
Suken A. Shah, MD, Wilmington, DE
Daniel J. Sucato, MD, Dallas, TX
Lawrence G. Lenke, MD, Saint Louis, MO
Mark A. Erickson, MD, Aurora, CO

Wide variability exists in the number of implants used for AIS surgery, ranging from 1.04 to 2.0 anchors per level fused. Studies reporting on the effects of low density constructs are underpowered.

2:00 PM **PAPER: 455**

Increased Body Mass Index Negatively Affects Patient Satisfaction after a Posterior Fusion for AIS

Adriana De La Rocha, MS, Dallas, TX
Daniel J. Sucato, MD, Dallas, TX
Anna McClung, RN, Dallas, TX

Increased BMI negatively affected the Mental, Appearance, and Pain relief domains of self-reported outcomes scores in patients treated with a PSF for AIS.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

2:06 PM **PAPER: 456**

Cost Effectiveness of Surgical Treatment for Adolescent Idiopathic Scoliosis (AIS)

Chia H. Wu, Reading, PA
Lisa Mcleod, Philadelphia, PA
John M. Flynn, MD, Philadelphia, PA

The cost effectiveness of surgical treating AIS is derived by dividing total direct cost by QALYs gained over remaining life span to yield $8,182 per QALY. PSF for severe AIS is very cost effective.

Discussion - 6 Minutes

2:18 PM **PAPER: 457**

Bacterial Colonization of Growth Retaining Spine Implants in Children with Severe Spinal and Thoracic Deformities

Christian Plaass, MD, Hanover, Germany
Andrej Trampuz, MD, Lausanne, Switzerland
Carol Claudius Hasler, MD, Basel, Switzerland
Daniel Studer, Bern, Switzerland

Children treated with growth retaining implants for severe spinal and thoracic deformities have bacterial colonizations rates up to 6 times higher than clinical apparent infections.

2:24 PM **PAPER: 458**

Factors Predicting the Cobb Angle after Casting for Progressive Infantile Scoliosis

Caleb J. Behrend, MD, Rochester, NY
John R. Faust, MD, Rochester, NY
Albert E. Sanders, MD, San Antonio, TX
Paul T. Rubery Jr, MD, Honeoye Falls, NY
James O. Sanders, MD, Rochester, NY

Serial casting for infantile scoliosis results in resolution or improvement for most patients. Increasing age, initial cobb angle, and syndromic etiology predicted surgery and persistent curvature.

2:30 PM **PAPER: 459**

Vertebral Body Stapling for Juvenile and Early Adolescent Idiopathic Scoliosis

David B. Bumpass, MD, Saint Louis, MO
Sara K. Fuhrhop, BS, Baltimore, MD
Scott J. Luhmann, MD, Saint Louis, MO

Vertebral body stapling successfully stabilized juvenile and early adolescent idiopathic scoliosis curves with a low rate of minor complications and subsequent spinal fusion.

Discussion - 6 Minutes

2:42 PM **PAPER: 460**

Three Dimensional Visualization of Vertebral Growth Cartilage and Disc; the Effects of Growth Modulation

Christine L. Farnsworth, MS, San Diego, CA
Josh Doan, MS, San Diego, CA
Diana A. Glaser, PhD, San Diego, CA
Peter O. Newton, MD, San Diego, CA

Following anterolateral tethered growth, bovine spinal motion segments were evaluated with novel 3D techniques to determine tether effects on growth cartilage and disc morphology.

2:48 PM **PAPER: 461**

Biomechanics of Spinal Hemiepiphysiodesis for Fusionless Scoliosis Treatment using Titanium Implant

Donita Bylski-Austrow, Cincinnati, OH
Matthew Coombs, Cincinnati, OH
David Glos, Research Eng, Cincinnati, OH
Eric Wall, MD, Cincinnati, OH

Spinal hemiepiphysiodesis by titanium staple implant decreased range of motion by <20% in flexion-extension and lateral bending compared to pre-treatment controls.

2:54 PM **PAPER: 462**

Prevalence of Scoliosis in Patients with Fontan Circulation

Muayad Kadhim, MD, Wilmington, DE
William G. Mackenzie, MD, Wilmington, DE
Pizarro Christian, MD, Wilmington, DE
Laurens Holmes, PhD, DrPH, Wilmington, DE
Kenneth J. Rogers, PhD, Wilmington, DE
Kallur K. Antony, MD, Albuquerque, NM

High prevalence of scoliosis was observed and inter-disciplinary monitoring is recommended for children with Fontan circulation.

Discussion - 6 Minutes

3:06 PM **PAPER: 463**

◆ Perioperative Use of Gabapentin in Idiopathic Scoliosis Improves Pain Management after Posterior Spinal Fusion

Curtis D. VandenBerg, MD, New York, NY
Suken A. Shah, MD, Wilmington, DE
Peter G. Gabos, MD, Wilmington, DE
Richard R. Bowen, MD, Wilmington, DE
Dinesh K. Choudhry, MD, Wilmington, DE
Karen Sacks, Wilmington, DE
Kenneth J. Rogers, PhD, Wilmington, DE

Perioperative gabapentin reduced morphine consumption and facilitated transition to oral pain medication on the first postoperative day after PSF for AIS. There was a tendency for earlier ambulation.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

3:12 PM **PAPER: 464**

Early Complications of High-Dose Steroids After Pediatric Spinal Trauma

Jeffrey B. Knox, MD, New York, NY
Jason M. Cage, DO, Honolulu, HI
John E. Schneider, MD, Dallas, TX
Anthony I. Riccio, MD, Dallas, TX
Robert L. Wimberly, MD, Dallas, TX

High rates of infectious and endocrine complications are present in children with spinal trauma regardless of the administration of high-dose corticosteroids.

3:18 PM **PAPER: 465**

The Use of Magnetic Resonance Imaging in the Evaluation of Spondylolysis

Jeremy K. Rush, MD, San Antonio, TX
William C. Warner Jr, MD, Germantown, TN
Stephanie E. Scott, Chicago, IL
Nelson Astur Neto, MD, São Paulo, Brazil
Jeffrey R. Sawyer, MD, Germantown, TN
Derek M. Kelly, MD, Memphis, TN

Magnetic resonance imaging (MRI), utilizing a specific protocol for evaluation of the pars interarticularis, is an effective tool in the diagnosis of pars injury in adolescents and young adults.

Discussion - 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room S103

Foot and Ankle II: Ankle Arthritis: Arthroplasty, Osteotomy, and Arthrodesis

Moderator(s): Naren G. Gurbani, Capistrano Beach, CA
Stuart D. Miller, MD, Baltimore, MD

1:30 PM **PAPER: 466**

Supramalleolar Osteotomy is More Effective than Calcaneal Osteotomy in Varus Ankle Osteoarthritis

Woo Chun Lee, Seoul, Republic of Korea
Kang Lee, MD, Seoul, Republic of Korea
Hong Joon Choi, MD, Seoul, Republic of Korea
Chulhyun Park, MD, Daegu, Republic of Korea
Jiyong Ahn, MD, Seoul, Republic of Korea
Dong-Il Chun, Seoul, Republic of Korea
Ju Pil P. Seok, MD, Seoul, Republic of Korea
Jae Cho, MD, Seoul, Republic of Korea

This study compared supramalleolar and calcaneal osteotomy for varus ankle osteoarthritis. Clinical improvement was significantly better after supramalleolar osteotomy .

1:36 PM **PAPER: 467**

Novel Double Osteotomy of Distal Tibia for Correction of Asymmetric Varus Osteoarthritic Ankle

Beat Hintermann, MD, Liestal, Switzerland
Markus Knupp, MD, Liestal, Switzerland
Alexej Barg, MD, Liestal, Switzerland

This prospective study illustrated that the novel double osteotomy technique provides pain relief and realignmnet of the hindfoot in patients with painful asymmetric varus ankle osteoarthritis.

1:42 PM **PAPER: 468**

Ankle Arthroscopy: Medium-Term Outcomes for New Onset Mechanical Symptoms in Osteo and Post-Traumatic Arthritis

Ryan Flanigan, MD, Rochester, NY
Benedict F. DiGiovanni, MD, Rochester, NY

Ankle arthroscopy can be an effective tool in reducing pain and maintaining function in patients with a new mechanical symptom in the setting of osteo or post-traumatic arthritis.

Discussion - 6 Minutes

1:54 PM **PAPER: 469**

Prospective Comparison of Ankle Arthroplasty and Arthrodesis

Paul H. Kim, MD, Seattle, WA
Nathan W. Coleman, MD, Seattle, WA
Marisa R. Benich, BS, Seattle, WA
Natalie R. Doerr, Seattle, WA
Bill R. Ledoux, PhD, Seattle, WA
Sigvard T. Hansen Jr, MD, Seattle, WA
Bruce J. Sangeorzan, MD, Seattle, WA

Prospective comparison study of outcomes for ankle fusion and replacement. Both cohorts showed improvements in all outcome measures. Complication and reoperation rates were similar.

2:00 PM **PAPER: 470**

Multicenter Study Comparing Total Ankle Arthroplasty and Ankle Arthrodesis: Mid-Term Results

Alastair S. E. Younger, MD, Vancouver, BC, Canada
Timothy R. Daniels, MD, FRCSC, Toronto, ON, Canada
Mark Glazebrook, MD, Halifax, NS, Canada
Murray J. Penner, MD, Vancouver, BC, Canada
Kevin J. Wing, MD, Vancouver, BC, Canada
Peter Dryden, MD, Victoria, BC, Canada
Hubert Wong, PhD, Vancouver, BC, Canada

A multicenter study of 267 ankle arthroplasty (TAR) and 99 ankle arthrodesis (AA) patients at 4.9 years. AOS and SF-36 PCS and MCS scores improved and were the same for TAR and AA.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

2:06 PM **PAPER: 471**

Comparison of Trends in Ankle Arthrodesis and Total Ankle Replacement in the United States

Rodney Terrell, MD, Los Angeles, CA
Scott Montgomery, MD, Venice, CA
William Pannell, BS, Los Angeles, CA
Michael I. Sandlin, MD, Los Angeles, CA
Hirokazu Inoue, MD, Shimotsuke, Japan
Jeffrey C. Wang, MD, Sherman Oaks, CA
Nelson F. SooHoo, MD, Los Angeles, CA

In a review of a large insurance database of orthopedic patients, total ankle replacement and arthroscopic fusion were found to be increasing from 2004 to 2009.

Discussion - 6 Minutes

2:18 PM **PAPER: 472**

Total Ankle Replacement in Patients Under the Age of 50. Should this Still be Contraindicated?

Ricardo Rodrigues-Pinto, MD, Povoa De Varzim, Portugal
José M. Muras Geada, Porto, Portugal
Xavier Martín Oliva, Barcelona, Spain
Paulo Amado, Portugal

Total ankle replacement in patients under 50 years of age yields better clinical and functional results and similar complication and survivor rates as when it is perfomed in those aged 50 or older.

2:24 PM **PAPER: 473**

Outcomes of Ankle Arthroplasty for Post-traumatic Arthritis Following Pilon Fractures

Rajeshkumar Kakwani, FRCS, Newcastle-Upon-Tyne, United Kingdom
Jayasree Ramaskandhan, MSc, Newcastle Upon Tyne, United Kingdom
Malik S. Siddique, MD, Newcastle-upon-Tyne, United Kingdom

The Indications for TAR can be safely broadened to include younger patients with arthritis following pilon fractures of the tibia.

2:30 PM **PAPER: 474**

The Lateral Distal Tibial Articular Angle and its Relationship to Talar Subluxation in TAR

Andrea Veljkovic, MD, FRCSC, Kentville, NS, Canada
Adam Norton, BA, Iowa City, IA
Peter Salat, MD, FRCSC, Wolfville, NS, Canada
Charles L. Saltzman, MD, Salt Lake City, UT
John E. Femino, MD, Iowa City, IA
Phinit Phisitkul, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA

73% of pre-operative ankles were classified as anterior or neutral while 27% presented posterior. We have illustrated that posterior subluxation is corrected by opening the DTAA.

Discussion - 6 Minutes

2:42 PM **PAPER: 475**

The Total Ankle Replacement Learning Curve

Gregory C. Berlet, MD, Westerville, OH
Terrence Philbin, DO, Dublin, OH
Christopher Hyer, DPM, Westerville, OH
Jaymes Granata, MD, Lewis Center, OH
Kevin Zartman, MD, Cleveland Heights, OH
W. Bret Smith, DO, Lexington, SC
Thomas H. Lee, MD, Westerville, OH
Emily Stansbury, BA, Westerville, OH

The purpose of this study was to report the tourniquet time and intraoperative complication rate for 3 different TAR implants as surgeon experience increased.

2:48 PM **PAPER: 476**

Management of Ankle Pain Following Ankle Arthroplasty

Rajeshkumar Kakwani, FRCS, Newcastle-Upon-Tyne, United Kingdom
Mohammed A. Al-Maiyah, Middlesbrough, United Kingdom
Jayasree Ramaskandhan, MSc, Newcastle Upon Tyne, United Kingdom
Malik S. Siddique, MD, Newcastle-upon-Tyne, United Kingdom

10- 13 % of Ankle Arthroplasty have moderate/severe ankle pain with low AOFAS scores. Mapping of the pain aids decision of management options.

2:54 PM **PAPER: 477**

Patient Reported Outcomes, Function and Gait Mechanics After Fixed and Mobile-Bearing Total Ankle Replacement

Robin M. Queen, PhD, Durham, NC
Robert J. Butler, DPT, PhD, Durham, NC
Samuel B. Adams Jr, MD, Durham, NC
James K. DeOrio, MD, Durham, NC
Mark E. Easley, MD, Durham, NC
James A. Nunley II, MD, Durham, NC

This study examines the differences in gait mechanics, patient reported outcomes, and function between a mobile and fixed bearing TAR from before surgery through 2 years following surgery.

Discussion - 6 Minutes

3:06 PM **PAPER: 478**

Tibiotalocalcaneal (TTC) Fusion with Bone Block Allograft: Rates of Fusion and Clinical Outcomes

Edward Tang, MD, San Leandro, CA
Clifford L. Jeng, MD, Baltimore, MD
John T. Campbell, MD, Baltimore, MD
Rebecca Cerrato, MD, Fallston, MD
Mark S. Myerson, MD, Baltimore, MD

Bone block tibiotalocalcaneal fusion is an accepted salvage procedure for bone loss in the ankle. We had a 71.9% limb salvage rate in our case series and these patients were satisfied.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

3:12 PM **PAPER: 479**

Clinical Outcome of Tibiotalocalcaneal Arthrodesis with Lateral Blade Plate

Michael Iossi, MD, Milwaukee, WI
Jeffrey E. Johnson, MD, Saint Louis, MO
Sandra E. Klein, MD, Saint Louis, MO
Jeremy J. McCormick, MD, Saint Louis, MO

Tibiotalocalcaneal arthrodesis with blade plate fixation is a procedure with high rates of complication. However, once a fusion is achieved, patients exhibit a high level of relief and satisfaction.

3:18 PM **PAPER: 480**

Subtalar Arthrodesis in Patients with Previous Ankle Fusion

Diego Zanolli, MD, Durham, NC
Mark E. Easley, MD, Durham, NC
James A. Nunley II, MD, Durham, NC

Retrospective study that compares subtalar fusion rates in isolated subtalar arthrodesis in patients with previous ankle fusion to patients without prior ankle fusion.

Discussion - 6 Minutes

SURGICAL SKILLS COURSE

1:30 PM — 4:30 PM

8SK **Advanced Ponseti Course and Minimally Invasive Management of Vertical Talus**

Moderator: Matthew B. Dobbs, MD, Saint Louis, MO
Haemish A. Crawford, MBChB, Auckland, New Zealand, New Zealand
Steven L. Frick, MD, Orlando, FL
John E. Herzenberg, MD, Baltimore, MD
Harold J. Van Bosse, MD, Wynnewood, PA

Room S402a

Learn the tricks for dealing with complex, neurogenic, and syndromic clubfeet as well as the principles of correcting congenital vertical talus with the minimally invasive approach. Simulated bone models only.

9SK **Shoulder Instability**

Moderator: April D. Armstrong, MD, Hershey, PA
Anand M. Murthi, MD, Baltimore, MD
Robert Z. Tashjian, MD, Salt Lake City, UT
Brian R. Wolf, MD, Iowa City, IA

Room S402b

A surgical skills course that will provide one hour of course lecture on the anatomy of the shoulder and arthroscopic portals, and techniques of anterior and posterior shoulder instability repairs followed by a skills session for 1.5 hours with simulated bone models. Course will end with case presentation and discussion.

INSTRUCTIONAL COURSE LECTURE

1:30 PM — 4:30 PM

◆383 **MRI-Arthroscopy Correlations of the Shoulder, Elbow, Hip and Knee: A Case Based Approach**

Lakeside, Room E351

Moderator: Mark D. Miller, MD, Charlottesville, VA
Stephen F. Brockmeier, MD, Charlottesville, VA
Cree Gaskin, MD, Charlottesville, VA
Hollis Potter, MD, New York, NY
Anil S. Ranawat, MD, New York, NY

Brief introduction to MRI, a series of knee, shoulder, elbow, and hip cases will be presented and discussed. MRI and arthroscopy correlation will be emphasized.

384 **Complex Elbow Injuries: New Techniques for Operative Management and Avoiding Complications**

Moderator: Scott P. Steinmann, MD, Rochester, MN
Douglas P. Hanel, MD, Seattle, WA
Michael Hausman, MD, New York, NY
Donald H. Lee, MD, Nashville, TN
A L. Osterman, MD, Villanova, PA

Lakeside, Room E352

Treatment of complex elbow injuries has evolved over the past decade. Discuss treatment algorithms for all aspects of elbow trauma. Management of distal humeral fractures, medial and lateral fracture dislocations, and radial head/coronoid fracture will be emphasized.

SYMPOSIUM

4:00 PM — 6:00 PM
Grand Ballroom

Eight Common Pitfalls In Shoulder Arthroplasty (S)

Moderator: Edward V. Craig, MD, New York, NY

Among factors determining TSR success are patient selection, soft tissue analysis , intraoperative decisions, and post operative rehabilitation. This symposium will address eight common pitfalls hindering optimal outcome of shoulder arthroplasty

I. Pre Op and Intra Op Decisions to Minimize Component Malposition
Thomas B. Edwards, MD, Houston, TX

II. Avoiding Infection in Shoulder Arthroplasty
Andrew Green, MD, Providence, RI

III. Avoidable Causes of Prosthetic Instability and Dislocation
Evan L. Flatow, MD, New York, NY

IV. Pre Op and Intraoperative Decision Making to Minimize Post Operative Cuff Failure
Robert H. Cofield, MD, Rochester, MN

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Thursday, March 21

V. Will Intraoperative Monitoring Avoid Nerve Injury In TSR
Gerald R. Williams Jr, MD, Philadelphia, PA

VI. Pitfalls of the Difficult Osteoarthritic: Marked Posterior Humeral Head Subluxation and Glenoid Erosion
Richard J. Hawkins, MD, Greenville, SC

VII. Component Loosening in Anatomic and Reverse Arthroplasty. Can It Be Avoided?
Mark A. Frankle, MD, Temple Terrace, FL

VIII. Minimizing the Long Term Problems with Periprosthetic Fracture
John W. Sperling, MD, MBA, Rochester, MN

SYMPOSIUM
4:00 PM — 6:00 PM
Room S406

◆Debates on the Use of BMP in Spine Surgery (T)
Moderator: Jeffrey C. Wang, MD, Sherman Oaks, CA

This will provide an evidence-based update on the risks of BMP usage in the spine, an understanding of the controversy that exists in the literature regarding the reporting of adverse events, and a debate on the merits/indications of its usage in the spine.

I. BMP Usage Increases Rate Of Retrograde Ejaculation
Thomas E. Mroz, MD, Cleveland, OH

II. BMP Does Not Lead to Increased Retrograde Ejaculation
Jean-Jacques Abitbol, MD, San Diego, CA

III. BMP Can Be Used For Cervical Fusion
K. Daniel Riew, MD, Saint Louis, MO

IV. BMP Should Not Be Used For Cervical Fusion
Alan S. Hilibrand, MD, Philadelphia, PA

V. BMP Can Be Used For Thoracolumbar Fusion
Michael D. Daubs, MD, Salt Lake City, UT

VI. BMP Should Not Be Used For Thoracolumbar Fusion
Wellington K. Hsu, MD, Chicago, IL

VII. BMP Adverse Events Were Appropriately Reported In the Literature
Paul A. Anderson, MD, Madison, WI

VIII. BMP Adverse Events Were Under-Reported In the Literature
Eugene J. Carragee, MD, Redwood City, CA

INSTRUCTIONAL COURSE LECTURE

4:00 PM — 6:00 PM

361 TICKET
Room S405
Revision in Total Hip Arthroplasty: Understanding and Management of Osteolysis
Moderator: Charles A. Engh Jr, MD, Alexandria, VA
William J. Maloney, MD, Redwood City, CA
Wayne G. Paprosky, MD, Winfield, IL
Neil P. Sheth, MD, Philadelphia, PA

Review the etiology, evaluation, and surgical treatment of periprosthetic hip osteolysis. Will include polyethylene and metal on metal bearing surface associated osteolysis. Emphasis on surgical decision making techniques.

362 TICKET
Room N228
Direct Anterior Hip Surgery: Techniques for Arthroplasty and Surgical Approach to Hip Surgery
Moderator: Anthony S. Unger, MD, Washington, DC
Stefan Kreuzer, MD, Houston, TX
Tim P. Lovell, MD, Spokane, WA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Explore the history, anatomy and science of the DAA. The surgical technique for arthroplasty and FAI treatment will be presented.

363 TICKET
Room S502
Emerging Methods for Treatment of Ankle Arthritis
Moderator: Timothy R. Daniels, MD, FRCSC, Toronto, ON, Canada
Annunziato Amendola, MD, Iowa City, IA
James W. Brodsky, MD, Dallas, TX
Bruce J. Sangeorzan, MD, Seattle, WA

Compare the functional and biomechanical outcomes of ankle fusion and total ankle arthroplasty. Indications, complications, surgical techniques and outcomes of both surgical procedures.

364 TICKET AAHS
Lakeside, Room E350
Scaphoid Fractures and Nonunions: What's Hot, What's Not
Moderator: William B. Geissler, MD, Jackson, MS
Randipsingh R. Bindra, MD, Maywood, IL
Dean G. Sotereanos, MD, Pittsburgh, PA

Novel and minimally invasive techniques for scaphoid surgery will be reviewed and the panel will demonstrate pearls and pitfalls to safely treat these common but potentially debilitating injuries.

365 TICKET
Room S106a
Current Perspectives on the Diagnosis and Management of DDH through Early Adulthood
Co-moderators: Stuart L. Weinstein, MD, Iowa City, IA
Dennis R. Wenger, MD, San Diego, CA
Nicholas Clarke, FRCS, Sothampton, United Kingdom
Klaus Siebenrock, MD, Bern, Switzerland

Provide the international perspective to the diagnosis and management of developmental hip dysplasia and dislocation from birth through early adulthood.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

366 **Coding and Reimbursement Update 2013**
Room S501
Moderator: John P. Heiner, MD, Madison, WI
R. Dale Blasier, MD, Little Rock, AR
William R. Creevy, MD, Boston, MA
Richard J. Friedman, MD, Charleston, SC
M. B. Henley, MD, MBA, Seattle, WA

Annual update on changes to CPT and Reimbursement from physicians actively involved in the AAOS coding and reimbursement activities.

367 **Leading a Digital Life in Orthopaedics**
Room S103a
Moderator: Jack Choueka, MD, Lawrence, NY
Matthew J. DiPaola, MD, Dayton, OH
Eric Eisemon, MD, Brooklyn, NY
Yvette Ho, MD, Brooklyn, NY
Ira H. Kirschenbaum, MD, Bronx, NY
Norman Stone, MD, Alexandria, VA

Computerized medical records, online resources, smartphones and iPads can seem foreign and complicated to the busy orthopaedic surgeon. This presentation will demonstrate the tremendous potential that these technologies hold to improve efficiency, safety and patient care.

368 **Elbow Arthroscopy: Beginners to Advanced**
Room S104
Moderator: Christopher S. Ahmad, MD, New York, NY
Matthew L. Ramsey, MD, Philadelphia, PA
Anthony A. Romeo, MD, Chicago, IL
Felix H. Savoie III, MD, New Orleans, LA

Detailed presentations will instruct patient positioning, portal placement and use of retractors. Specific procedures will include basic loose body removal, arthroscopic treatment of throwing elbow injuries, techniques to manage elbow arthritis and advanced techniques such as arthroscopic assisted fracture treatment.

369 **Controversies in Hip Arthroscopy**
Room N227b
Moderator: Paul E. Beaule, MD, Ottawa, ON, Canada
J W T. Byrd, MD, Nashville, TN
John C. Clohisy, MD, Saint Louis, MO
Christopher Larson, MD, Edina, MN

Deciding on how to address the various pathologies such as FAI as well as dealing with the more complex clinical scenarios such as the failed hip arthroscopy are becoming more complex. This course brings together world experts on the subject matter combined with case base discussions.

370 **Comprehensive Contemporary Osteoporotic Care**
Room S503
Moderator: Stephen L. Kates, MD, Rochester, NY
Troy H. Caron, DO, Springfield, MO
Alexandra K. Schwartz, MD, San Diego, CA

Establishing a hip fracture service, hip fractures - tips to avoid surgical failure, post-fracture osteoporosis for the orthopaedic surgeon, pearls on hip fracture care.

371 **Humeral Shaft Fractures: Is Nonoperative Treatment Still an Option?**
Room S504a
Moderator: Amer J. Mirza, MD, Portland, OR
Erik Kubiak, MD, Salt Lake City, UT
Matthew D. McElvany, MD, Seattle, WA
Samir Mehta, MD, Philadelphia, PA

Identify which humeral shaft fractures benefit from operative stabilization and the optimum techniques for managing these fractures and their complications will be detailed.

FD6 **Perspectives on Mentorship**
Room N227a
Moderator: Robert A. Hart, MD, Portland, OR
James H. Beaty, MD, Memphis, TN
Edward N. Hanley Jr, MD, Charlotte, NC
Vernon T. Tolo, MD, Los Angeles, CA

History, definition, and description of the mentoring process will be presented, emphasizing importance of good mentorship to career and personal satisfaction. Specific examples of successful and less successful approaches to mentoring will be described.

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room S105

Adult Reconstruction Hip V: Infection/Other
Moderator(s): Kevin L. Garvin, MD, Omaha, NE
Bryan D. Springer, MD, Charlotte, NC

4:00 PM **PAPER: 481**
◆ Nasal Decolonization of Staphylococcus aureus with Antimicrobial Photodynamic Therapy
Elizabeth Bryce, DMed, Vancouver, BC, Canada
Titus Wong, MD, Vancouver, BC, Canada
Diane Roscoe, MD, Vancouver, BC, Canada
Cale Street, PhD, MBA, Mundelein, IL
Deborah Jeske, RN, Burnaby, BC, Canada
Bassam A. Masri, MD, FRCSC, Vancouver, BC, Canada
Shelagh Weatherill, MA, RN, Vancouver, BC, Canada
Leslie Forrester, Vancouver, BC, Canada

Intranasal antimicrobial photodynamic therapy is a safe and effective method of decreasing surgical site infections in orthopaedic patients.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

4:06 PM **PAPER: 482**

Optimal ESR and CRP Cut-off Values Based on New Criteria for Periprosthetic Joint Infection

Pouya Alijanipour, MD, Málaga, Spain
Hooman Bakhshi, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

In this large-scale single-institution study, optimal cut-off values for ESR and CRP were calculated based on recently defined criteria for diagnosis of periprosthetic joint infection.

4:12 PM **PAPER: 483**

Allogeneic Blood Transfusions and Postoperative Infections after Orthopaedic Surgery

Richard J. Friedman, MD, Charleston, SC
Martin Homering, PhD, Wuppertal, Germany
Susanne Hess, MD, Berlin, Germany
Scott D. Berkowitz, MD, Montville, NJ

Postoperative infections were significantly increased after elective total hip or knee arthroplasty in patients who received allogeneic compared with autologous or no blood transfusion.

Discussion - 6 Minutes

4:24 PM **PAPER: 484**

Association between Surgical Site Infections and Anticoagulant Thromboprophylaxis following Elective THA or TKA

Zhong Wang, PhD, Bethesda, MD
Frederick A. Anderson, PhD, Worcester, MA
Michael M. Ward, MD, Bethesda, MD
Timothy Bhattacharyya, MD, Bethesda, MD

Anticoagulants have been extensively used to reduce the risk of venous thromboembolism (VTE) for surgical patients. However, concern remains for surgical site complications besides bleeding. We sough

4:30 PM **PAPER: 485**

Total Hip Arthroplasty Following Ancient Native Hip Joint Infection

Nathaniel J. Nelms, MD, Burlington, VT
Rafael J. Sierra, MD, Rochester, MN

Retrospective review of primary total hip arthroplasty in patients with a history of childhood hip infection. Nineteen patients with no reinfections at average 67 month follow up

4:36 PM **PAPER: 486**

Use of an Antibiotic Cement Spacer in Two-stage Revision of Infected Hip Arthroplasty

Vijay Kumar, MD, New Delhi,India, India
Bhavuk Garg, MS Ortho, New Delhi, India
Rajesh Malhotra, MS, New Delhi, India

Two-stage revision THA using an antibiotic-impregnated cement spacer is a useful technique for treating infected hip arthroplasty.

Discussion - 6 Minutes

4:48 PM **PAPER: 487**

Use of Massive Structural Allografts in Revision of Infected Total Hip Replacement

Rajesh Malhotra, MS, New Delhi, India
Vijay Kumar, MD, New Delhi,India, India
Bhavuk Garg, MS Ortho, New Delhi, India

Massive allografts are useful in two stage revision of infected total hip arthroplasty.

4:54 PM **PAPER: 488**

Reduced Re-Infection Rates with Postoperative Oral Antibiotics After Two-Stage Revision Hip Arthroplasty

Aaron J. Johnson, MD, Baltimore, MD
Lynne C. Jones, PhD, Baltimore, MD
Ronald E. Delanois, MD, Baltimore, MD
David A. Stroh, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

This study demonstrates that patients undergoing two-stage revision hip artrhoplasty had reduced re-infection rates when receiving oral postoperative antibiotics.

5:00 PM **PAPER: 489**

Are Multiple Cultures Worth the Effort? Impact on Hip and Knee Revision Arthroplasty

Alexander DeHaan, MD, Portland, OR
Michael Kuhne, MD, Portland, OR
Yee-Cheen Doung, MD, Portland, OR
James B. Hayden, MD, Lake Oswego, OR
Thomas Huff, MD, Portland, OR
Penelope Barnes, MBBS, PhD, Portland, OR
Kathryn Schabel, MD, Portland, OR

5 or more biopsies held for 10 day incubation altered antibiotic management in 13% of hip and knee revision arthroplasty cases, while predicting joint sterility 95% of the time.

Discussion - 6 Minutes

5:12 PM **PAPER: 490**

Comprehensive Look at Blood Transfusion Utilization in Total Joint Arthroplasty at a Single Academic Medical Center

Sean Robinson, Brookline, MA
Sam Volin, Falmouth, ME
Eric L. Smith, MD, Boston, MA

Pre-operative hematocrit is the strongest predictor of future transfusion, primary total knee had the greatest autologous waste and primary total hip required the most transfused units.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

5:18 PM **PAPER: 491**

Comparison of Real-time Polymerase Chain Reaction and Frozen Section in Diagnosing Periprosthetic Infection

Yushi Miyamae, MD, PhD, Yokohama, Japan
Yutaka Inaba, MD, Yokohama, Japan
Naomi Kobayashi, MD, Yokohama, Japan
Hyonmin Choe, MD, Yokohama, Japan
Hiroyuki Ike, MD, Yokohama Kanagawa, Japan
Tomoyuki Saito, MD, Yokohama, Japan

This study demonstrated that real-time PCR and frozen section have different role in diagnosing periprosthetic infection. It is important to consider each characteristics of both tests.

5:24 PM **PAPER: 492**

The Fracture Pattern and Incidence of Osteoporotic Sequential Hip Fractures

Taek R. Yoon, MD, PhD, Jeonnam, Republic of Korea
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Republic of Korea
Kyung Soon Park, MD, Jeonnam, Republic of Korea
Jae-Wook Byun, MD, Gwangju, Republic of Korea

A sequential hip fracture showed correlation with previous contralateral hip fracture pattern.

Discussion - 6 Minutes

5:36 PM **PAPER: 493**

Surgical Anatomy of the Inferior Retinacular Branch of the Medial Femoral Circumflex Artery

Lionel E. Lazaro, MD, New York, NY
Peter K. Sculco, MD, New York, NY
Nadine Pardee, BS, New York, NY
Craig Klinger, BS, New York, NY
Marschall B. Berkes, MD, New York, NY
David L. Helfet, MD, New York, NY
Bryan T. Kelly, MD, New York, NY
Edwin P. Su, MD, New York, NY
Dean G. Lorich, MD, New York, NY

This study provides topographic anatomy of the inferior retinacular artery, a constant branch of the MFCA that penetrate the capsule inferiomedially and can be preserved with a careful capsulotomy.

5:42 PM **PAPER: 494**

Patient Perceptions of the Cost of Total Hip and Knee Arthroplasty

Joseph Maratt, MD, Ann Arbor, MI
Joel J. Gagnier, PhD, Ann Arbor, MI
M M. Gomberawalla, MD, Ann Arbor, MI
Sharon E. Reske, RN, BS, Ann Arbor, MI
Brian R. Hallstrom, MD, Ann Arbor, MI
Andrew G. Urquhart, MD, Ann Arbor, MI

Patients who underwent hip or knee arthroplasty were surveyed post-operatively to determine their understanding of surgeon and hospital cost and reimbursement for their procedures.

5:48 PM **PAPER: 495**

Characteristics and Trends of Published Adult Hip Research over the Last Decade

Jeong J. Yoo, MD, Seoul, Republic of Korea
Pil Whan Yoon, MD, Seoul, Republic of Korea
Young-Kyun Lee, MD, Seongnam-Si, Republic of Korea
Moon Seok Park, MD, Sungnam, Republic of Korea
Kyung-Hoi Koo, MD, Seongnam-Si, Republic of Korea
Kang Sup Yoon, MD, Seoul, Republic of Korea
Hee J. Kim, MD, Seoul, Republic of Korea

The United States is the most productive country in adult hip research in selected journals. An oligopoly led by several countries is disclosed in this systematic review.

Discussion - 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room N427
Sports Medicine/Arthroscopy VI: Shoulder (RC), Elbow
Moderator(s): Diane L. Dahm, MD, Rochester, MN
Morgan H. Jones, MD, Cleveland Heights, OH

4:00 PM **PAPER: 496**

◆ Outcomes of Massive Rotator Cuff Tears Treated with Porcine Dermal Tissue Matrix

Anil K. Gupta, MD, Durham, NC
Kevin T. Hug, MD, Seattle, WA
Blake Boggess, DO, Durham, NC
Gavigan Molly, RN, JD, Durham, NC
Alison P. Toth, MD, Durham, NC

Purpose of this study was to evaluate the clinical and sonographic outcomes of interposition repair of massive rotator cuff tears through a mini-open approach using porcine dermal tissue matrix.

4:06 PM **PAPER: 497**

Mid-term Outcome of Concomitant Rotator Cuff Repair and Calcium Excision with Average Follow Up of 48 Months

Eddie Y. Lo, MD, Dallas, TX
Ronald P. Karzel, MD, Van Nuys, CA

Although most patients with calcific tendonitis undergo arthroscopic debridement only, some require additional cuff repair. In this study, calcium excision and cuff repair leads to >90% success.

4:12 PM **PAPER: 498**

Surgeon-Sonographer Interaction on Ultrasound Diagnosis of Rotator Cuff Tears: Five-Year Study in 775 Shoulders

Adrian Kurz, MBBS, Wollongong, Australia
Matthew J. Kelly, MD, Camp Hill, PA
Lisa Briggs, Sonographer, Coogee, Australia
George A. Murrell, MD, Kogarah, Australia

This cohort study showed improvement in the diagnostic utility of office-based ultrasound over time, mostly with respect to accuracy for detection, and ability to predict size, of rotator cuff tears.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

4:24 PM **PAPER: 499**

Arthroscopic Repair of Concomitant Slap Lesions and Large to Massive Cuff Tears: Comparison with Biceps Tenotomy

Sung-Jae Kim, MD, Seoul, Republic of Korea
Sung-Hwan Kim, MD, Seoul, Republic of Korea
Seong-Hun Kim, MD, Seoul, Republic of Korea
Su Keon A. Lee, MD, Seoul, Republic of Korea
Min Jung, MD, Seoul, Republic of Korea
Yun-Rak Choi, MD, PhD, Seoul, Republic of Korea
Jae-Hoo Lee, MD, Seoul, Republic of Korea
Yong-Min Chun, MD, Seoul, Republic of Korea

The outcomes of simultaneous arthroscopic SLAP and rotator cuff repair were inferior to those of arthroscopic biceps tenotomy and cuff repair in large to massive rotator cuff tear.

4:30 PM **PAPER: 500**

Biomechanical and Clinical Results of an Arthroscopic, Knotless, Intra-articular Biceps Tenodesis Technique

Darin D. Nye, MD, Pittsburgh, PA
Brian Waterman, MD, El Paso, TX
Sam Akhavan, MD, Sewickley, PA

We present biomechanical data and clinical follow-up for an all-arthroscopic, knotless proximal biceps tenodesis technique.

4:36 PM **PAPER: 501**

The Effect of Anchor Length and Insertion Angle on Suture Anchor Pullout Strength

Samuel Linford, MD, Salt Lake City, UT
Christopher West, BS, Houston, TX
Gregory J. Stoddard, MPH, Salt Lake Cty, UT
Benjamin Widmer, MD, Murray, UT
Hugh S. West Jr, MD, Salt Lake City, UT

This study characterizes the effect of the insertion angle and anchor length on the suture anchor pullout strength in both normal and osteoporotic bone models.

Discussion - 6 Minutes

4:48 PM **PAPER: 502**

Effect of Capitellar Osteochondral Defect on Elbow Valgus Laxity and Radiocapitellar Contact Pressure

Teruhisa Mihata, MD, PhD, Osaka, Japan
Ryan Quigley, BS, Long Beach, CA
Grant W. Robicheaux, MD, Orange, CA
Michelle H. McGarry, MD, Long Beach, CA
Thay Q. Lee, PhD, Long Beach, CA

Both central and lateral capitellar osteochondral defects increased elbow valgus laxity; radiocapitellar joint contact pressure was also increased with lateral osteochondral defects.

4:54 PM **PAPER: 503**

Osteochondritis Dissecans of the Humeral Capitellum Among Teenage Baseball Players; Survey Using Ultrasonography

Yoshikazu Kida, MD, Kyoto, Japan
Toru Morihara, MD, Kyoto, Japan
Yoshihiro Kotoura, MD, Kyoto, Japan
Tsuyoshi Sukenari, MD, Kyoto, Japan
Ryo Oda, MD, Kyoto, Japan
Tatsuya Hojo, Kyotanabe, Japan
Yuji Arai, Kamigyo-ku, Kyoto, Japan
Hiroyoshi Fujiwara, MD, Kyoto, Japan
Toshikazu Kubo, MD, Kyoto, Japan

The prevalence of osteochondritis dissecans of the humeral capitellum among teenage baseball players (n=1912) was 3.6%, which were investigated in field by portable ultrasonography.

5:00 PM **PAPER: 504**

◆ Platelet Rich Plasma Significantly Improves Clinical Outcomes in Patients with Chronic Tennis Elbow

Allan K. Mishra, MD, Menlo Park, CA
Nebojsa V. Skrepnik, MD, Tucson, AZ
Scott G. Edwards, MD, Washington, DC
Grant L. Jones, MD, Columbus, OH
Steve Sampson, DO, Los Angeles, CA
Doug A. Vermillion, MD, Anchorage, AK
Matthew L. Ramsey, MD, Philadelphia, PA
David Karli, Vail, CO
Arthur C. Rettig, MD, Indianapolis, IN

In a prospective, randomized, double-blind, controlled trial of 230 patients with tennis elbow, needling with platelet rich plasma significantly improved clinical outcomes compared to needling alone.

Discussion - 6 Minutes

5:12 PM **PAPER: 505**

Ultrasound Assessment of the Medial Ulnar Collateral Ligament Distal Ulnar Attachment

Lutul D. Farrow, MD, Garfield Heights, OH
Andrew P. Mahoney, MD, Tucson, AZ
Mark S. Schickendantz, MD, Cleveland, OH
Joseph E. Sheppard, MD, Tucson, AZ
Mihra S. Taljanovic, MD, Tucson, AZ

We are the first to present the previously undescribed sonographic anatomy of the MUCL distal ulnar attachment.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

5:18 PM **PAPER: 506**

The Docking Technique for Elbow Ulnar Collateral Ligament Insufficiency: Two-Year Follow Up in Adolescent Athletes

Kristofer Jones, MD, New York, NY
Joshua Dines, MD, Great Neck, NY
Brian Rebolledo, MD, New York, NY
Kenneth D. Weeks, MD, New York, NY
David M. Dines, MD, Great Neck, NY
David W. Altchek, MD, New York, NY

Previous reports suggest moderately favorable outcomes in adolescent athletes following UCL reconstruction. We hypothesized more favorable outcomes using the docking technique.

5:24 PM **PAPER: 507**

Using Dynamic Elbow Ultrasound to Characterize Ulnar Collateral Ligament Abnormalities in Baseball Pitchers

Michael G. Ciccotti, MD, Philadelphia, PA
Alfred Atanda, MD, Philadelphia, PA
Levon N. Nazarian, MD, Philadelphia, PA
Steven B. Cohen, MD, Media, PA
Laurens Holmes, PhD, DrPH, Wilmington, DE
Christopher Dodson, MD, Philadelphia, PA

Using Dynamic Elbow Ultrasound to Characterize Ulnar Collateral Ligament Abnormalities in Baseball Pitchers.

Discussion - 6 Minutes

5:36 PM **PAPER: 508**

Characterizing Bone Tunnel Placement in Elbow MUCL Reconstruction Utilizing Computer Simulated CT Modeling

Ian R. Byram, MD, Franklin, TN
Krishn Khanna, BS, New York, NY
Thomas R. Gardner, MCE, New York, NY
Christopher S. Ahmad, MD, New York, NY

This study demonstrates the effects of varying tunnel starting point, angle, and diameter on maximal bone tunnel length and bone bridge size for multiple techniques in elbow MUCL reconstruction.

5:42 PM **PAPER: 509**

Functional Outcomes Following Revision Elbow UCL Reconstruction in Major League Baseball Pitchers

Joshua Dines, MD, Great Neck, NY
Kristofer Jones, MD, New York, NY
Stan Conte, PT, San Carlos, CA
Neal S. ElAttrache, MD, Los Angeles, CA

The rate of return to competitive pitching is low amongst MLB pitchers following revision UCL reconstruction. Starting pitchers may be at higher risk for treatment failure relative to relief pitchers.

5:48 PM **PAPER: 510**

Long Term Outcomes after Ulnar Collateral Ligament Reconstruction in Competitive Baseball Players

Daryl C. Osbahr, MD, Baltimore, MD
E. Lyle Cain Jr, MD, Birmingham, AL
Benjamin T. Raines, MA, ATC, Decatur, AL
Dave Fortenbaugh, PhD, Birmingham, AL
Jeffrey R. Dugas, MD, Birmingham, AL
James R. Andrews, MD, Gulf Breeze, FL

Baseball players who underwent UCL reconstruction during their career had excellent long-term follow-up outcomes in relation to their baseball and post-baseball career.

Discussion - 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room N426

Shoulder and Elbow III: Reverse Arthroplasty and Revision Shoulder Arthroplasty

Moderator(s): Joseph P. Iannotti, MD, Cleveland, OH
Jon JP Warner, MD, Boston, MA

4:00 PM **PAPER: 511**

Reverse Shoulder Arthroplasty for Proximal Humeral Fractures in the Elderly: Results with Minimum One-Year FU

Tjarco D. Alta, MD, Amstelveen, Netherlands
Lauryl Decroocq, Lorgues, France
Grégory Moineau, MD
Francois Sirveaux, PhD, Nancy, France
Philippe Clavert, MD, PhD, Illkirch, France
Luc Favard, MD, Tours, France
Nicholas Brassart, Cagnes Sur Mer, France
Pascal Boileau, MD, Nice, France

In proximal humeral fractures of the elderly, tuberosity healing (associated with active ROM) can be achieved by reattachment and bone grafting around a specific Reverse Fracture prosthesis.

4:06 PM **PAPER: 512**

Does Reverse Shoulder Arthroplasty for Fractures Durably Restore Function in the Elderly?

Jean-Francois Cazeneuve, MD, Laon, France

The aim of this retrospective study is to expose results and complications of the reverse concept in trauma in the elderly.

4:12 PM **PAPER: 513**

Hemiarthroplasty vs. Reverse Shoulder Arthroplasty for the Treatment of Proximal Humeral Fractures in the Elderly

Derek J. Cuff, MD, Venice, FL
Derek Pupello, Tampa, FL

This study is a comparison of hemiarthroplasty versus reverse shoulder arthroplasty for the treatment of comminuted proximal humeral fractures in elderly patients.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

4:24 PM **PAPER: 514**

Bony Increased Offset Reverse Shoulder Arthroplasty: Results of a Prospective Randomized Control Trial

Clayton H. Riley, MD, Little Rock, AR
Raj H. Shani, MD, Houston, TX
Daniel O'Connor, PhD, Houston, TX
Hussein A. Elkousy, MD, Houston, TX
Gary M. Gartsman, MD, Houston, TX
Thomas B. Edwards, MD, Houston, TX

Grafting of the glenoid with a cancellous autograft employing the bony increased offset reverse shoulder arthroplasty technique did not offer any radiographic or clinical benefits.

4:30 PM **PAPER: 515**

Randomized Controlled Trial of Concentric versus Eccentric Glenospheres in Reverse Shoulder Arthroplasty

Simon Young, MD, Auckland, New Zealand
Peter Poon, MD, Auckland, New Zealand
Justin, Chuan-Tsung Chou, Whangarei, New Zealand
Peter Mutch, MD, Wellington South, New Zealand

Eccentric glenospheres reduce inferior scapular notching in reverse shoulder arthroplasty.

4:36 PM **PAPER: 516**

Scapular Morphology and Surgical Techniques as Predictors of Notching in Reverse Shoulder Arthroplasty

Vani J. Sabesan, MD, Kalamazoo, MI
Mark C. Callanan, MA, Grand Rapids, MI
George M. Ghareeb, BS, Grand Rapids, MI
J. Michael Wiater, MD, Beverly Hills, MI
Joseph P. Iannotti, MD, PhD, Cleveland, OH

Our results shows that previously published predictors of scapular notching do not hold true and do not support an universal index for predicting scapular notching in patients who have undergone a primary RSA.

Discussion - 6 Minutes

4:48 PM **PAPER: 517**

Reverse Shoulder Arthroplasty with Deltoid Insufficiency

Alexandre Laedermann, MD, Meyrin, Switzerland
Gilles Walch, MD, Lyon, France
Patrick J. Denard, MD, Medford, OR
Philippe Collin, St Gregoire, France
Luc Favard, MD, Tours, France
Francois Sirveaux, PhD, Nancy, France
Thomas B. Edwards, MD, Houston, TX
Pascal Boileau, MD, Nice, France

Mid to long-term functional outcome and patient satisfaction of RSA implanted in the setting of deltoid insufficiency.

4:54 PM **PAPER: 518**

Acromial Fractures after Reverse Shoulder Arthroplasty: Multicenter Evaluation of Risk Factors

Randall Otto, MD, Fenton, MO
Nazeem Virani, MD, MPH, Tampa, FL
Phillip T. Nigro, MD, Darien, IL
Jonathan C. Levy, MD, Fort Lauderdale, FL
Mark A. Frankle, MD, Temple Terrace, FL

Osteoporosis is a risk factor for acromial fractures after RSA. Radiographs unreliably detect fractures, but serial films may improve detection. The current classification is not reproducible.

5:00 PM **PAPER: 519**

Infection after Anatomic & Reverse Total Shoulder Arthroplasty - Is there a Difference?

Paul D. Lane Jr, MD, Augusta, GA
Lynn A. Crosby, MD, Augusta, GA
Anthony V. Florschutz, MD, Augusta, GA

The goal of this study was to determine if there was a difference in the rate of infections seen after anatomic total shoulder arthroplasty versus reverse total shoulder arthroplasty.

Discussion - 6 Minutes

5:12 PM **PAPER: 520**

Early Dislocation Following Reverse Total Shoulder Arthroplasty: An Evaluation of Risk Factors

Gregory P. Nicholson, MD, Chicago, IL
Daniel Enriquez, MA, Chicago, IL
Anthony A. Romeo, MD, Chicago, IL
Stacy L. Twigg, PA-C, Chicago, IL

Early dislocations of RTSA , unrelated to a fall, are uncommon, but do occur. In this study the most common factors were a BMI over 30, male gender, and any type of previous surgery.

5:18 PM **PAPER: 521**

◆ Salvage Reverse Shoulder Arthroplasty in Patients Less than 65 Years - Results After Minimum Five Years

Eugene Ek, MBBS, PhD, New York, NY
Lisa Neukom, MD, Zurich, Switzerland
Sabrina Catanzaro, Zurich, Switzerland
Dominik C. Meyer, MD, Zurich, Switzerland
Christian Gerber, MD, Zurich, Switzerland

RSA is a reliable salvage option for relatively young patients with debilitating complex shoulder problems where there is a non-functioning rotator cuff.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

5:24 PM **PAPER: 522**

Effects of Glenosphere Positioning on Internal and External Rotation Following Reverse Shoulder Arthroplasty

Xinning Li, MD, Lexington, MA
ZaKary A. Knutson, MD, Oklahoma City, OK
Daniel Choi, MS, New York, NY
Daniel Lobatto, MSc, Naarden, Netherlands
Joseph D. Lipman, MS, New York, NY
Edward V. Craig, MD, New York, NY
Russell F. Warren, MD, New York, NY
Lawrence Gulotta, MD, New York, NY

Glenosphere position significantly affected humeral internal and external rotation after RTSA. Inferior translation or lateralization appears to have the most beneficial effects.

Discussion - 6 Minutes

5:36 PM **PAPER: 523**

◆ Revision Shoulder Arthroplasty Without Humeral Stem Removal

Eugene Ek, MBBS, PhD, New York, NY
Karl Wieser, Zollikerberg, Switzerland
Sabrina Catanzaro, Zurich, Switzerland
Silvan Beeler, MD, Zurich, Switzerland
Olivier Verborgt, MD, PhD, Wilrijk, Belgium
Christian Gerber, MD, Zurich, Switzerland

Revision shoulder arthroplasty using a modular system has substantial advantages especially when there is a well-fixed humeral stem.

5:42 PM **PAPER: 524**

Revision Total Shoulder Arthroplasty With or Without Humeral Stem Removal. How Much of a Difference Does it Make?

Lynn A. Crosby, MD, Augusta, GA
Joseph D. Zuckerman, MD, New York, NY
Thomas W. Wright, MD, Gainesville, FL

The results of revision TSA without humeral stem removal results in fewer complications and is significantly less expensive. The functional results with or without stem removal are similar.

5:48 PM **PAPER: 525**

Readmission After Shoulder Arthroplasty - Causes and Risk Factors

William W. Schairer, San Francisco, CA
Brian T. Feeley, MD, San Francisco, CA

This study assessed utilization of emergency or inpatient care following shoulder arthroplasty and identified risk factors associated hospital readmission.

5:54 PM **PAPER: 828**

The Role of Eccentric and Offset Humeral Head Variations in Total Shoulder Arthroplasty

Adam Sassoon, MD, Orlando, FL
Bradley Schoch, MD, Rochester, MN
Peter C. Rhee, MD, Rochester, MN
Cathy Schleck, BS, Rochester, MN
William Harmsen, MS, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Robert H. Cofield, MD, Rochester, MN

Clinical and radiographic outcomes of standard, eccentric, and offset humeral heads are equivalent after 4.7 years follow-up. No specific complications related to head design were demonstrated.

Discussion - 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room S102

Trauma IV: Hip and Femur

Moderator(s): Craig S. Bartlett, MD, South Burlington, VT
Eric M. Hammerberg, MD, Boulder, CO

4:00 PM **PAPER: 526**

Predictors of Morbidity and Mortality Following Hip Fracture: A Series of 44,419 Incidents

Philip J. Belmont Jr, MD, El Paso, TX
E'Stephan J. Garcia, MD, El Paso, TX
David M. Romano, MD, El Paso, TX
Kenneth J. Nelson, MD, El Paso, TX
Andrew J. Schoenfeld, MD, Canutillo, TX

While many co-morbidities appear to be influential in predicting outcome, some of the more significant factors include the presence of shock, obesity, diabetes, and time to surgery.

4:06 PM **PAPER: 527**

Risk Stratification for Short Term Morbidity and Mortality Following Hip Fracture Surgery

Andrew J. Pugely, MD, Iowa City, IA
Christopher T. Martin, MD, Iowa City, IA
Yubo Gao, PhD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
John L. Marsh, MD, Iowa City, IA

In this study, we have developed an internally validated method for risk stratifying patients undergoing hip fracture surgery, and this model is predictive of both 30 day morbidity and mortality.

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Thursday, March 21

4:12 PM **PAPER: 528**

Management of Open Femur Fractures in a Developing Country Using the Surgical Implant Generation Network (SIGN) Nail

Paul S. Whiting, MD, Boston, MA
Daniel D. Galat, MD, Bomet, Kenya
Douglas W. Lundy, MD, Marietta, GA

Open femur fractures can be managed effectively using the SIGN nail with low rates of deep infection and non-union, despite significant delays from injury to IV antibiotics and debridement.

Discussion - 6 Minutes

4:24 PM **PAPER: 529**

Multi-Disciplinary Care of the Hip Fracture Patient

Manish S. Noticewala, MD, New York, NY
Jonathan H. Lee, MD, New York, NY
William B. Macaulay, MD, New York, NY
Jeffrey A. Geller, MD, New York, NY

A comprehensive multi-disciplinary team leads to improved clinical processes but does not impact complication or mortality rates in hip fracture patients.

4:30 PM **PAPER: 530**

Reduced Mortality in Hip Fracture Patients: Combining a Perioperative Approach and Medical Home Care

Jove Graham, PhD, Danville, PA
Thomas R. Bowen, MD, Danville, PA
Kent Strohecker, MS, Danville, PA
Kaan Irgit, MD, Ankara, Turkey
Wade R. Smith, MD, Englewood, CO

This prospective study showed patients receiving post-discharge care from a Medical Home program showed benefits in terms of reduced mortality, with similar costs and functional outcomes at 12 months.

4:36 PM **PAPER: 531**

Predicting the Need for Blood Transfusion in Patients with Hip Fractures

Assaf Kadar, MD, Givaatayim, Israel
Ofir Chechik, MD, Ramat Hasharon, Israel
Ely L. Steinberg, MD, Rishoh LeZion, Israel
Amir Sternheim, Toronto, ON, Canada

The study assesses the variables effecting blood transfusion requirement in patients with hip fracture. Based on the data we suggest an algorithm to predict which patient will need blood transfusion.

Discussion - 6 Minutes

4:48 PM **PAPER: 532**

Is Operative Delay in Hip Fracture Patients on Clopidogrel Warranted? A Comorbidity Matched Analysis

Earnest C. Casstevens, Cincinnati, OH
James P. Martens, MD, Owens Crossroads, AL
Michael T. Archdeacon, MD, Cincinnati, OH
Theodore T. Le, MD, Cincinnati, OH
John D. Wyrick, MD, Cincinnati, OH

The goal of this study was to compare perioperative factors between hip fracture patients taking clopidogrel to a comorbidity-matched cohort not on clopidogrel.

4:54 PM **PAPER: 533**

Choosing Between Hemiarthroplasty and Total Hip Replacements for Fractured Neck of Femurs. Are We Choosing Wisely?

James Pegrum, MBBS, BSc, Oxford, United Kingdom
Reza Mayahi, MD, Oxford, United Kingdom
Natalia White, BA, MB, ChB, Oxford, United Kingdom
Gregoris Kambouroglou, MD, Oxford, United Kingdom
Natalia White, BA, MB, ChB, Oxford, United Kingdom
Gregoris Kambouroglou, MD, Oxford, United Kingdom

A combination of the Sernbo and Charlson scores identifies patients who are both physically fitter and have an improved life expectancy in order to benefit from a Total Hip Replacement (THA).

5:00 PM **PAPER: 534**

Survivorship, Utilization Trends and Cost Analysis of Uncemented Hip Hemiarthroplasty in a Community Registry

Daniel P. Hoeffel, MD, Woodbury, MN
Brandon J. Kelly, Saint Paul, MN
Penny Tatman, MPH, Saint Paul, MN
Susan C. Mehle, Saint Paul, MN
Kathleen Killeen, OT, Woodbury, MN

A community based registry identified increased use of uncemented hip hemiarthroplasty. Survivorship and cost analysis was performed to examine financial justification/impact.

Discussion - 6 Minutes

5:12 PM **PAPER: 535**

Twenty-year Experience with Rigid Intramedullary Nailing of Skeletally Immature Femur Fractures

Samuel Crosby, MD, Nashville, TN
Daniel Koehler, MD, Iowa City, IA
Gregory A. Mencio, MD, Nashville, TN
Neil E. Green, MD, Nashville, TN
Steven A. Lovejoy, MD, Nashville, TN
Jonathan G. Schoenecker, MD, Nashville, TN
Jeffrey E. Martus, MD, MS, Nashville, TN

A retrospective review of 241 skeletally immature patients undergoing rigid intramedullary nailing of femur fractures over a 22-year period with clinical and radiographic outcomes.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

5:18 PM **PAPER: 536**

Intramedullary Nailing of Subtrochanteric Fractures: Does Malreduction Matter?

John Riehl, MD, Orlando, FL
Kenneth J. Koval, MD, Orlando, FL
Stanley J. Kupiszewski, MD, Orlando, FL
Joshua Langford, MD, Orlando, FL
Mark W. Munro, MD, Windermere, FL
George J. Haidukewych, MD, Orlando, FL

The purpose of this study was to evaluate the influence of coronal and sagittal plane malreductions on time to union of subtrochanteric femur fractures treated with an intramedullary device.

5:24 PM **PAPER: 537**

Femur Fracture Treatment Intervals as an Index for Trauma Resource Allocation: A Multinational Study

Amir Matityahu, MD, San Francisco, CA
Richard A A. Gosselin, MD, El Granada, CA
Amber M. Caldwell, BA, San Francisco, CA
Richard R R. Coughlin, MD, San Francisco, CA
Meir T. Marmor, MD, San Francisco, CA

Timing intervals of femur fracture treatment are highly correlated to known, available, and quantifiable country data on health and economics and may be used as indicators for trauma system efficiency.

Discussion - 6 Minutes

5:36 PM **PAPER: 538**

In Situ Proximal Femur Positioning and Radiographic Landmark Measurements - How Accurate are We?

Jacob Cartner, Memphis, TN
Naoya Takada, MD, Germantown, TN
John L. Williams, PhD, Memphis, TN

Rotation or flexion of the femur as an aid in fracture reduction results in quantifiable inaccuracies when neck-shaft angle and tip-apex distances are considered.

5:42 PM **PAPER: 539**

Is it Safe to Place a Retrograde Femoral Intramedullary Nail through a Traumatic Knee Arthrotomy?

Jesse E. Bible, MD, MHS, Nashville, TN
Rishin Kadakia, Nashville, TN
Ankeet Choxi, BS, Nashville, TN
Jennifer M. Bauer, MD, Nashville, TN
Hassan R. Mir, MD, Nashville, TN

This is the first study to investigate retrograde femoral nail placement through a traumatic knee arthrotomy with comparison to 2 control groups with no difference found in union rates or infection.

5:48 PM **PAPER: 540**

How High Can You Go: Retrograde Nailing of Proximal Femur Fractures?

Kevin M. Kuhn, MD, San Diego, CA
Ashley Haegle, BS, Saint Louis, MO
J. Tracy Watson, MD, Saint Louis, MO
Lisa K. Cannada, MD, Clayton, MO

We describe a proximal segment capture ratio for retrograde femoral nailing. Our hypothesis is a smaller ratio represents less nail capture and will result in a higher rate of complications.

Discussion - 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room S103

Foot and Ankle III: Sports - The World of Ligament, Tendons, and Tali

Moderator(s): Nicholas A. Abidi, MD, San Jose, CA
Daniel C. Farber, MD, Baltimore, MD

4:00 PM **PAPER: 541**

◆ The Effect of Platelet-rich Plasma on a Novel Surgical Treatment for Cartilage Reconstruction in the Ankle Joint

Hajo Thermann, MD, Heidelberg, Germany
Ferzan Suezer, Heidelberg, Germany

We hypothesized AMIC combined with microfracture and platelet-rich plasma (PRP) exponantiates the effectiveness of the different techniques to treat osteochondral defects in the ankle joint.

4:06 PM **PAPER: 542**

Post-Operative Cyst Formation after Autologous Osteochondral Transplanation in the Talus: An MRI Evaluation

Ian Savage-Elliott, BA, New York, NY
Timothy W. Deyer, MD, New York, NY
Niall A. Smyth, MD, New York, NY
Christopher D. Murawski, New York, NY
John G. Kennedy, MD, New York, NY

Cystic change after autologous osteochondral transplantation in the talus appears to be a valid concern post-operatively. Longitudinal MRI follow-up is crucial.

4:12 PM **PAPER: 543**

Second Look Arthroscopic Findings After Metal Implantation for Osteochondral Defects of the Talus

Inge C. Van Eekeren, MD, Amsterdam, Netherlands
Christiaan J. van Bergen, MD, Amsterdam, Netherlands
C. Niek van Dijk, MD, Abcoude, Netherlands

The metal articular surface of the metal implant for secondary osteochondral defects of the talus can be overgrowth with cartilage-like tissue.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Thursday, March 21

4:24 PM **PAPER: 544**

Comparison of Arthroscopic and Histological Evaluation on Injured Anterior Talofibular Ligament

Youichi Yasui, MD, Tokyo, Japan
Masato Takao, MD, Itabashi, Japan
Wataru Miyamoto, Tokyo, Japan
Shinya Miki, MD, Tokyo, Japan
Jun Sasahara, MD, Tokyo, Japan
Kenichiro Nakajima, MD, Tokyo, Japan
Fumito Komatsu, MD, PhD, Ibaraki, Japan
Ken Innami, Tokyo, Japan
Takashi Matsushita, MD, Tokyo, Japan

This study suggests the possibility that anterior talofibular ligament (ATFL) remnant did not have enough strength for early accelerated rehabilitation after repair of ATFL.

4:30 PM **PAPER: 545**

Dynamic Ankle Stabilization using Extensor Digitorum Brevis Muscle Transfer - A Single Surgeon Case Series

Jagan M. Velpula, MRCS, Suttoncoldfield, United Kingdom
Krishnaveni Nayini, MBBS, Derby, United Kingdom
Aswin Pimpalnerkar, FRCS (Ortho), Suttoncoldfield, United Kingdom

Dynamic Ankle Stabilisation using Extensor Digitorum Brevis muscle transfer- a Single Surgeon Case Series.

4:36 PM **PAPER: 546**

Outcomes Following Lateral Ankle Ligament Repair versus Reconstruction

Lauren M. Matheny, Vail, CO
Thomas O. Clanton, MD, Vail, CO

Outcomes following lateral ankle ligament repair and reconstruction were similar. Patients who underwent reconstruction had significantly longer time from injury to surgery.

Discussion - 6 Minutes

4:48 PM **PAPER: 547**

Anatomic Lateral Ligament Reconstruction with Semitendinosus Allograft for Chronic Lateral Ankle Instability

Brian Dierckman, MD, Westfield, IN
Richard D. Ferkel, MD, Van Nuys, CA

Anatomic lateral ankle ligament reconstruction with semitendinous allograft and modified Brostrom procedure for treatment of chronic lateral ankle instability.

4:54 PM **PAPER: 548**

Intermittent Pneumatic Compression Therapy Reduces the Risk for Deep Vein Thrombosis after Achilles Tendon Surgery

Erica Arverud, MD, Stockholm, Sweden
Ali Latifi, MSc, Stockholm, Sweden
Fausto Labruto, MD, PhD, Stockholm, Sweden
Gunnar Nilsson, MD, PhD, Stockholm, Sweden
Paul W. W. Ackermann, MD, PhD, Stockholm, Sweden

Lower limb surgery has demonstrated high incidences of deep venous thrombosis (DVT), such as after Achilles tendon rupture (ATR) surgery, 36%. Moreover, pharmacoprophylaxis with Dalteparin has not been shown to affect the incidence of DVT after ATR surgery.

5:00 PM **PAPER: 549**

SER IV Ankle Fractures: Is it Better to Have an Unrepaired Ligament or an Anatomically Fixed Malleolus?

Marschall B. Berkes, MD, New York, NY
Milton T. Little, MD, New York, NY
Lionel E. Lazaro, MD, New York, NY
Nadine Pardee, BS, New York, NY
Patrick C. Schottel, MD, New York, NY
Lauren E. Lamont, MD, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

SER IV ankles with ligament injury and healing enjoy no better outcomes compared to those relying on bony healing of multiple malleolus fractures assuming anatomic reduction is achieved.

Discussion - 6 Minutes

5:12 PM **PAPER: 550**

Outcomes of a Z-Lengthening (Griend) Calcaneal Osteotomy for Adult-Acquired Flatfoot Deformity

Constantine Demetracopoulos, MD, New York, NY
Pallavi Nair, BS, Washington, DC
Andrew Malzberg, BA, New York, NY
Jonathan T. Deland, MD, New York, NY

Patients who underwent a Griend osteotomy for AAFD demonstrated correction of the deformity, complete healing at a mean of 7.7 weeks, and an improvement in FAOS and SF-36 functional scores.

5:18 PM **PAPER: 551**

Results of Surgical Correction in Grade II Posterior Tibial Tendon Dysfunction: A 24-Month Follow Up

Amila Silva, MBBS, Singapore, Singapore
David Hsien Ching H. Su, FRCS, MBBS, Singapore, Singapore
Hwei Chi Chong, Singapore, Singapore
Inderjeet S. Singh Rikhraj, MD, Singapore, Singapore

Grade 2 PTTD could be effectively treated with double calcaneal osteotomies, tendo-achilles lengthening and Flexor Digitorum longus transfer to the Navicular. A clinical and radiological outcome study.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Thursday, March 21

5:24 PM **PAPER: 552**

Passive and Functional Mobility of the Medial Column after Lateral Column Lengthening Procedure

Heather Barske, MD, Vancouver, BC, Canada
Ruth Chimenti, DPT, Rochester, NY
Elizabeth A. Martin, MD, Rochester, NY
Josh Tome, MS, Rochester, NY
Adolf S. Flemister Jr, MD, Rochester, NY
Jeff R. Houck, PhD, PT, Rochester, NY

Subjects after LCL surgery for Stage II Adult Acquired Flatfoot Dysfunction demonstrate increased medial column dorsiflexion both passively and functionally.

Discussion - 6 Minutes

5:36 PM **PAPER: 553**

Can We Tell if the Syndesmosis is Reduced using Fluoroscopy?

Paul Tornetta III, MD, Boston, MA
Scott Koenig, MD, Chestnut Hill, MA
Gabriel Merlin, MD, Boston, MA
Yelena Bogdan, MD, Boston, MA

The purpose of this study was to evaluate the ability of surgeons to determine if the fibula is reduced, anteriorly displaced, or posteriorly displaced based on fluoroscopic images.

5:42 PM **PAPER: 554**

Diagnosing Chronic Instability of the Syndesmosis - A Novel Measurement using Computed Tomography

Gautam Malhotra, MD, Chicago, IL
James I. Cameron, MD, Chicago, IL
Brian C. Toolan, MD, Flossmoor, IL

Based on axial CT scans we describe a novel technique, using an angular measurement as well as a measure of area, to aid in the diagnosis of syndesmotic instability.

5:48 PM **PAPER: 555**

Evaluation of Clinical Measurements of the Ankle Syndesmosis with a 3D Model

Thomas Ebinger, MD, Iowa City, IA
Jessica Goetz, PhD, Iowa City, IA
Lori Dolan, PhD, Iowa City, IA
Phinit Phisitkul, MD, Iowa City, IA

We evaluated existing clinical measurements of the ankle syndesmosis on CT by comparing to a 3D Model.

Discussion - 6 Minutes

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Friday, March 22

SURGICAL SKILLS COURSE

7:00 AM — 10:00 AM

10SK **Reverse Shoulder Arthroplasty**

Moderator: Edward G. McFarland, MD, Lutherville, MD
Lynn A. Crosby, MD, Augusta, GA
Xavier A. Duralde, MD, Atlanta, GA
Guido Marra, MD, Chicago, IL
Steve A. Petersen, MD, Lutherville, MD

Room S402a

A surgical skills course that encompasses the theory and methodology of reverse shoulder arthroplasty as applied to primary and revision situations. Simulated bone models only.

SYMPOSIUM

8:00 AM — 10:00 AM
Grand Ballroom

Optimizing Management of Patients with Metal-on-Metal Hips (U)

Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH

Case-based presentations and discussion will illustrate challenges in diagnosis and treatment of patients with metal-on-metal hip arthroplasties. Current evidence and recommendations including a systematic diagnostic algorithm will be presented.

I. Risk Stratification for MoM Hip Arthroplasty
Adolph V. Lombardi Jr, MD, New Albany, OH

II. Case Presentations and Discussion
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Panel: Thomas K. Fehring, MD, Charlotte, NC,
Joshua J. Jacobs, MD, Chicago, IL,
Young-Min Kwon, PhD, Philadelphia, PA,
Michael A. Mont, MD, Baltimore, MD,
Thomas P. Schmalzried, MD, Los Angeles, CA

III. Causes of Pain in MoM Hip Arthroplasty Other Than Adverse Local Tissue Reaction?
Thomas P. Schmalzried, MD, Los Angeles, CA

IV. Case Presentations and Discussion
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Panel: Thomas K. Fehring, MD, Charlotte, NC,
Joshua J. Jacobs, MD, Chicago, IL,
Young-Min Kwon, PhD, Philadelphia, PA,
Michael A. Mont, MD, Baltimore, MD,
Thomas P. Schmalzried, MD, Los Angeles, CA

V. Significance of Serum Metal Ions in MoM Hip Arthroplasty
Thomas K. Fehring, MD, Charlotte, NC

VI. Case Presentations and Discussion
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Panel: Thomas K. Fehring, MD, Charlotte, NC,
Joshua J. Jacobs, MD, Chicago, IL,
Young-Min Kwon, PhD, Philadelphia, PA,
Michael A. Mont, MD, Baltimore, MD,
Thomas P. Schmalzried, MD, Los Angeles, CA

VII. Use of MRI in Evaluating Soft Tissue Reactions Around MoM Hip Arthroplasty
Young-Min Kwon, PhD, Philadelphia, PA

VIII. Case Presentations and Discussion
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Panel: Thomas K. Fehring, MD, Charlotte, NC,
Joshua J. Jacobs, MD, Chicago, IL,
Young-Min Kwon, PhD, Philadelphia, PA,
Michael A. Mont, MD, Baltimore, MD,
Thomas P. Schmalzried, MD, Los Angeles, CA

IX. The Addictive Effect of Taper Corrosion in MoM Hip Arthroplasty
Joshua J. Jacobs, MD, Chicago, IL

X. Case Presentations and Discussion
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Panel: Thomas K. Fehring, MD, Charlotte, NC,
Joshua J. Jacobs, MD, Chicago, IL,
Young-Min Kwon, PhD, Philadelphia, PA,
Michael A. Mont, MD, Baltimore, MD,
Thomas P. Schmalzried, MD, Los Angeles, CA

XI. A Summary of the Clinical Results to Date with MoM Hip Arthroplasty
Michael A. Mont, MD, Baltimore, MD

XII. Case Presentations and Discussion
Moderator: Adolph V. Lombardi Jr, MD, New Albany, OH
Panel: Thomas K. Fehring, MD, Charlotte, NC,
Joshua J. Jacobs, MD, Chicago, IL,
Young-Min Kwon, PhD, Philadelphia, PA,
Michael A. Mont, MD, Baltimore, MD,
Thomas P. Schmalzried, MD, Los Angeles, CA

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

SYMPOSIUM
8:00 AM — 10:00 AM
Room S406

The Social and Economic Value of Orthopaedic Surgery (V)
Moderator: John R. Tongue, MD, Tualatin, OR

The AAOS commissioned a health economist to assist with assessing the societal and economic value of musculoskeletal care for a broad range of conditions and treatments. This symposium represents the culmination of a two-phase project to develop a model for valuing musculoskeletal care, and then apply it to estimate the value of surgical treatments for end-stage osteoarthritis of the knee, hip fracture, disc herniation, rotator cuff tears, and anterior cruciate ligament tears. Surgery for end-stage osteoarthritis of the knee, hip fracture, and disc herniation were found to benefit society more than the additional direct medical costs. Although the societal benefits from rotator cuff repair and ACL repair were not found to offset treatment costs, these surgical treatments yield significant improvements in quality of life per dollar of increased medical costs. With the growing emphasis on increasing the value of the U.S. healthcare system, data such as this, demonstrating the societal value of orthopaedic surgery, will be increasingly important to insure that patients have access to these treatment options.

I. Introduction
Steven D.K. Ross, MD, Orange, CA

II. Making the Case for Determining Value
Societal Perspective - Steven D.K. Ross, MD, Orange, CA
AAOS Advocacy Perspective – Peter J. Mandell, MD, Burlingame, CA
AAOS Public Relations Perspective – Michael F. Schafer, MD, Chicago, IL
Framework for the Project – Tim Dall, MS, Washington, DC

III. Indirect Cost Methodology and Findings
Tim Dall, MS, Washington, DC

IV. Condition Specific Costs Methodology and Findings
Lane Koenig, PhD, Rockville, MD
Hip Fracture - Peter J. Mandell, MD, Burlingame, CA
Rotator Cuff Repair – R. Chad Mather III, MD, Durham, NC
ACL Repair - R. Chad Mather III, MD, Durham, NC
Disk Herniation - Michael F. Schafer, MD, Chicago, IL
Total Knee Arthroplasty - Lane Koenig, PhD, Rockville, MD

V. Model Usefulness – Special Case: Oregon
Lane Koenig, PhD, Rockville, MD

VI. Health Policy Implications
Mininder S. Kocher, MD, Boston, MA

VII. Future Directions-? Phase III
Total Hip Arthroplasty, Hand, Pediatrics - Lane Koenig, PhD, Rockville, MD
Segregate Data At the State Level/Congessional Districts - Lane Koenig, PhD, Rockville, MD

VIII. Conclusion/Take Home Message
John R. Tongue, MD, Tualatin, OR

IX. Questions and Answers
John R. Tongue, MD, Tualatin, OR

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 10:00 AM

401
TICKET
Room S503

Complex Primary Total Hip Arthroplasty: A Case Based Approach
Moderator: Daniel J. Berry, MD, Rochester, MN
John J. Callaghan, MD, Iowa City, IA
Craig J. Della Valle, MD, Chicago, IL
David G. Lewallen, MD, Rochester, MN

Case-based format to highlight techniques and discuss clinical tips and tricks to manage complex primary hip arthroplasty challenges. Techniques to manage challenging cases including DDH, post-traumatic hip problems, bone deformity and deficiency and young patients will be discussed.

◆402
TICKET
Room S401d

Biologic Augmentation of Tendon-Bone Healing: Where Are We Now?
Moderator: Asheesh Bedi, MD, Ann Arbor, MI
George A. Murrell, MD, Kogarah, Australia
Scott A. Rodeo, MD, New York, NY

Review of the biology, indications and evidenced-based outcomes of biologic augmentation of tendon to bone healing for the clinician. Current options and future state-of-the art discussed, including the use of single growth factors, platelet rich plasma (PRP), cell-based technologies, and scaffolds for anterior cruciate ligament (ACL), rotator cuff, and tendinopathy surgery.

403
TICKET
Room N227b

Management of Complex Foot and Ankle Injuries in the Athlete
Moderator: James A. Nunley II, MD, Durham, NC
Thomas O. Clanton, MD, Vail, CO
John G. Kennedy, MD, New York, NY
Mark S. Myerson, MD, Baltimore, MD

Treating foot and ankle injuries in the athlete requires an understanding of their unique mechanism, surgical options and rehabilitation issues. These will be addressed for stress fractures, ligament injuries, achilles/peroneal tendon disorders, and the syndemosis.

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Friday, March 22

404 **How to Build a Safe and Quality Orthopaedic OR Team in 2013: A Tool Kit to Improve Surgical Outcomes for Your Patients**

Room S504a

Moderator: William J. Robb III, MD, Winnetka, IL
Dwight W. Burney III, MD, Albuquerque, NM
David Jevsevar, MD, MBA, Saint George, UT
William J. Richardson, MD, Durham, NC

Surgical safety is now established as a critical core element of surgical quality and value. Validated and reliable surgical processes are now available to reduce surgical errors and improve surgical patient outcomes. Incorporating these processes in all parts of orthopaedic practice is essential to insure that all patients benefit from our care. Review to role of safety in your practice and provide you with the tools needed to directly benefit your patients.

◆405 **Magnetic Resonance Imaging of the Knee and Shoulder**

Room S502

Moderator: Dennis C. Crawford, MD, Portland, OR
Lynne S. Steinbach, MD, San Francisco, CA
Carl S. Winalski, MD, Cleveland, OH

Overview of MRI diagnostic criteria for injury and conditions of the knee and shoulder including pitfalls, confounders and potential applications for novel technologies is planned.

406 **What Every Resident Should Know About Distal Radius Fractures**

Room S106a

Moderator: Kevin F. Lutsky, MD, Egg Harbor Township, NJ
Martin I. Boyer, MD, Saint Louis, MO
Douglas P. Hanel, MD, Seattle, WA
Jesse B. Jupiter, MD, Boston, MA

Review wrist fractures treated by hand surgeons including information residents and fellows should know while preparing for practice, the in-training and boards.

407 **Hip Pathology in the Adolescent Athlete**

Room S106b

Moderator: Jeremy S. Frank, MD, Hollywood, FL
Peter Gambacorta, DO, Clarence Ctr, NY
Lyle J. Micheli, MD, Boston, MA
Ira Zaltz, MD, Royal Oak, MI

Hip and groin pathology in the adolescent athlete is an emerging topic in young adult sports medicine. Expert faculty will review various etiologies and treatment options in this ever evolving field within sports medicine.

408 **The Art of Teaching Orthopaedic Surgery**

Room S103a

Moderator: Joseph D. Zuckerman, MD, New York, NY
Kenneth A. Egol, MD, New York, NY
Samir Mehta, MD, Philadelphia, PA
Donna P. Phillips, MD, New York, NY

Will provide the learner with an assessment of barriers to the implementation of modern teaching strategies in orthopaedic residencies and will discuss the historical and current models for training in the US. Focus on the didactic and clinical education options currently available to programs training orthopaedic learners. Discuss metrics for evaluation and present methods to improve resident assessment. Question and answer period for audience participation.

409 **How About That Proximal Biceps Tendon?**

Room N228

Moderator: Richard J. Hawkins, MD, Greenville, SC
Robert H. Bell, MD, Akron, OH
Robert T. Burks, MD, Salt Lake City, UT
Peter B. MacDonald, MD, Winnipeg, MB, Canada

Feature basic science along with associated pathologies such as: massive rotator cuff tears and the treatment, tenotomy vs tenodesis in various techniques of biceps tenodesis.

◆ 410 **Degenerative Spondylolisthesis: A Participant Driven Interactive Program for Evidence Based Decision Making**

Room S104

Moderator: Mark B. Dekutoski, MD, Rochester, MN
John R. Dimar II, MD, Louisville, KY
Paul M. Huddleston, MD, Rochester, MN
Ahmad Nassr, MD, Rochester, MN
Joseph H. Perra, MD, Minneapolis, MN
James D. Schwender, MD, Minneapolis, MN
Adam L. Wollowick, MD, New York, NY

A case based, interactive, educational session focused on contemporary practice and evidence in the management of degenerative spondylolisthesis

411 **Arthroscopic Management of Shoulder Instabilities: Anterior, Posterior and Multidirectional**

Room S501

Moderator: Richard L. Angelo, MD, Woodinville, WA
Brian J. Cole, MD, MBA, Chicago, IL
Laurence D. Higgins, MD, Boston, MA
Felix H. Savoie III, MD, New Orleans, LA

Hybrid course with 50% lectures including "Mistakes I've Made" and 50% patient-based clinical case controversies followed by audience questions.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

412 **Locked and Minimally Invasive Plating: Technique, Advantages, Unique Properties and Potential Pitfalls**
TICKET
Lakeside, Room E352
Moderator: Stephen Kottmeier, MD, Stony Brook, NY
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Thomas A. Russell, MD, Eads, TN
Paul Tornetta III, MD, Boston, MA

How do we incorporate our past knowledge an experience with newer techniques and implants in plate and screw fixation? Place locking plate technologies and minimally invasive surgery in proper perspective and assist the surgeon in how to optimally apply and configure these new techniques and concepts.

413 **Implant Removal: Point - Counterpoint - When to Remove When Not to Remove**
TICKET
OTA
Room S402b
Moderator: David Seligson, MD, Louisville, KY
James F. Kellam, MD, Charlotte, NC
Robert Geoff Richards, PhD, Davos-Platz, Switzerland
Dagmar Vos, MD, Breda, Netherlands

This lively counterpoint covers the metallurgic facts, the indications, and practical technique tips on implant removal.

414 **The Changing Landscape of Orthopaedic Practice: What are the Options**
TICKET
Room S405
Moderator: Gerald R. Williams Jr, MD, Philadelphia, PA
Bernard F. Morrey, MD, San Antonio, TX
Richard H. Rothman, MD, Philadelphia, PA
Roger D. Strode, JD, Chicago, IL

Describe the characteristics of full time employed, pure private practice, and hybrid practice models in addition to implications for each type of health care reform.

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room S105

Adult Reconstruction Hip VI: Bearings in Total Hip Arthroplasty / Non-Arthroplasty
Moderator(s): Douglas E. Padgett, MD, New York, NY
Richard E. White Jr, MD, Albuquerque, NM

8:00 AM **PAPER: 556**
◆ Matched Ceramic-Ceramic versus Ceramic-Polyethylene on the Contralateral Hip: A 30-Year Study
Philippe Hernigou, PhD, Creteil France, France
Alexandre Poignard, MD, Creteil, France
Charles Henri Flouzat-Lachaniette, MD, Creteil, France

with the first generation of alumina, better survivorship without osteolysis, easier revision, no re-revision, and no late dislocation were the advantages of AL/AL at 30 years follow-up.

8:06 AM **PAPER: 557**
Long Term Wear of Highly Cross-Linked Polyethylene in Total Hip Arthroplasty: A Ten-Year Double Blind RCT Using RSA
Patrick Garfield Roberts, MBBS, Oxford, United Kingdom
Geraint E. Thomas, MA, MBBS, Oxford, United Kingdom
Antony Palmer, MA, BMBCh, Oxford, United Kingdom
Duncan Whitwell, FRCS, Oxford, United Kingdom
Adrian Taylor, MBBS, FRCS, Oxford, United Kingdom
Peter McLardy-Smith, FRCS, Oxford, United Kingdom
Harinderjit Gill, PhD, Oxford/Oxon, United Kingdom
David W. Murray, MD, Oxford, United Kingdom
Sion Glyn-Jones, MA, MBBS, Oxford, United Kingdom

The wear of HXLPE is significantly lower than that of conventional UHMWPE after creep has occurred. This may decrease the incidence of failure due to osteolysis and aseptic loosening.

8:12 AM **PAPER: 558**
◆ RCT Comparison after a Minimal 8-year Follow Up of XLPE Versus Contemporary Annealed Polyethylene in THA
Jean Langlois, MD, Paris, France
Franck Atlan, MD, Paris, France
Jean-Pierre Courpied, PhD, Paris, France
Moussa Hamadouche, PhD, Paris, France

This paper compares the minimum 8-year penetration rate of highly cross-linked versus contemporary annealed sockets using the Martell system.

Discussion - 6 Minutes

8:24 AM **PAPER: 559**
The 8-year Wear of Highly Cross-Linked Polyethylene in Total Hip Arthroplasty for Developmental Dysplasia of the Hip
Atsuko Sato, MD, Tokyo, Japan
Masaaki Matsubara, MD, Tokyo, Japan
Akimasa Kimura, MD, Tokyo, Japan
Hiroyuki Ogawa, Tokyo, Japan

The radiographic results of highly cross-linked polyethylenee is reported in this, randomized, controlled trial. The highly cross-linked polyethylene liners has a significantly lower wear rate.

8:30 AM **PAPER: 560**
RSA Evaluation of Vitamin E Doped Highly Cross-linked Polyethylene and Acetabular and Femoral Component Stability
Meridith E. Greene, Boston, MA
Nanna Sillesen, Boston, MA
Audrey Nebergall, Boston, MA
Harry E. Rubash, MD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA
Charles R. Bragdon, PhD, Boston, MA
Henrik Malchau, MD, Boston, MA

Radiostereometric Analysis shows no significant migration of the cup or stem as well as encouraging early wear results of the Vitamin E doped highly cross-linked polyethylene at the 3 year follow-up.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Friday, March 22

8:36 AM **PAPER: 561**

Multi-center Analysis of Clinical Factors Affecting Polyethylene Wear in 945 Total Hip Arthroplasties

Christopher J. Barr, BS, Boston, MA
Charles R. Bragdon, PhD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA
John M. Martell, MD, Chicago, IL
Henrik Malchau, MD, Boston, MA

A number of factors affecting clinical outcomes of THA have been identified. We sought to evaluate the role of clinical and demographic factors in polyethylene wear in a large cohort of patients.

Discussion - 6 Minutes

8:48 AM **PAPER: 562**

Evidence of Permanent Oxidative Stabilization of Bearing Materials in Crosslinked Vitamin E Grafted Polyethylene

Gavin Braithwaite, PhD, Boston, MA
Stephen Spiegelberg, Boston, MA
Norman Stark, MSc, MBA, Winterthur, Switzerland
Ming Guo, PhD, Warsaw, IN
Alicia Rufner, MSc, Warsaw, IN
Andrew A. Freiberg, MD, Boston, MA

Evidence of permanent attachment of antioxidant in blended Vitamin E polyethylene points to the possibility of enhanced, longer-lived, protection in modern total arthroplasty bearings.

8:54 AM **PAPER: 563**

The Role of M1 and M2 Macrophage Polarization in Wear Particle-Induced Osteolysis

Allison J. Rao, BA, Stanford, CA
Emmanuel Gibon, MD, Paris, France
Christophe Nich, MD, PhD, Stanford, CA
R. Lane, PhD, Stanford, CA
Stuart B. Goodman, MD, Redwood City, CA

Macrophages in particle-induced osteolysis are polarized towards an M1 pro-inflammatory phenotype, which can be changed to an M2 bone preserving response with the addition of IL-4 .

9:00 AM **PAPER: 564**

Role of Direct Estrogen Receptor Signaling in Wear Particle-Induced Osteolysis

Christophe Nich, MD, PhD, Stanford, CA
Roberto Valladares, BS, Stanford, CA
Allison J. Rao, BA, Stanford, CA
Stefan Zwingenberger, Dresden, Germany
Chenguang Li, BS, Stanford, CA
Zhenyu Yao, PhD, Stanford, CA
Herve Petite, PhD
Moussa Hamadouche, PhD, Paris, France
Stuart B. Goodman, MD, Redwood City, CA

This study provides evidence that estrogen receptors play a prominent role in particle-induced osteolysis, by modulating pro-inflammatory signals from macrophages. These findings open a new field of p.

Discussion - 6 Minutes

9:12 AM **PAPER: 565**

Outcomes after Periacetabular Osteotomy are Comparable to Total Hip Arthroplasty in Young Patients

Benjamin L. Gray, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO

While still viewed by many as a risky procedure with complications, periacetabular osteotomy can produce similar outcomes to total hip arthroplasty without the issues of survivorship of implants.

9:18 AM **PAPER: 566**

Intermediate to Long-Term Results of Periacetabular Osteotomy in Patients Younger and Older Than Forty Years of Age

Hiroshi Ito, MD, Asahikawa, Japan
Hiromasa Tanino, MD, Asahikawa, Japan
Yasuhiro Yamanaka, MD, Asahikawa, Japan
Tatuya Sato, MD, Asahikawa, Japan
Yasuhiro Nishida, MD, Asahikawa, Japan
Takeo Matuno, MD, Asahikawa, Japan

Periacetabular osteotomy yielded similar results for two groups at five-year follow-up, however, the results of the older group deteriorated thereafter.

9:24 AM **PAPER: 567**

Obesity is a Major Risk Factor for Postoperative Complication after Periacetabular Osteotomy

Eduardo N. Novais, MD, Aurora, CO
Gorden D. Potter III, MD, Rochester, MN
Patrick Carry, Aurora, CO
john C. clohisy, MD, Saint Louis, MO
Perry L. Schoenecker, MD, Saint Louis, MO
robert T. trousdale, MD, Rochester, MN
rafael J. sierra, MD, Rochester, MN

In this retrospective study, the odds of developing a complication after a Periacetabular Osteotomy were 10 greater for obese (BMI>30) compared non-obese patients

Discussion - 6 Minutes

9:36 AM **PAPER: 568**

The Chiari Pelvic Osteotomy for Patients with Dysplastic Hips and Poor Joint Congruency

Hiroshi Ito, MD, Asahikawa, Japan
Hiromasa Tanino, MD, Asahikawa, Japan
Yasuhiro Yamanaka, MD, Asahikawa, Japan
Tatuya Sato, MD, Asahikawa, Japan
Yasuhiro Nishida, MD, Asahikawa, Japan
Takeo Matuno, MD, Asahikawa, Japan

Chiari pelvic osteotomy still has a role in those cases showing preoperative poor joint congruency in abduction even for hips with advanced osteoarthritis.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

9:42 AM **PAPER: 569**

Long-term (10-25 years) Results of Rotational Acetabular Osteotomy: Comparison according to the Tönnis Grade

Byung-Woo Min, MD, Daegu, Republic of Korea
Kyung-Jae Lee, MD, Daegu, Republic of Korea
Ki-Cheor Bae, MD, Daegu, Republic of Korea
Chul-Hyun Cho, MD, PhD, Joongu, Republic of Korea
Eun Seok Son, Daegu, Republic of Korea
Hyub Sakong, MD, Daegu, Republic of Korea
Yong-Wook Kwon, MD, Daegu, Republic of Korea
Dong-Hu Kim, MD, Daegu, Republic of Korea
Sin-Gi Kim, MD, Daegu, Republic of Korea

The long-term results of RAO was satisfactory in early osteoarthritic patients, but was not in more advanced cases. Early joint preserving procedure is essential in case of symptomatic dysplastic hip.

9:48 AM **PAPER: 570**

Long-term Results of Transtrochanteric Valgus Osteotomy for Middle-aged Patients Who had Advanced Osteoarthritis

Ryo Mori, MD, Horoshima, Japan
Yuji Yasunaga, MD, Hiroshima City, Japan
Takuma Yamasaki, MD, Hiroshima, Japan
Michio Hamanishi, MD, Hiroshima, Japan
Takeshi Shoji, MD, Hiroshima, Japan
Mitsuo Ochi, MD, PhD, Hiroshima, Japan

We reported more good clinical and radiological results after TVO with shelf procedure compared with TVO only.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room N427

Shoulder and Elbow IV: Shoulder Arthritis and Anatomic Shoulder Arthroplasty

Moderator(s): Kaveh R. Sajadi, MD, Lexington, KY
John W. Sperling, MD, MBA, Rochester, MN

8:00 AM **PAPER: 571**

A Longitudinal Observational Study of Cemented Total Shoulder Replacements with 15-20 Years of Follow Up

Patric Raiss, MD, Heidelberg, Germany
Markus Rickert, MD, PhD, Giessen, Germany
Thomas Bruckner, Dipl.Math., Heidelberg, Germany
Juan Pons de Villanueva, MD, Pamplona, Spain
Markus Loew, MD, Heidelberg, Germany
Gilles Walch, MD, Lyon, France

There is a significant and longitudinal increase in shoulder-function and pain-relief over a 15-20-year period. The clinical outcome reMEd stable for 15-years and was significantly worse thereafter.

8:06 AM **PAPER: 572**

Shoulder Arthroplasty for Rheumatoid Arthritis: 303 Consecutive Cases With Minimum Five-Year Follow Up

Jonathan D. Barlow, MD, Rochester, MN
Brandon J. Yuan, MD, Rochester, MN
William Harmsen, MS, Rochester, MN
Cathy D. Schleck, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Robert H. Cofield, MD, Rochester, MN

In rheumatoid patients with an intact rotator cuff, total shoulder arthroplasty appears to be the preferred procedure for pain relief, improvement in abduction, and lower risk of revision surgery.

8:12 AM **PAPER: 573**

Early-Term Results of Total Shoulder Arthroplasty Utilizing a Mini-Stem Humeral Component

Joshua Dines, MD, Great Neck, NY
Samuel A. Taylor, MD, New York, NY
Ekaterina Khmelnitskaya, New York, NY
Asheesh Bedi, MD, Ann Arbor, MI
David M. Dines, MD, Great Neck, NY

Early results using a short-stem humeral component demonstrated excellent results. The use of these implants with less reaming, possible less blood loss and ease of use in certain anatomical situation.

Discussion - 6 Minutes

8:24 AM **PAPER: 574**

Survivorship of Hemiarthroplasty with Concentric Glenoid Reaming for Glenohumeral Arthritis

Kenneth Kearns, MD, New York, NY
Peter S. Johnston, MD, Leonardtown, MD
Mark D. Lazarus, MD, Philadelphia, PA
Charles L. Getz, MD, Newton Square, PA
Gerald R. Williams Jr, MD, Philadelphia, PA

Ream and Run provides modest improvements in pain and function; however, patients require revision surgery on average less than 1 year postoperative rather than previous reports of 2 years.

8:30 AM **PAPER: 575**

Biologic Resurfacing of the Glenoid with Humeral Head Resurfacing for Glenohumeral Arthritis in the Young Patient

Stephanie Muh, MD, Birmingham, MI
Benjamin Szerlip, DO, Lyndhurst, OH
John Paul Wanner, BS, Wauwatosa, WI
Robert J. Nowinski, DO, Westerville, OH
Reuben Gobezie, MD, Cleveland, OH

The clinical outcome of humeral head resurfacing with soft tissue resurfacing of the glenoid has not yielded encouraging results, as both pain and function are not significantly improved.

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Friday, March 22

8:36 AM **PAPER: 576**

The Outcomes of Full Thickness Rotator Cuff Repair during Anatomic Total Shoulder Arthroplasty

Juan P. Simone, MD, Buenos Aires, Argentina
Philipp N. Streubel, MD, Rochester, MN
George S. Athwal, MD, London, ON, Canada
John W. Sperling, MD, MBA, Rochester, MN
Robert H. Cofield, MD, Rochester, MN

Our results showed that full thickness rotator cuff repairs should be performed during total shoulder arthroplasty for patients with small sized tears.

Discussion - 6 Minutes

8:48 AM **PAPER: 577**

Observation of Radiolucent Lines on Initial Post-op Radiographs using Modern Pegged Glenoid Design

Jonathan C. Levy, MD, Fort Lauderdale, FL
Sara Blum, PA-C, Fort Lauderdale, FL
Christopher R. Anderson, MS, Sunrise, FL

Using modern surgical techniques and peg glenoid components, initial post-operative radiolucent lines can be eliminated. Incomplete seating may be related to incomplete correction of glenoid version.

8:54 AM **PAPER: 578**

Prognostic Factors for Positive Bacterial Cultures in a Large Shoulder Arthroplasty Revision Series

Paul Pottinger, MD, Seattle, WA
Susan M. Butler-Wu, PhD, Seattle, WA
Moni B. Neradilek, MS, Seattle, WA
Andrew L. Merritt, MD, New York, NY
Alexander Bertelsen, PA, Lynnwood, WA
Jocelyn L. Jette, BS, Seattle, WA
Winston J. Warme, MD, Bellevue, WA
Frederick A. Matsen III, MD, Seattle, WA

Pre- and intra-op factors prognosticate the risk of P. acnes positive culture. This evidence is clinically relevant regarding the critical question of prosthesis removal vs retention during revision.

9:00 AM **PAPER: 579**

Infection Rates and Frozen Sections in Revision Shoulder and Elbow Surgery Holding Cultures 21 Days

Michael P. Beckett, MD, Santa Monica, CA
John M. Itamura, MD, Los Angeles, CA

With cultures held 21 days in revision shoulder/elbow surgery, Propionibacterium acnes, grew at an average of 12.5 days with 34% growing after 14 days, with poor correlation to frozen sections.

Discussion - 6 Minutes

9:12 AM **PAPER: 580**

Sensitivity of Frozen Section Histology for Identifying P. acnes Infections in Revision Shoulder Arthroplasty

Matthew Grosso, BS, Roslyn, NY
Salvatore J. Frangiamore, MD, MS, Cleveland, OH
Eric T. Ricchetti, MD, Cleveland, OH
Geraldine Hall, Cleveland, OH
Thomas W. Bauer, MD, PhD, Cleveland, OH
Joseph P. Iannotti, MD, PhD, Cleveland, OH

Although better than preoperative serum tests, intraoperative frozen section histology was not reliable in determining the presence of a P. acnes infection in revision shoulder arthroplasty

9:18 AM **PAPER: 581**

Clinical Presentation of Hemolytic Strains of Propionibacterum acnes Shoulder Infections

Scott Nodzo, MD, Buffalo, NY
Donald W. Hohman Jr, MD, Buffalo, NY
John K. Crane, MD, PhD, Buffalo, NY
Thomas Duquin, MD, Buffalo, NY

We evaluated the clinical presentation of orthopedic shoulder infections with hemolytic and non-hemolytic strains of Propionibacterium acnes

9:24 AM **PAPER: 582**

Propionibacterium acnes as a Pathogen in Shoulder Surgery-Antibiotic Sensitivities to Guide Treatment

Donald W. Hohman Jr, MD, Buffalo, NY
Scott Nodzo, MD, Buffalo, NY
John K. Crane, MD, PhD, Buffalo, NY
Cathy M. Buyea, Orchard Park, NY
Philip Stegemann, MD, Buffalo, NY
Thomas Duquin, MD, Buffalo, NY

This study investigated the antibiotic susceptibility patterns of P. acnes isolates from shoulder surgery infections and the biochemical diversity between the two groups.

Discussion - 6 Minutes

9:36 AM **PAPER: 583**

Inhibition of Chondrocyte Death Following Exposure to Commonly Used Anesthetics

Allison J. Rao, BA, Stanford, CA
Tyler Johnston, MS, BA, Palo Alto, CA
R L. Smith, PhD, Stanford, CA
John G. Costouros, MD, Los Gatos, CA

This is the first report demonstrating inhibition of chondrocyte apoptosis following exposure to commonly used anesthetics.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

9:42 AM **PAPER: 584**

Proteomic Analysis of Shoulder Osteoarthritis

John Paul Wanner, BS, Wauwatosa, WI
Roopa Shree Subbaiah, PhD, Cleveland, OH
Yousef Shishani, MD, Cleveland, OH
Olena Skomorovska-Prokvolit, PhD, Cleveland, OH
Robert J. Gillespie, MD, Shaker Heights, OH
Eric Boilard, PhD, QC City, Canada
Sujatha Mohan, Yokohama, Japan
Masaru Miyagi, Cleveland, NY
Reuben Gobezie, MD, Cleveland, OH

Employing proteomic and bioinformatic analysis, this study examined the proteome of osteoarthritic shoulders at varying stages of OA progression to identify biomarkers and dysregulated pathways.

9:48 AM **PAPER: 585**

The Effect of Local Anesthetics on Synoviocytes: An Indirect Contributor to Chondrolysis?

Hillary Braun, BA, Redwood City, CA
Benjamin T. Busfield, MD, Antioch, CA
Hyeon Joo Kim, PhD
Gaetano J. Scuderi, MD, Jupiter, FL
Jason L. Dragoo, MD, Redwood City, CA

0.5% bupivacaine with epinephrine caused significant synoviocyte death. 0.5% bupivacaine alone produced a significant release of matrix metalloprotease which may contribute indirectly to chondrolysis.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room N426

Trauma V: Lower Extremity: Knee and Tibia

Moderator(s): Thomas F. Higgins, MD, Salt Lake City, UT
Bruce Ziran, MD, Atlanta, GA

8:00 AM **PAPER: 586**

Stability of Posteromedial Tibial Plateau Fracture Fragment - Size Does Matter

Igor Immerman, MD, Sacramento, CA
Danny F. Martinez, MS, New York, NY
Vanessa G. Cuellar, MD, New York, NY
Sonya Khurana, MD, Freehold, NJ
Scott R. Hadley, MD, New York, NY
Peter S. Walker, PhD, New York, NY
Kenneth A. Egol, MD, New York, NY

Stability of the knee joint and posteromedial tibial plateau fracture fragment depends on both fragment size and knee flexion.

8:06 AM **PAPER: 587**

Meniscal Tears in Tibial Plateau Fractures as Predicted by Measuring Internal Depression on CT Scans

Bryan Whitfield, MD, Washington, DC
Peter Alexandrov, MS, Washington, DC
Konstantinos Triantafillou, MD, Arlington, VA
Cary C. Schwartzbach, MD, Annandale, VA

In analyzing tibial plateau fractures and CT scans, we found a new measurement, internal depression, which creates a better model of predicting which fractures have a concurrent meniscal tear.

8:12 AM **PAPER: 588**

Tibial Plateau Fractures and Compartment Syndrome: Are Infection Rates Increased and Does the Timing of ORIF Matter?

Andrew G. Dubina, Millersville, MD
Theodore T. Manson, MD, Bel Air, MD
Robert V. O'Toole, MD, Baltimore, MD

Tibial plateau fractures with ipsilateral compartment syndrome are a clinical challenge with conflicting data regarding increased rates of infection versus the ideal time for operative fixation.

Discussion - 6 Minutes

8:24 AM **PAPER: 589**

◆ Diagnosing Acute Compartment Syndrome: Clarity at Last!

Kirsten G. Elliott, MRCS, Aberdeenshire, United Kingdom
Alan J. Johnstone, MD, Aberdeen, United Kingdom

A prospective clinical trial showing intramuscular pH outperforms pressure variables in diagnosing Acute Compartment Syndrome.

8:30 AM **PAPER: 590**

Delayed Primary Closure of Fasciotomy Wounds in the Lower Leg: Will They Close Next Time?

Trevor Owen, MD, Roanoke, VA
Michael J. Weaver, MD, Boston, MA
Jordan Morgan, Cambridge, MA
Mitchel B. Harris, MD, Boston, MA

Probability of delayed primary closure of fasciotomy wounds of the lower leg in the setting if tibial fractures decreases with each subsequent procedure.

8:36 AM **PAPER: 591**

Blowing Smoke: A Meta-Analysis of Smoking on Fracture Healing and Post-Operative Infection

Mara L. Schenker, MD, Philadelphia, PA
John A. Scolaro, MD, Seattle, WA
Sarah M. Yannascoli, MD, Philadelphia, PA
Keith D. Baldwin, MD, Sicklerville, NJ
Samir Mehta, MD, Philadelphia, PA
Jaimo Ahn, MD, PhD, Philadelphia, PA

Smoking was associated with higher overall nonunion rates and a trend towards longer mean healing times in patients with fractures.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Friday, March 22

8:48 AM **PAPER: 592**

Fractures Due to Gunshot Wounds: Do Retained Bullet Fragments Affect Union?

John Riehl, MD, Orlando, FL
Keith P. Connolly, BS, Orlando, FL
George J. Haidukewych, MD, Orlando, FL
Kenneth J. Koval, MD, Orlando, FL

This study examines the effect of retained bullet material near the fracture site on time to fracture union.

8:54 AM **PAPER: 593**

Ballistic Fractures of the Lower Extremities: A Review of Soft Tissue Complications from a Level I Trauma Center

James C. Black, MD, Atlanta, GA
Thomas J. Moore, MD, Atlanta, GA
Michael C. Yonz, MD, Lexington, KY
Whitney A. Barnes, Savannah, GA

The anatomic location of ballistic fractures in the lower extremities can predict an increased risk of infection, vascular injury and the development of compartment syndrome.

9:00 AM **PAPER: 594**

Prevalence and Risk Factors of Reinterventions following Reamed Intramedullary Tibia Nailing

Petros Z. Stavrou, N. Erythrea, Athens, Greece
Stylianos Theocharakis, Voula, Athens, Greece
Suribabu Gudipati, MBBS, MRCS, Wakefield, United Kingdom
Vincenzo Ciriello, Roma, Italy
Theodoros Tosounidis, Thessaloniki, Greece
Nikolaos K. Kanakaris, MD, Leeds, United Kingdom
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom

Prevalence and risk factors of reinterventions following Reamed Intramedullary Tibia Nailing.

Discussion - 6 Minutes

9:12 AM **PAPER: 595**

Twelve to Twenty-Two Year Outcomes of Tibial Shaft Fractures in 1,509 Patients

Leela C. Biant, FRCS (Ortho), MS, Edinburgh, United Kingdom
Vittoria Bucknall, BMSc, MBChB, Edinburgh, Scotland, United Kingdom
Clare L. Connelly, BMedSCi (Hons), Edinburgh, United Kingdom
Margaret M. McQueen, MD, Edinburgh, United Kingdom
Charles M. Court-Brown, MD, Dalkeith, United Kingdom

A 12 to 22 year follow up of 1509 consecutive patients with tibial shaft fracture demonstrates the negative impact on long-term function and economic outcomes.

9:18 AM **PAPER: 596**

Improved Outcomes with Antibiotic Cement Nails in the Treatment of Osteomyelitis

Daniel S. Chan, MD, Tampa, FL
Gerald E. Alexander, MD, Tampa, FL
Ian Smithson, MD, Lutz, FL
Kristopher Collins, MD, Tampa, FL
Henry C. Sagi, MD, Tampa, FL
Roy W. Sanders, MD, Tampa, FL

Reaming with the addition of antibiotic impregnated cement nails resulted in a markedly lower rate of osteomyelitis recurrence when compared to reaming alone, with an overall relative decrease of 76%.

9:24 AM **PAPER: 597**

Can We Place an Intramedullary Nail in Infected Non-unions of Tibia?

Professor Shahabuddin, Peshawar, Pakistan
Faseeh Shahab, MBBS, Peshawar, Pakistan

Infection and non-union are two dreaded complications for any procedure, but a combination is a nightmare. We present a paper in which infected non-unions of tibia were treated with SIGN IM-nails.

Discussion - 6 Minutes

9:36 AM **PAPER: 598**

Patella Fracture Fixation with Suture and Wire: You Reap What You Sew

Daniel O. Howard, BS, New York, NY
Alexa N. Monroy, BS, New York, NY
Roy Davidovitch, MD, New York, NY
Nirmal C. Tejwani, MD, New York, NY
Kenneth A. Egol, MD, New York, NY

We investigate outcomes of patients receiving suture intervention following inferior pole patella fractures.

9:42 AM **PAPER: 599**

Effect of Body Mass Index on Complications after Traumatic Extensor Mechanism Surgery

Ronald A. Navarro, MD, Rolling Hills, CA
Mary Helen Black, MS, PhD, Pasadena, CA
Bonnie Li, MS, Pasadena, CA
Wesley H. Tran, MD, Irvine, CA
Elliot Mendelsohn, MD, Manhattan Beach, CA
Christopher M. Hoshino, MD, Baltimore, MD

Higher BMI may be protective of complications after extensor mechanism injury. While contrary to conventional orthopaedic wisdom, this relationship has been reported in other surgical literature.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

9:48 AM **PAPER: 600**

◆ Functional Outcomes after Patella Fracture: Open Reduction Internal Fixation versus Partial Patellectomy

Nicolas Bonnaig, MD, Cincinnati, OH
Michael T. Archdeacon, MD, Cincinnati, OH
Earnest C. Casstevens, Cincinnati, OH
Camille Connelly, MD, Cincinnati, OH

This study compares functional outcome between patients treated with open reduction internal fixation to patients treated with partial patellectomy following isolated patella fractures.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room S102

Hand and Wrist II: Wrist

Moderator(s): George W. Balfour, MD, Van Nuys, CA
Geoffrey H. Johnston, MD, Saskatoon, SK, Canada

8:00 AM **PAPER: 601**

Cast Immobilization With and Without Immobilization of the Thumb for Nondisplaced Scaphoid Waist Fractures

Geert Buijze, MD, PhD, Boston, Netherlands
J.C. Goslings, MD, PhD, Amsterdam, Netherlands
Steven Rhemrev, Den Haag, Netherlands
Alexander Weening, MD, Amsterdam, Netherlands
Bart Van Dijkman, MD, Almere, Netherlands
Job N. Doornberg, MS, Amsterdam, Netherlands
David C. Ring, MD, Boston, MA

Immobilization of the thumb appears unnecessary for CT or MRI-confirmed nondisplaced fractures of the scaphoid.

8:06 AM **PAPER: 602**

Predicting Union and Time to Union in a Cohort of Acute Scaphoid Fractures

Ruby Grewal, MD, London, ON, Canada
Nina Suh, MD, Toronto, ON, Canada
Joy C. MacDermid, PhD, London, ON, Canada
Ruby Grewal, MD, London, ON, Canada

CT Scans can be used to identify features that increase scaphoid non-union risk and time to union. When these features can be excluded, excellent union rates can be expected with 7 weeks of casting.

8:12 AM **PAPER: 603**

The Importance of Central Screw Placement in the Distal and Proximal Pole in Scaphoid Waist Fractures

Geert Meermans, MD, Berchem, Belgium
Francis van Glabbeek, PhD, Edegem, Belgium
Marc Braem, DDS, PhD, Antwerpen, Belgium
Frederik Verstreken, MD, Deurne, Belgium

Central and eccentric screws in fixation of scaphoid waist fractures were compared. Central placement of the screws in the proximal and distal pole resulted in greater stiffness and load to failure.

Discussion - 6 Minutes

8:24 AM **PAPER: 604**

Outcomes of Open Reduction and Internal Fixation of Acute Proximal Pole Scaphoid Fractures

David M. Brogan, MD, Rochester, MN
Steven L. Moran, MD, Rochester, MN
Alexander Yong Shik Shin, MD, Rochester, MN

Displacement and mechanism of proximal pole scaphoid injuries have the most significant effects on early rates of union after ORIF of acute proximal pole scaphoid fractures.

8:30 AM **PAPER: 605**

Recommendation of a Minimal Set of Core Domains for Use in Distal Radius Fracture Clinical Practice and Research

Amy Hoang-Kim, MSc, Toronto, ON, Canada
Amy L. Ladd, MD, Palo Alto, CA
Joy C. MacDermid, PhD, London, ON, Canada
Francesco Pegreffi, MD, PhD, Bologna, Italy
Dorcas Beaton, OT, Toronto, ON, Canada

There are disputes on how to best incorporate the patient's preferences and concerns, the purpose of our consensus-based approach was to define a core set of outcomes to be included in distal radius.

8:36 AM **PAPER: 606**

Treatment Patterns, Outcomes and Cost of Care for Distal Radius Fracture Patients in the Medicare Population

Scott Farner, MD, Louisville, KY
Arthur L. Malkani, MD, Louisville, KY
Edmund Lau, MS, Menlo Park, CA
Judd Day, PhD, Philadelphia, PA
Jorge A. Ochoa, PhD, Bellevue, WA
Kevin Ong, Philadelphia, PA

A 5% Medicare database sample from 1997-2009 was utilized to compare trends, morbidity, and cost, including complications, associated with percutaneous and open treatment of distal radius fractures.

Discussion - 6 Minutes

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Friday, March 22

8:48 AM **PAPER: 607**

Biomechanical Study of Distal Locking Screw Configuration of Distal Radial Volar Locked Plating

Samuel Crosby, MD, Nashville, TN
Nicholas D. Fletcher, MD, Atlanta, GA
Erwin R. Yap, MS, Arlington, VA
Donald H. Lee, MD, Nashville, TN

In a fracture model, there is no significant biomechanical difference in filling half versus filling all of the distal locking screws in volar locked plating of the distal radius.

8:54 AM **PAPER: 608**

Utility of Post-Operative Radiographs in Clinical Management of AO A-Type Distal Radius Fractures

Dexter Louie, BA, Boston, MA
Stephen J. Huffaker, MD, Jamaica Plain, MA
Brandon E. Earp, MD, Boston, MA
Philip E. Blazar, MD, Boston, MA

Review of post-operative radiographs and clinic notes after A-type distal radius fracture stabilization with volar locking plate (VLP) found that 94.4% did not contribute to clinical decision-making.

9:00 AM **PAPER: 609**

Temporary Loss of Normal Thumb Flexion after Volar Plate Fixation of Distal Radius Fractures

Brian Chilelli, MD, Chicago, IL
Ronak Patel, MD, Chicago, IL
David M. Kalainov, MD, Chicago, IL

Temporary loss of normal thumb flexion following volar plating of distal radius fractures may be a common phenomenon and is likely caused by intraoperative retraction and soft tissue stripping.

Discussion - 6 Minutes

9:12 AM **PAPER: 610**

Metaanalysis of Functional Outcomes of Distal Radius Fractures: Internal Versus External Fixation Techniques

Chinyelu Menakaya, MB, BS, Yorkshire, United Kingdom
Rishi Malhotra, MBBS, Hull, United Kingdom
Muhammed Shah, MBBS, High Wycombe, United Kingdom
Helen Ingoe, Northumberland, United Kingdom
Timothy Boddice, MBBS, MSc, Hull, United Kingdom
Martin Bland, Heslington, United Kingdom
Amr Mohsen, FRCS (Ortho), FRCS, Hull, United Kingdom

Current literature supports better functional outcome following internal fixation over external fixation for distal radius fractures assessed with DASH.

9:18 AM **PAPER: 611**

Outcomes of Scapholunate Instability after Distal Radius Volar Plating

VA M. Mooney Jones, MD, Pittsburgh, PA
Nathan Everding, MD, Shaker Heights, OH
Jason M. Desmarais, Boston, MA
Maximillian C. Soong, MD, Peabody, MA

Static scapholunate instability is uncommon despite early motion after internal fixation of distal radius fractures. There was no significant benefit from ligament repair in the intermediate term.

9:24 AM **PAPER: 612**

Arthroscopic Treatment of Dorsal Wrist Syndrome

Ramesh Srinivasan, MD, Ann Arbor, MI
Robert W. Wysocki Jr, MD, Chicago, IL
Deeptee Jain, BA, Durham, NC
Marc J. Richard, MD, Durham, NC
Fraser J. Leversedge, MD, Durham, NC
David S. Ruch, MD, Durham, NC

Description of, management and clinical outcomes after arthroscopic treatment of Dorsal Wrist Syndrome (DWS).

Discussion - 6 Minutes

9:36 AM **PAPER: 613**

Proximal Row Carpectomy: Minimum 20-year Follow Up

Lindley B. Wall, MD, Dallas, TX
Michael L. DiDonna, MD, Carmel, IN
Thomas R. Kiefhaber, MD, Cincinnati, OH
Peter J. Stern, MD, Cincinnati, OH

PRC provides continued satisfaction and good wrist function at a minimum of twenty years, with a survival rate of 65%. Degenerative radiographic changes do not correlate with clinical outcome.

9:42 AM **PAPER: 614**

Comparison of the Midcarpal Contact Biomechanics after Radioscapholunate Arthodesis & Distal Scaphoid Excision

Adam Holleran, MD, Orange, CA
Ryan Quigley, BS, Long Beach, CA
Gregory H. Rafijah, MD, Orange, CA
Thay Q. Lee, PhD, Long Beach, CA

The radioscapholunate fusion increased average and peak pressures at the scaphotrapezotrapezoidal and luncapitate joint. Distal scaphoid excision further increased average and peak pressures at the lu.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

9:48 AM **PAPER: 615**

Total Wrist Arthrodesis vs. Total Wrist Arthroplasty for the Treatment of Posttraumatic Arthritis

James Watt, DO, Fort Walton Beach, FL
Jason Nydick, DO, Pensacola Beach, FL
Bailee Williams, BS, Temple Terrace, FL
Alfred V. Hess, MD, Temple Terrace, FL

This study compares total wrist arthroplasty in 13 patients to wrist arthrodesis in 12 patients for the treatment of posttraumatic arthritis.

Discussion - 6 Minutes

PAPER PRESENTATION

8:00 AM — 10:00 AM
Room S103

Foot and Ankle IV: Working Our Way Down: Forefoot and Midfoot

Moderator(s): Patrick B. Ebeling, MD, Savage, MN
Justin Greisberg, MD, New York, NY

8:00 AM **PAPER: 616**

Degenerative Osteoarthritis of the Second Metatarsophalangeal Joint Second Toe Rigidus

Jae Cho, MD, Seoul, Republic of Korea
Woo Chun Lee, Seoul, Republic of Korea
Hong Joon Choi, MD, Seoul, Republic of Korea
Ju P. Seok, MD, Seoul, Republic of Korea
Chulhyun Park, MD, Daegu, Republic of Korea
Kang Lee, MD, Seoul, Republic of Korea
Jiyong Ahn, MD, Seoul, Republic of Korea

Second toe rigidus should be considered a diagnosis in patients with painful limitation of dorsiflexion of the second metatarsophalangeal joint without evidence of Freiberg's infraction and trauma.

8:06 AM **PAPER: 617**

Novel Surgical Treatment for Dislocation of the Lesser Metatarsophlangeal Joint Associated with Hallux Valgus

Hiroaki Shima, MD, Osaka, Japan
Ryuzo Okuda, MD, Takatsuki, Japan
Toshito Yasuda, MD, Takatsuki City, Japan
Tsuyoshi Jotoku, MD, Osaka, Japan
Takashi Hida, MD, Osaka, Japan

Our procedure for hallux valgus with dislocation of the lesser MTP joint achieved good clinical and radiological outcomes.

8:12 AM **PAPER: 618**

Radiographic Evaluation of Plantar Plate Injury: An In Vitro Biomechanical Study

Norman Waldrop III, MD, Mountain Brook, AL
Chris A. Zirker, MSc, Vail, CO
Coen A. Wijdicks, PhD, Vail, CO
Robert F. LaPrade, MD, PhD, Vail, CO
Thomas O. Clanton, MD, Vail, CO

Turf toe is a debilitating condition requiring different treatment depending on the severity of injury. Our study is the first to quantify the extent of the injury based on radiographic measurements.

Discussion - 6 Minutes

8:24 AM **PAPER: 619**

Reliability and Relationship of Radiographic Measurements in Hallux Valgus

Kyoung Min Lee, MD, Sungnam, Republic of Korea
Chin Y. Chung, MD,PhD, Seoul, Republic of Korea
Ki Hyuk Sung, MD, Kyungki, Republic of Korea
Seung Yeol Lee, MD, Seongnam, Republic of Korea
In H. Choi, MD, Seoul, Republic of Korea
Tae-Joon Cho, Seoul, Republic of Korea
Won Joon Yoo, MD, Seoul, Republic of Korea
Moon Seok Park, MD, Sungnam, Republic of Korea

We suggest using hallux valgus angle, intermetatarsal angle, interphalangeal angle, sesamoid rotation angle, and first metatarsal protrusion distance considering their reliability and prediction of the deformity.

8:30 AM **PAPER: 620**

Geographic and Demographic Variability in Cost and Surgical Correction of Hallux Valgus

Rodney Terrell, MD, Los Angeles, CA
William Pannell, BS, Los Angeles, CA
Scott Montgomery, MD, Venice, CA
Bayan Aghdasi, BA, Clovis, CA
Jeffrey C. Wang, MD, Sherman Oaks, CA
Nelson F. SooHoo, MD, Los Angeles, CA

A database search was performed to determine geographic and demographic variability in cost and surgical correction of hallux valgus.

8:36 AM **PAPER: 621**

Effects of First Ray Instability on Midfoot Joint Forces and Forefoot Ground Force Distribution: A Cadaver Study

John C. Tanner III, MD, Grandville, MI
Travis Burgers, PhD, Grand Rapids, MI
Cameron Patthanacharoenphon, MD, Grand Rapids, MI
Matthew J. Dubiel, MD, Grand Rapids, MI
James Mason, PhD, Grand Rapids, MI
Donald R. Bohay, MD, Grand Rapids, MI
John G. Anderson, MD, Grand Rapids, MI

A cadaveric assessment of sequential sectioning of select midfoot ligaments and their effect on forefoot ground force.

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Friday, March 22

8:48 AM **PAPER: 622**

Prospective Randomized Comparative Study on V-Y and Pants-Over-Vest Capsulorrhaphy in Chevron and Scarf Osteotomy

Giovanni A. Matricali, MD, Zaventem, Belgium
Gert Vermeersch, MD, Vilvoorde, Belgium
Steffen Fieuws, PhD, Leuven, Belgium
Ellen Busschots, MD, Pellenberg, Belgium
Kevin Deschamps, MD, Pellenberg, Belgium

No statistical significant differences in loss of correction were seen between the V-Y and the pants-over-vest capsulorraphy groups for both the chevron and the scarf osteotomy.

8:54 AM **PAPER: 623**

The Effect of Metatarsus Adductus on Outcomes of the Scarf Bunionectomy

Erin E. Klein, DPM, MS, Mount Prospect, IL
Lowell S. Weil, DPM, Lake Forest, IL
Lowell S. Weil Sr, DPM, Des Plaines, IL
Jessica M. Knight, DPM, Des Plaines, IL
Mitchell B. Sheinkop, MD, Chicago, IL

A subtle increase in the metatarsus angle significantly decreased objective outcomes in patients who undergo a scarf bunionectomy.

9:00 AM **PAPER: 624**

Effect of Scarf Osteotomy on the First Cuneometatarsal Joint

Jean M. Brilhault, MD, Tours, France
Vincent Noël, MD, Tours, France

This retrospective study conducted on 49 cases of hallux valgus treated with scarf osteotomy documented modification of the first cuneometatarsal join thus potentially narrowing its indications.

Discussion - 6 Minutes

9:12 AM **PAPER: 625**

Percutaneous Chevron Osteotomy; Description of a New Technique and Two-Year Follow Up vs. Standard Open Technique

Sureshan Sivananthan, MD, London, United Kingdom
Samer S. Morgan, MRCS, Wigan, United Kingdom
Ibrahim Roushdi, MBBS, MRCS, Reigate, United Kingdom
Simon Palmer, FRCS, Angmering, West Sussex, United Kingdom

Minimally Invasive Chevron Osteotomy is as effective as the open surgical technique in patients with hallux valgus angle of 18˚ or less.

9:18 AM **PAPER: 626**

Base Opening Wedge Osteotomies for HAV Correction: Does it Increase the Length of the 1st Metatarsal?

Bret Smith, DO, Lexington, SC

Review of BOW osteotomies of the 1st MT for HAV correction and the effect on MT length.

9:24 AM **PAPER: 627**

Proximal Supination Osteotomy of the First Metatarsal for Hallux Valgus

Toshito Yasuda, MD, Takatsuki City, Japan
Ryuzo Okuda, MD, Takatsuki, Japan
Tsuyoshi Jotoku, MD, Osaka, Japan
Hiroaki Shima, MD, Takatsuki City, Japan
Takashi Hida, MD, Osaka, Japan

We newly devised a proximal supination osteotomy of the first metatarsal for hallux valgus. This was an effective procedure for correction of hallux valgus and could provide the low rate of recurrence.

Discussion - 6 Minutes

9:36 AM **PAPER: 628**

Revision Metatarsophalangeal (MTP) Arthrodesis for Failed MTP Arthroplasty

Christopher E. Gross, MD, Chicago, IL
Andrew R. Hsu, MD, Chicago, IL
Johnny L. Lin, MD, Chicago, IL
George B. Holmes Jr, MD, Lisle, IL
Simon Lee, MD, Chicago, IL

While the salvage arthrodesis for failed silastic implants have generally favorable satisfaction rates and is a power tool in treating this painful condition, they are fraught with complications.

9:42 AM **PAPER: 629**

Can We Justify the Use of Pre-Contoured Plates for First Metatarsophalangeal Joint Arthrodesis?

Stephanie W. Mayer, MD, Durham, NC
Nicole Zelenski, BS, Durham, NC
Mark E. Easley, MD, Durham, NC
James K. DeOrio, MD, Durham, NC
James A. Nunley II, MD, Durham, NC

There is no difference in overall rate of union, time to union, complications, pain, or function between non-contoured and pre-contoured plates for first metatarsophalangeal joint fusion.

9:48 AM **PAPER: 630**

Fluoroscopic Guided Steroid and Local Anaesthetic Injection for Tarso-metatarsal Osteoarthritis

Kamrul Hasan, MBBS, PhD, Essex, United Kingdom
Kamrul Hasan, MBBS, PhD, Essex, United Kingdom
Suzie Cro, MSc, BS, London, United Kingdom
Dishan Singh, ChB, Middlesex, United Kingdom
Chandra Pasapula, Norfolk, United Kingdom

There are no reports in the literature on the role of steroid and local anaesthetic injection for tarso-metatarsal joint (TMTJ) arthritis. A retrospective review of TMTJ injections performed in our department.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

INSTRUCTIONAL COURSE LECTURE

8:00 AM — 11:00 AM

481 **Current Management of Posterior Wall Fractures of the Acetabulum**

Lakeside, Room E350

Moderator: Berton R. Moed, MD, Saint Louis, MO
Philip J. Kregor, MD, Nashville, TN
Mark C. Reilly, MD, Newark, NJ
Michael D. Stover, MD, Chicago, IL
Mark S. Vrahas, MD, Boston, MA

Geared to community-based orthopaedic surgeons and those in training, will review posterior wall acetabular fracture radiology, surgical indications, surgical techniques, pitfalls and complications.

482 **Contemporary Management of Metastatic Bone Disease: Tips and Tools of the Trade for General Practitioners**

Lakeside, Room E351

Moderator: Robert H. Quinn, MD, San Antonio, TX
Joseph Benevenia, MD, Newark, NJ
Sigurd H. Berven, MD, San Francisco, CA
R L. Randall, MD, Salt Lake City, UT
Kevin A. Raskin, MD, Boston, MA

Contemporary treatment methods and modalities for metastatic bone disease including indications, adjuvant agents, less invasive techniques and tips and preferences of the experts. Audience participation encouraged; clinical cases welcome.

ORTHOPAEDIC REVIEW COURSE

8:00 AM — 5:35 PM

◆ 490 **Orthopaedic Review Course**

Lakeside, Room E354a

Moderator: David L. Skaggs, MD, Los Angeles, CA
Donald A. Wiss, MD, Los Angeles, CA
Steven L. Haddad, MD, Glenview, IL
Mark C. Miller, PhD, Pittsburgh, PA
Martin I. Boyer, MD, Saint Louis, MO
Ken Yamaguchi, MD, Chesterfield, MO
William C. Warner Jr, MD, Germantown, TN
Jeffrey R. Sawyer, MD, Germantown, TN
John M. Flynn, MD, Philadelphia, PA
Jens R. Chapman, MD, Seattle, WA
Todd J. Albert, MD, Philadelphia, PA
Joseph M. Lane, MD, New York, NY

Review of current knowledge on diagnosis and management of clinical problems from a nationally accepted orthopaedic practice perspective • Major sections of the course are pediatrics, upper and lower extremities, tumors and metabolic bone disease and spine • Each section includes discussion of fractures, complications, infections and trauma Please note, the Orthopaedic Review Course is not intended as a review for the Board Examination, it is a review of orthopaedic basics.
For more details see page 52.

INSTRUCTIONAL COURSE LECTURE

10:30 AM — 11:30 AM

FD7 **Using Social Media in Your Practice**

Room N227a

Moderator: Tony Edwards, Omaha, NE
Bill Champion, Omaha, NE

This session will focus on utilizing social media in your medical practice. Learn tips and tricks that you can use to enhance your marketing through the use of Facebook, Twitter and other forms of social media.

SYMPOSIUM

10:30 AM — 12:30 PM
Grand Ballroom

New Concepts Regarding Athletic Induced Mild Traumatic (Concussion) and Catastrophic Brain Injuries (W)
Moderator: Barry P. Boden, MD, Rockville, MD

Present a state of the art review of concussions and catastrophic brain injuries in sports. Review the epidemiology, mechanisms of injury, pathophysiology, injury susceptibility profiles, management, and prevention strategies for brain injury. The effectiveness of neurocognitive testing via Immediate Postconcussion Assessment and Cognitive Testing (ImPACT) and the head impact telemetry system (HITS) as clinical and research tools will be discussed. Best practices, policies, and education discussed with particular attention to return to play guidelines.

I. Epidemiology of Concussions, Legislative Update
Dawn Comstock, PhD, Columbus, OH

II. Catastrophic Head Injuries
Barry P. Boden, MD, Rockville, MD

III. Neurocognitive Testing
Michael W. Collins, PhD, Pittsburgh, PA

IV. Head Impact Telemetry System
Richard Greenwald, PhD, Lebanon, NH

V. Profile Characteristics for Head Injury, Treatment of Concussions, and Variance of Treatment
Joseph S. Torg, MD, Saint Davids, PA

V. On-Field Injury Preparedness, Balance Assessment, Chronic Traumatic Encephalopathy
Kevin M. Guskiewicz, MD, ATC-L, Chapel Hill, NC

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Friday, March 22

SYMPOSIUM
10:30 AM — 12:30 PM
Room S406

Changing the Surgical Education Paradigm: How Do You Teach Someone to Have the Surgical Skills of an Orthopaedic Surgeon? (X)
Sponsoring Society: American Orthopaedic Association
Moderator: Ranjan Gupta, MD, Orange, CA

The reduction in resident work hours and an increased emphasis on core competencies that include ethics, basic science, patient safety, and non-operative care, has increased challenges in teaching residents how to operate and become effective orthopaedic surgeons. Discussion will include strategies to optimize surgical education, use of surgical skills labs, decreasing service-related activities, focused mentoring, robotic surgery, and psychometric testing. Discussion will include how to deal with a small group of surgeons who do not have the skills to operate competently.

I. Education vs. Service
Augustus D. Mazzocca, MD, MS, West Hartford, CT

II. Development and Application of a Surgical Skills Lab – "The Bioskills Lab"
Augustus D. Mazzocca, MD, MS, West Haverford, CT

III. The Role of Surgical Simulation & Orthopaedic Surgery
Ranjan Gupta, MD, Orange, CA

IV. The Technically Incompetent Resident
Peter J. Stern, MD, Cincinnati, OH

SYMPOSIUM
10:30 AM — 12:30 PM
Room S105

Women as Surgeons and Patients: Obstacles and Solutions for Increasing Diversity andImproving Care (Y)
Moderator: Caroline M Chebli, MD, Seattle, WA

Women comprise greater than 50% of the population of medical students, yet only 4% of orthopedists are women. This symposia will look at communication differences, sex specific medical and social issues, and ways to overcome the gender disparity in our profession.

I. Barriers To Women Entering Ortopaedics From Medical School Forward
How Gender Impacts Training As An Orthopaedic Surgeon With An Emphasis On Education
Ann E. Van Heest, MD, Minneapolis, MN

II. Bridging the Gap: Exposure and Mentoring
How You Can Participate To Increase Diversity
Lisa L. Lattanza, MD, San Francisco, CA

III. Difference Between Conscious And Unconscious Bias
How Unconscious Bias Affects Patient Care
How Unconscious Bias Affects Diversity In the Field of Orthopaedics
Why Diversity On Your Team Is So Important
Mary I. O'Connor, MD, Jacksonville, FL

IV. Female Specific Medical Issues For Consideration
How Women Communicate Differently From Men
How to Relate to the Female Patient For the Best Outcomes
Caroline M. Chebli, MD, Seattle, WA

V. Discussion

INSTRUCTIONAL COURSE LECTURE

10:30 AM — 12:30 PM

◆421 TICKET
Room N227b
The Painful Metal on Metal Hip Arthroplasty: Evaluation and Management
Moderator: Thomas K. Fehring, MD, Charlotte, NC
William L. Griffin, MD, Charlotte, NC
Arlen D. Hanssen, MD, Rochester, MN
Hollis Potter, MD, New York, NY

Determine a management algorithm to avoid necrosis-related problems as well as a treatment algorithm to manage such problems.

◆422 TICKET
Room S405
Increasing Accuracy in Knee Arthroplasty
Moderator: Emmanuel Thienpont, MD, Asse, Belgium
Wolfgang Fitz, MD, Sherborn, MA
William J. Hozack, MD, Philadelphia, PA
Jess H. Lonner, MD, Philadelphia, PA

During this course new tools are presented to increase accuracy in knee arthroplasty. Knee navigation, patient specific instruments, robotics and patient specific implants will be discussed.

◆423 TICKET
Lakeside, Room E352
Osteochondral Lesions of the Talus: Current Treatment Dilemmas
Moderator: Mark Glazebrook, MD, Halifax, NS, Canada
Richard D. Ferkel, MD, Van Nuys, CA
C. N. Van Dijk, MD, Abcoude, Netherlands
Alastair S. E. Younger, MD, Vancouver, BC, Canada

Explore the natural history of the untreated osteochondral lesion of the talus, as well as the current treatment options, including arthroscopic autograft, allograft, or autologous chondrocyte implantation.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

424 **Stress Management and Balance for the Orthopaedic Surgeon**
Room S106a
Moderator: John M. Flynn, MD, Philadelphia, PA
Eric C. McCarty, MD, Boulder, CO
Peter M. Waters, MD, Boston, MA
Jennifer M. Weiss, MD, Los Angeles, CA

Orthopaedic surgeons work hard and stress can compromises performance. We address managing time and stress, life balance, maintaining happy families, and issues unique to the female orthopaedic surgeon.

425 **Hand and Wrist Problems Orthopods Treat (or should treat): Diagnostic and Operative Tips**
Room S103a
Moderator: Nader Paksima, DO, New York, NY
Jeffrey A. Greenberg, MD, Indianapolis, IN
Fraser J. Leversedge, MD, Durham, NC
Anthony Sapienza, MD, New York, NY

Focus on diagnostic and treatment pearls and avoiding pitfalls in the treatment of hand conditions by general orthopedic surgeons.

426 **The Diagnosis and Management of Pediatric Elbow Injuries That Are Not Supracondylar Fractures**
Room S504a
Moderator: Martin J. Herman, MD, Philadelphia, PA
Joshua M. Abzug, MD, Timonium, MD
Bernard D. Horn, MD, Philadelphia, PA
Scott H. Kozin, MD, Philadelphia, PA

Case-based course discusses pediatric elbow injuries except for supracondylar fractures. Fractures of radial neck, lateral condyle, and medial epicondyle among others will be presented.

427 **Preparing a Medical Manuscript**
Room S401d
Moderator: Charles R. Clark, MD, Iowa City, IA
Marc F. Swiontkowski, MD, Minneapolis, MN
Vernon T. Tolo, MD, Los Angeles, CA

Cover all aspects of medical writing with a focus on preparing an outline, methods and statistics and common writing errors. An audience participation section focuses on "how to state it better."

428 **What Went Wrong and What Was Done About It: Pitfalls in Treatment of Common Shoulder Surgery**
Room N228
Moderator: Gerald R. Williams Jr, MD, Philadelphia, PA
Gary M. Gartsman, MD, Houston, TX
Edwin E. Spencer Jr, MD, Knoxville, TN
Joseph D. Zuckerman, MD, New York, NY

Address the common complications of arthroscopic cuff repair, Bankart repair, hemiarthroplasty for fracture, and acromioclavicular reconstruction in primarily a case-based format.

429 **Complex Trauma to Shoulder Girdle Including Clavicle, Scapula and Proximal Humerus: Current Concepts in Diagnosis and Treatment**
Room S106b
Moderator: Mark A. Mighell, MD, Tampa, FL
Frank A. Liporace, MD, Englewood Cliffs, NJ
Roy W. Sanders, MD, Tampa, FL
J. Tracy Watson, MD, Saint Louis, MO

Current concepts in treatment of acute and chronic trauma to the shoulder girdle including the clavicle, scapula and proximal humerus will be presented comprehensively.

◆430 **Current Concepts in Cervical Spine Trauma**
Room S502
Moderator: John C. France, MD, Morgantown, West VA
Richard J. Bransford, MD, Seattle, WA
Alpesh A. Patel, MD, Maywood, IL
Alexander Vaccaro, MD, PhD, Gladwyne, PA

Review current concepts in evaluation and treatment of cervical spine trauma to include; upper and lower cervical fractures, spinal cord injury and central cord syndromes.

431 **Cases and Controversies in Treatment of SLAP Injuries**
Room S503
Moderator: Felix H. Savoie III, MD, New Orleans, LA
Neal S. ElAttrache, MD, Los Angeles, CA
Michael J. O'Brien, MD, New Orleans, LA
Richard K. N. Ryu, Santa Barbara, CA

Improve diagnostic skills, and then learn to use these skills to determine the best treatment option for each case: Rehabilitation, Repair, or Tenodesis. Cases presented will include the young overhead athlete, a highly active middle age patient, a work related injury with pain, and a relatively sedentary patient with a positive MRI for a SLAP lesion. Emphasis on accurate physical examination techniques.

432 **Surgical Techniques for Complex Proximal Tibia Fractures**
Room S501
David Barei, MD, FRCS(C), Seattle, WA
Gregory J. Della Rocca, MD, PhD, Columbia, MO
Michael Suk, MD, Danville, PA

Interactive discussion of intra-and-extra-articular proximal tibia fracture evaluation and management including soft tissue injuries, surgical approaches and reduction and fixation strategies.

◆ 434 **Complex Skeletal Reconstruction in Infection, Post Trauma, and Tumor**
Room S402a
Moderator: Joseph Benevenia, MD, Newark, NJ
Francis R. Patterson, MD, Newark, NJ
Michael S. Sirkin, MD, Newark, NJ
Virak Tan, MD, Newark, NJ

Complex skeletal defects which having different etiologies may be approached with common principles of limb-preservation using biologic and endoprosthetic means. By using a multi subspecialty treatment approach the patient may be afforded many of the available options.

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Friday, March 22

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room N427

Trauma VI: Fracture Care: Miscellaneous
Moderator(s): Paul Duwelius, MD, Portland, OR
Edward J. Harvey, MD, MSc, Montreal, QC, Canada
Thomas A. Russell, MD, Eads, TN

10:30 AM **PAPER: 631**
Systemic Growth Factor Release Following Trauma
Hiang Boon Tan, MBBS, Leeds, United Kingdom
Elena Jones, PhD, Leeds, United Kingdom
Agata N. Burska, PhD, MSc, Leeds, United Kingdom
Karen Henshaw, MD, Leeds, United Kingdom
Dennis McGonagle, MD, Leeds, United Kingdom
Peter Giannoudis, MD, FRCS, Leeds, United Kingdom

The temporal of growth factor release following trauma and the influence of trauma severity and traumatic brain injury is presented.

10:36 AM **PAPER: 632**
Relevant Proteins in Bone Graft from the Iliac Crest Versus Harvested Using the RIA System and its Wastewater
Brett D Crist, MD, Columbia, MO
Aaron M. Stoker, MS, PhD, Columbia, MO
James L. Cook, DVM, PhD, Columbia, MO
James P. Stannard, MD, Columbia, MO

Bone graft harvested using the RIA system has similar osteogenic proteins compared to iliac crest autograft. The RIA wastewater is a significant source of osteogenic proteins as well.

10:42 AM **PAPER: 633**
Rib Fracture Fixation Restores Inspiratory Volume and Peak Flow in a Full Thorax Human Cadaveric Breathing Model
Gerard Slobogean, MD, MPH, Toronto, ON, Canada
Hyunchul Kim, MS, College Park, MD
Adam H. Hsieh, PhD, College Park, MD
Robert V. O'Toole, MD, Baltimore, MD

Using a novel full thorax negative pressure breathing model, significant decreases in respiratory outcomes are seen with a flail chest and are subsequently normalized with plate fixation.

Discussion - 6 Minutes

10:54 AM **PAPER: 634**
Low Velocity Gunshot Wounds Result in Significant Contamination Regardless of Ballistic Characteristics
Joseph Weinstein, DO, Cedarhurst, NY
Emily Putney, DO, Fort Lauderdale, FL
Kenneth A. Egol, MD, New York, NY

Better profiling of gunshot wounds may lead to different treatment strategies. Formal debridement of low velocity gunshot wound tracks may be indicated.

11:00 AM **PAPER: 635**
Duration of Post-Operative Antibiotics for Open Fractures
Sara L. Miniaci, MD, Rochester, NY
Holman Chan, MD, Vancouver, BC, Canada
John P. Ketz, MD, Pittsford, NY
Catherine A. Humphrey, MD, Rochester, NY
John T. Gorczyca, MD, Rochester, NY
Jonathan M. Gross, MD, Rochester, NY

In this preliminary study, there is no statistical difference between post-operative antibiotic duration and the rate of infection in open fractures.

11:06 AM **PAPER: 636**
Symptomatic Venous Thromboembolism in Low Energy Isolated Fractures in Hospitalized Patients
Colin J. Prensky, BA, New York, NY
Adriana Urruela, BS, New York, NY
Michael S. Guss, MD, New York, NY
Raj Karia, MPH, New York, NY
Kenneth A. Egol, MD, New York, NY

1,701 low energy fracture patients were retrospectively studied to determine the incidence and factors associated with the development of symptomatic venous thromboembolic events.

Discussion - 6 Minutes

11:18 AM **PAPER: 637**
Can We Trust Ex Vivo Mechanical Testing of Cadaveric Specimens? The Effect of Specimen Temperature
Zane Hartsell, Memphis, TN
Jacob Cartner, Memphis, TN
Paul Tornetta III, MD, Boston, MA

This study evaluated the use of fresh frozen cadaveric femora at different temperatures from frozen to body temperature for biomechanical testing.

11:24 AM **PAPER: 638**
Can Over-drilling the Near Cortex Reduce the Stiffness of Locking Plate-bone Constructs?
Jerry Chen, MBBS, Singapore, Singapore
Zhou Zhihong, MD, Singapore, Singapore
Benjamin Ang Fu Hong, MBBS, Singapore, Singapore
Andy Yew, PhD
Siaw Meng Chou, PhD, Nanyang, Singapore
Shi-lu Chia, MBBS, Singapore, Singapore
Joyce S. Koh, MD, Outram Road, Singapore
Tet S. Howe, MD, Singapore, Singapore

Over-drilling the near cortex with 'Figure-of-8' holes reduces the axial stiffness of the locking plate-bone construct without compromising the strength of the construct.

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Friday, March 22

11:30 AM **PAPER: 639**

Mechanical Behavior and Failure Mode for Cross-threaded Locking Screws

Jacob Cartner, Memphis, TN
Tim Petteys, Memphis, TN
Paul Tornetta III, MD, Boston, MA

These findings indicate that the practice of cross-threading locking screws may not be mechanically advantageous.

Discussion - 6 Minutes

11:42 AM **PAPER: 640**

Evaluation of Heat Generated with Drill Tip K-wires

Zane Hartsell, Memphis, TN
James Livingstone, MBBS, MD, Bristol, United Kingdom

This study evaluated the use of both fluted and trochar tipped k-wires. Comparisons were made based on heat generated and time to insertion.

11:48 AM **PAPER: 641**

Analysis of Usage and Assoicated Cost of External Fixators at an Urban Level 1 Trauma Center

George W. Chaus, MD, Aurora, CO
Chase A. Dukes, BA, MS, Denver, CO
Eric M. Hammerberg, MD, Boulder, CO

Three-year review of external fixator usage and cost demonstrates most fixators are used as temporary fixation, suggesting that used fixator components may be more appropriate and cost effective.

11:54 AM **PAPER: 642**

Pneumatic Tourniquets in Orthopaedic Surgery: What are the Safe Parameters?

Charles J. Jordan, MD, Coral Gables, FL
Sean M. Bradley, BS, Seminole, FL
Roy W. Sanders, MD, Tampa, FL

This study suggests that in difficult cases, it is acceptable to use a tourniquet at a setting of 350 mm Hg for as long as 150 minutes without increased risk of tourniquet-associated complications.

Discussion - 6 Minutes

12:06 PM **PAPER: 643**

Treatment and Complications in Orthopaedic Trauma Patients with Pulmonary Embolism

Yelena Bogdan, MD, Boston, MA
Paul Tornetta III, MD, Boston, MA
Ross K. Leighton, MD, Halifax, NS, Canada
Henry C. Sagi, MD, Tampa, FL
David Sanders, MD, London, ON, Canada
Judith Siegel, MD, Worcester, MA
Brian Mullis, MD, Indianapolis, IN
Alysse Boyd, MA, Cleveland, OH
Andrew H. Schmidt, MD, Minneapolis, MN

A snapshot of PE management reveals high complication rates for anticoagulation, which are as common in lower risk clots as higher risk clots. We may alter our approach to treatment based on clot size.

12:12 PM **PAPER: 644**

Combat-Related Hemipelvectomy: Eleven Cases, a Review of the Literature and Lessons Learned

Jean-Claude D'Alleyrand, MD, Bethesda, MD
Scott M. Tintle, MD, Fairfax, VA
Mark Fleming, DO, Clarksburg, MD
Wade T. Gordon, MD, Takoma Park, MD
Romney C. Andersen, MD, Stafford, VA
Brian Mullis, MD, Indianapolis, IN
Benjamin K. Potter, MD, Bethesda, MD

Trauma-related hemipelvectomy is a catastrophic injury that leaves little margin for error on the part of the treating surgeon and medical team.

12:18 PM **PAPER: 645**

Improving Decision-Making in Fracture Care: Cognitive Bias and Rational Choice

Joseph Bernstein, MD, Haverford, PA
Jaimo Ahn, MD, PhD, Philadelphia, PA

Our data indicate the potential for irrationality when patients consider fracture care options. Surgeons need to be aware of the cognitive biases which lead to irrational decision making.

12:24 PM **PAPER: 830**

Blockade Of Matrix Metalloproteinase-3 After Traumatic Nerve Injury Offers A Novel Treatment For Improving Functional Recovery

Tom Chao, MD, Carson, CA
Derek Frump, BS, Irvine, CA
Peter Hanh, MD, Irvine, CA
Vincent Caiozzo, MD, Irvine, CA
Tahseen Mozaffar, MD, Orange, CA
Ranjan Gupta, MD, Orange, CA

Discussion - 6 Minutes

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Friday, March 22

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room N426

Adult Reconstruction Knee VI: Revision Total Knee Arthroplasty
Moderator(s): Gregg R. Klein, MD, Paramus, NJ
Arthur L. Malkani, MD, Louisville, KY

10:30 AM **PAPER: 646**
One Intraoperative Dose of Tranexamic Acid is Safe and Effective in Revision Total Knee Arthroplasty
Kevin Smit, MD, London, ON, Canada
Doug Naudie, MD, FRCSC, London, ON, Canada
Fiona E. Ralley, MD, London, ON, Canada
James Howard, MD, London, ON, Canada

One 20 mg/kg intraoperative dose of TXA significantly reduced red blood cells loss and transfusion rates in patients undergoing revision TKA and was not associated with an increased complication rate.

10:36 AM **PAPER: 647**
The Role of Primary Bearing Type in Revision Total Knee Arthroplasty
Wael K. Barsoum, MD, Bay Village, OH
Kevin J. Bloom, BA, South Euclid, OH
Joseph W. Caravella, BA, Bay Village, OH
Alison K. Klika, MS, Cleveland, OH
Yousef Shishani, MD, Cleveland, OH
Rishi R. Gupta, MD, St Helena, CA

We compared the complexity of revision procedures for failed fixed- (FB) and mobile-bearing (MB) knee designs. Our data show that MB knees fail earlier and require greater constraint than FB knees.

10:42 AM **PAPER: 648**
Recurrent Periprosthetic Joint Infection: Persistent or New Infection?
Benjamin Zmistowski, BS, Philadelphia, PA
Matthew Tetreault, BA, Pittsburgh, PA
Pouya Alijanipour, MD, Málaga, Spain
Antonia Chen, MD, Pittsburgh, PA
Christopher E. Gross, MD, Chicago, IL
Brian A. Klatt, MD, Pittsburgh, PA
Craig J. Della Valle, MD, Chicago, IL
Javad Parvizi, MD, FRCS, Philadelphia, PA

Most failures following two-stage treatment for PJI appear to occur as a result of "new" infection or infection by an organism that was not detected during initial surgery for PJI.

Discussion - 6 Minutes

10:54 AM **PAPER: 649**
Two-Stage Revision Total Knee Arthroplasty is Associated with High Complication and Failure Rates
Christopher Pelt, MD, Salt Lake City, UT
Jill Erickson, PA, Salt Lake City, UT
Mike Anderson, MS, ATC, Salt Lake City, UT
Lucas Anderson, MD, Salt Lake City, UT
Erik Kubiak, MD, Salt Lake City, UT
Christopher L. Peters, MD, Salt Lake City, UT

A 17% reinfection rate, with 28% receiveing reoperations, and 6% complication rate with two-stage revision TKA, although comparable to previous reports, remains concerning.

11:00 AM **PAPER: 650**
Systematic Review of Static and Articulating Spacers for Infected Total Knee Arthroplasty Revision
Qais Naziri, MD, Brooklyn, NY
Aaron J. Johnson, MD, Baltimore, MD
Christopher R. Costa, MD, Dallas, TX
Michael A. Mont, MD, Baltimore, MD
Robert Pivec, MD, Baltimore, MD

Articulating spacers offer the potential for greater range of motion at final follow-up, however, they should be used cautiously in complex infection cases.

11:06 AM **PAPER: 651**
Reported Pain After Total Knee Arthroplasty: A Prospective, Randomized Trial Comparing Two Surgical Approaches
Wayne E. Moschetti, MD
Ishaan Swarup, BA, Stockton, CA
Stephen R. Kantor, MD
Kevin F. Spratt, PhD
Ivan M. Tomek, MD

Comparison of post-operative pain after total knee replacement performed with contemporary minimally invasive surgery principles using either a quad sparing approach or medial parapatellar arthrotomy

Discussion - 6 Minutes

11:18 AM **PAPER: 652**
Failure Mechanism of Knee Arthroplasties: A Retrospective Analysis
Kathi Thiele, MD, Berlin, Germany
Carsten Perka, MD, Berlin, Germany
Georg Matziolis, Berlin, Germany
Hermann Mayr, MD, Munich, Germany
Michael Sostheim, MD, München, Germany
Kristin Seidemann, Berlin, Germany
Robert Hube, MD, Munchen, Germany

All results subsumed we see an explicit shift from aseptic loosening and polyethylene wear to instability, malalignment and periprosthetic infection as main failure mechanisms.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

11:24 AM **PAPER: 653**

TKA Revision in a Femur with a Total Hip Arthroplasty: Is There a Safe Distance between the Stem Tips?

Bernardo Innocenti, PhD, Bruxelles, Belgium
Marc Soenen, MD, Cholet, France
Matteo Baracchi, Bagno A Ripoli, Italy
Luc Labey, Leuven, Belgium

The risk for fracture in a femur, with both a THA and a revision TKA present, is depending on the TKA stem length and it dramatically increases when distances between the tips are smaller than 100 mm.

11:30 AM **PAPER: 654**

Retrieval Analysis of Fixed Versus Mobile Bearing Retrieved Polyethylene Inserts Using Laser Scanning Technology

Nader A. Nassif, MD, New York, NY
Kirsten Stoner, M.S., New York, NY
Marcella Elpers, BS, New York, NY
Timothy M. Wright, PhD, New York, NY
Douglas E. Padgett, MD, New York, NY

Rotating platform designs showed similar wear characteristics to fixed bearing designs.

Discussion - 6 Minutes

11:42 AM **PAPER: 655**

Management of the Patella in Revision Total Knee Arthroplasty

Christopher E. Gross, MD, Chicago, IL
Matthew Tetreault, BA, Pittsburgh, PA
Paul H. Yi, BA, Chicago, IL
Scott M. Sporer, MD, Wheaton, IL
Craig J. Della Valle, MD, Chicago, IL

In most aseptic revision total knee arthroplasties, a well-fixed patellar component can be retained, and if revision is required, a standard polyethylene component is sufficient in most cases.

11:48 AM **PAPER: 656**

The Impact of Periprosthetic Infections Following Total Knee Arthroplasty at a Specialized Tertiary-Care Center

Bhaveen Kapadia, MD, Baltimore, MD
Aaron J. Johnson, MD, Baltimore, MD
Qais Naziri, MD, Brooklyn, NY
Jacqueline A. Daley, MLT, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

The purpose of this study was to measure the impact of periprosthetic joint infections on the length of hospitalization, readmissions, and the associated costs.

11:54 AM **PAPER: 657**

Single Stage Revision for the Infected Total Knee Replacement - Results from a Single Center

Saket Tibrewal, MD
Luckshmana Jeyaseelan, MBBS, London, United Kingdom
Francesc Malagelada, London, United Kingdom
Gareth Scott, FRCS, Brentwood, United Kingdom

A series of 50 cases from a single centre of single-stage revision arthroplasty for infected total knee replacements.

Discussion - 6 Minutes

12:06 PM **PAPER: 658**

Increased Intraoperative Contamination with Space Suit Use - A Mechanism

Simon Young, MD, Auckland, New Zealand
Carl Chisholm, Wellington, New Zealand
Mark Zhu, Auckland, New Zealand

Higher infection rates with Space suits may be due to particle egress around surgeon's cuffs.

12:12 PM **PAPER: 659**

Targeted Use of Vancomycin Reduces Rate of PJI and Methicillin Resistant Organisms in TKA

Kevin J. Bozic, MD, MBA, San Francisco, CA
Liu Catherine, San Francisco, CA
Steven Takemoto, PhD, San Francisco, CA
Michael D. Ries, MD, San Francisco, CA
Anthony Kakis, DPM, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA

Targeted use of Vancomycin in high-risk patients was effective in reducing the rate of periprosthetic joint infection (PJI) and PJI due to methicillin resistant organisms at our institution.

12:18 PM **PAPER: 660**

Stemmed Femoral Implants Show Lower Failure Rates in Revision Total Knee Arthroplasty

Maria A. Vanushkina, BS, Albany, NY
Kaan Irgit, MD, Ankara, Turkey
Kent Strohecker, MS, Danville, PA
Thomas R. Bowen, MD, Danville, PA
Charles L. Nelson, MD, Voorhees, NJ

Stem augments lower re-revision rates during revision TKA.

Discussion - 6 Minutes

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Friday, March 22

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room S102

Pediatrics IV: Foot-Lower Extremity-Miscellaneous
Moderator(s): Matthew B. Dobbs, MD, Saint Louis, MO
Steven L. Frick, MD, Orlando, FL

10:30 AM **PAPER: 661**
Is Ponseti Method Useful in Older Children with Clubfoot after the Walking Age?
Vikas Gupta, MS
Akshat Sharma, MBBS, MS, Rohini, India
Kumar Shashi S. Kant Jr, Jehanabad, India

The Ponseti method of serial casting is proving to be low cost, effective treatment strategy in older children with club foot presenting after the walking age.

10:36 AM **PAPER: 662**
The Programmatic Treatment of Clubfoot Using the Ponseti Method in a Low-income Setting
Mansoor A. Khan, Karachi, Pakistan
Fayez Jawed, BS, Karachi, Pakistan
Aziza Burfat JR, MA, Karachi, Pakistan
Shama Mohammed, Karachi, Pakistan
Muhammad A. Riffat, MBBS, Karachi, Pakistan
Muhammad A. Chinoy, FRCS, MBBS, Karachi, Pakistan
Lubna Samad, MBBS, Karachi, Pakistan
Syed Ahmed, DMed, MBBS, Karachi, Pakistan

Our program was developed to create a sustainable, locally acceptable model for the treatment of clubfoot in a developing country using the Ponseti method. Overall, excellent compliance has been noted.

10:42 AM **PAPER: 663**
Is it Worthwhile Routinely Screening Children with Clubfoot for Hip Dysplasia?
Susan T. Mahan, MD, Boston, MA
Mahsa M. Yazdy, MPH, BS, Boston, MA
James R. Kasser, MD, Boston, MA
Martha Werler, PhD, Boston, MA

In a large group of 667 patients with clubfoot and 2037 controls there was no difference in the rate of DDH.

Discussion - 6 Minutes

10:54 AM **PAPER: 664**
EOS Low-dose Biplanar Radiography: The New Gold Standard in Radiographic Limb Length Assessment
Benjamin Escott, MBBS, Toronto, ON, Canada
Bheeshma Ravi, MD, Toronto, ON, Canada
Adam Weathermon, MD, Delta, Canada
Jay Acharya, New York, NY
Chris Gordon, Toronto, ON, Canada
Paul Babyn, MD, Saskatoon, Canada
Simon Kelley, MBChB, FRCS (Ortho), Toronto, ON, Canada
Unni G. Narayanan, MBBS, MSc, Toronto, ON, Canada

Upright EOS using a faster gantry speed and lower current is more accurate than CT scanograms and CR for the assessment of length, and also utilizes a significantly lower radiation exposure.

11:00 AM **PAPER: 665**
Relationship between Leg Length Discrepancy and Degenerative Spine, Hip and Knee Disease
Raymond Liu, MD, Cleveland, OH
Jonathan Streit, MD, Shaker Heights, OH
Jeremy D. Shaw, MD, MS, Burlingame, CA
Daniel R. Cooperman, MD, Cleveland, OH

We studied 600 cadaveric skeletons and did not find any correlation between leg length discrepancy of 2 cm or under with degenerative joint disease of the spine, hips and knees.

11:06 AM **PAPER: 666**
Thermal Epiphysiodesis Made with Radio Frequency Ablation: An Alternative Treatment for Leg Length Discrepancy
Juan M. Shiguetomi-Medina, MD, Aarhus N, Denmark
Ole Rahbek, MD, Aarhus, Denmark
Hans Stodkilde-Jorgenson, MD, DMSci
Bjarne Moller-Madsen, MD, MSCI, Aarhus, Denmark

In a porcine model, epiphysiodesis using radio frequency ablation inhibited growth without damaging the surrounding structures. This may represent an alternative treatment for leg length discrepancy.

Discussion - 6 Minutes

11:18 AM **PAPER: 667**
Medial Malleolar Screw versus Tension Band Plate Hemiepiphysiodesis for Ankle Valgus in the Skeletally Immature
Matthew D. Driscoll, MD, Temple, TX
Judith Linton, PT, MS, Houston, TX
Allison C. Scott, MD, Houston, TX

While MMS and TBP hemiepiphysiodesis both correct ankle valgus in the growing child, MMS may be associated with a faster rate of deformity correction and TBP with fewer hardware related complications.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

11:24 AM **PAPER: 668**

Limb Salvage Outcome in the Immature Pediatric Bone Tumor Population

Antoinette W. Lindberg, MD, Seattle, WA
Stephanie Punt, BS, Seattle, WA
Jedediah K. White, BS, Seattle, WA
Viviana Bompadre, PhD, Seattle, WA
Darin Davidson, MD, Seattle, WA
Ernest U. Conrad III, MD, Seattle, WA

pediatric limb salvage techniques (allograft and oncologic implants) identifying issues leading to surgical revision, complications, function, and failure were compared.

11:30 AM **PAPER: 669**

Scaffold Free Cartilage Tissue Equivalent Transplantation to Physeal Cartilage Injury of Rabbit

Chang-Hoon Jeong, MD, PhD, Seoul, South Korea
Jae Young Lee, MD, Buchon, South Korea

Transplantation of a scaffold free cartilage tissue equivalent (CTE) generated in suspension chondrocyte culture to physeal cartilage injury of the proximal tibia in rabbit.

Discussion - 6 Minutes

11:42 AM **PAPER: 670**

Distal Femoral Physeal Fixation: Are Smooth Pins Really Safe?

William J. Dahl, MD, Whitmore Lake, MI
Kelly L. Vanderhave, MD, Ann Arbor, MI
Selina R. Silva, MD, Albuquerque, NM

Cross pinning with smooth K wires results in a low rate of physeal injury. Pins that cross the physis both centrally and peripherally appear to have the same risk for physeal bar formation.

11:48 AM **PAPER: 671**

Acetabular Changes with Avascular Necrosis of Femoral Head in Piglet Model

Frederic Shapiro, MD, Boston, MA
Susan Connolly, MD
David Zurakowski, PhD, Boston, MA
Evelyn Flynn, MA
Diego Jaramillo, MD, Philadelphia, PA

A piglet model for avascular necrosis of the femoral head also leads to acetabular changes. We have assessed these by MRI and histology and show statistically significant changes by 4 and 8 weeks.

11:54 AM **PAPER: 672**

ESET Histone Methyltransferase Affects Bone Morphology and Secondary Ossification in a Mouse Model

Jacques H. Hacquebord, MD, Seattle, WA
Howard A. Chansky, MD, Seattle, WA
Liu Yang, PhD, Seattle, WA

ESET Histone Methyltransferase function is required for normal skeletal growth. Conditional knockout of ESET is associated with abnormal bone morphology and absence of a secondary ossification center.

Discussion - 6 Minutes

12:06 PM **PAPER: 673**

Incidence Rate and Factors Related to Pediatric Cast Saw Injuries

Peter M. Waters, MD, Boston, MA
Sarah Hutchinson, BS, ATC, Boston, MA
Maire Harris, MPH, Boston, MA
Donald S. Bae, MD, Boston, MA

Cast saw injuries are a known complication of casting. By establishing a scientific incidence rate and reducing known risk factors each patient will be safer from this avoidable risk.

12:12 PM **PAPER: 674**

Internet Search Term Affects the Quality and Accuracy of Online Information About Developmental Hip Dysplasia

Peter D. Fabricant, MD, New York, NY
Christopher J. Dy, MD, New York, NY
Ronak Patel, MD, Chicago, IL
John S. Blanco, MD, Pelham, NY
Shevaun M. Doyle, MD, New York, NY

The quality and accuracy of information available on the internet regarding developmental hip dysplasia varied by search term and was above recommended reading level for information on the internet.

12:18 PM **PAPER: 675**

Improved Orthopaedic Resident Surgical Preparedness after e-Learning - A Randomized Controlled Study

Thomas M. Hearty, MD, FPO
Max Maizels, MD
Maya Pring, MD, San Diego, CA
John M. Mazur, MD, Jacksonville, FL
Raymond Liu, MD, Cleveland, OH
John F. Sarwark, MD, Chicago, IL
Joseph A. Janicki, MD, Chicago, IL

We showed that e-Learning can significantly improve orthopaedic resident preparedness, confidence and comfort with percutaneous closed reduction and pinning of pediatric supracondylar fracture.

Discussion - 6 Minutes

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Friday, March 22

PAPER PRESENTATION

10:30 AM — 12:30 PM
Room S103

Tumor/Metabolic Disease II: Pre-Clinical and Clinical Research in Orthopaedic Oncology
Moderator(s): Brian E. Brigman, MD, Durham, NC
Joel Mayerson, MD, Columbus, OH

10:30 AM **PAPER: 676**
A Novel Murine Model of Post-Radiation Osteonecrosis after Simulated Soft-Tissue Sarcoma Resection
Matthew A. Popa, MD, Ada, MI
Tessa M. Grabinski, BS, Grand Rapids, MI
Travis Burgers, PhD, Grand Rapids, MI
Daniel E. Hess, Grand Rapids, MI
Matthew Steensma, MD, Byron Center, MI

The proposed murine model is a valid model with which to study the effect of postoperative radiation therapy on long bones following a simulated soft-tissue sarcoma resection.

10:36 AM **PAPER: 677**
MiRNA in Chondrosarcoma: A Rat Model
Heather R. Harrison, MD, Detroit, MI
Caroline Wolfe, MD, Ann Arbor, MI
Clifford M. Les, DVM, Detroit, MI
Gary Gibson, Detroit, MI
Michael P. Mott, MD, Detroit, MI
Theodore W. Parsons, MD, FACS, Detroit, MI

An attempt to identify a miRNA profile in chondrosarcoma for future use in diagnosis.

10:42 AM **PAPER: 678**
Bone Loss Associated with an Expandable Prosthesis for Treatment of Pediatric Distal Femoral Malignancies
Cara A. Cipriano, MD, Chicago, IL
Irina Gruzinova, Chicago, IL
Rachel M. Frank, MD, Chicago, IL
Steven Gitelis, MD, Chicago, IL
Walter W. Virkus, MD, Chicago, IL

In our experience, pediatric limb salvage with a distal femoral expandable prosthesis has produced good oncologic results but is associated with significant loss of bone stock and other complications.

Discussion - 6 Minutes

10:54 AM **PAPER: 679**
Pre-Referral Magnetic Resonance Imaging in Musculoskeletal Oncology is Not Excessive
Christopher T. Martin, MD, Iowa City, IA
Jose A. Morcuende, MD, Iowa City, IA
Joseph A. Buckwalter, MD, Iowa City, IA
Benjamin J. Miller, MD, Iowa City, IA

Magnetic resonance imaging use prior to referral of musculoskeletal oncology patients is not excessive, and the incidence of inappropriate studies may not be as high as previously reported.

11:00 AM **PAPER: 680**
Failure to Correctly Diagnose Extremity Soft Tissue Sarcomas - Is a Lack of Education to Blame?
Vignesh Alamanda, BS, Nashville, TN
Samuel Crosby, MD, Nashville, TN
Kristin Archer, PhD, Nashville, TN
Shannon Mathis, Nashville, TN
Herbert S. Schwartz, MD, Nashville, TN
Ginger E. Holt, MD, Nashville, TN

Educational opportunities in recognizing soft tissue sarcomas exist at the resident level in both general and orthopaedic surgery training programs in the United States.

11:06 AM **PAPER: 681**
Risk Factors at Presentation for Metastatic Osteosarcoma: An Analysis of the SEER Database
Benjamin J. Miller, MD, Iowa City, IA
Peter Cram, MD, MBA, Iowa City, IA
Charles Lynch, MD, PhD, Iowa City, IA
Joseph A. Buckwalter, MD, Iowa City, IA

This is an analysis of the SEER database to determine risk factors for metastatic disease at presentation in osteosarcoma.

Discussion - 6 Minutes

11:18 AM **PAPER: 682**
Proximal Femoral Reconstruction with Constrained Acetabulum in Oncologic Patients
Muhammad U. Jawad, MD, Philadelphia, PA
Earl W. Brien, MD, Los Angeles, CA

Here we are presenting the outcomes of proximal femoral reconstruction for massive bone loss using a constrained hip.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

11:24 AM **PAPER: 683**

High Failure Rates for Cemented Modular Oncology Total Knee Implants

Jedediah K. White, BS, Seattle, WA
Stephanie Punt, BS, Seattle, WA
Antoinette W. Lindberg, MD, Seattle, WA
Darin Davidson, MD, Seattle, WA
Ernest U. Conrad III, MD, Seattle, WA

Cementless stems are being used with increasing frequency to attempt to achieve improved fixation and decreased rates of aseptic loosening. We compared cementless and cemented stems.

11:30 AM **PAPER: 684**

Cause and Effect of Local Recurrence in Extremity Soft Tissue Sarcoma - Are We Making a Difference?

Vignesh Alamanda, BS, Nashville, TN
Samuel Crosby, MD, Nashville, TN
Kristin Archer, PhD, Nashville, TN
Yanna Song, PhD, Nashville, TN
Jennifer L. Halpern, MD, Nashville, TN
Herbert S. Schwartz, MD, Nashville, TN
Ginger E. Holt, MD, Nashville, TN

Positive margins continue to remain as a strong predictor of local recurrence and its impact on future prognosis is influenced by a variety of factors such as the tumor's biological characteristics.

Discussion - 6 Minutes

11:42 AM **PAPER: 685**

Total Joint Arthroplasty in Patients with Prior Cancer

Joseph Karam, MD, Philadelphia, PA
Ronald Huang, MD, Philadelphia, PA
John A. Abraham, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Patients with active malignancy are prone to develop pulmonary, renal and wound problems after TJA. Patients with bone metastases have a high risk of thromboses and short-term mortality rates.

11:48 AM **PAPER: 686**

◆ Elution of Cisplatin from Commercially Available Bone Cements Without Reduction in Strength

Jill E. Meyer, PhD, Milwaukee, WI
Matthew W. Squire, MD, MS, Madison, WI
Kevin MacDonald, MD, Seattle, WA

The addition of cisplatin to four commercially available bone cements provided elution for the 4-day study without a significant reduction in bending or compression failure load for all but one brand.

11:54 AM **PAPER: 687**

Prognostic Factors in Elderly Osteosarcoma Patients: A Multi-Institutional Retrospective Study of 90 Cases

Shintaro Iwata, MD, Tokyo, Japan
Akira Kawai, MD, PhD, Chuou-Ku, Japan
Takeshi Ishii, MD, Chiba, Japan
Tsukasa Yonemoto, MD, PhD, Chiba, Japan
Masanobu Takeyama, MD, PhD, Yokohama, Japan
Naofumi Asano, MD, Tokyo, Japan
Hiroto Kamoda, Yachiyo, Japan

Prognostic factor analysis of patients with osteosarcoma over 40 years old revealed that definitive surgery was significantly associated with survival, although current chemotherapy was not beneficial.

Discussion - 6 Minutes

12:06 PM **PAPER: 688**

Biological Reconstructions of the Forearm for Primary Malignant Bone Tumors: An Analysis of 30 Cases

Guiseppe Bianchi, MD, Bologna, Italy
Teresa Calabrò, Bologna, Italy
Andrea Angelini, MD, Bologna BO, Italy
Pietro Ruggieri, Bologna, Italy
Pietro Ruggieri, Bologna, Italy

Allograft reconstruction after resection of primary malignant bone tumors of the forearm has valid indications and gives good function with an acceptably low rate of complications.

12:12 PM **PAPER: 689**

Sacrectomy and Adjuvant Radiotherapy for the Treatment of Sacral Chordomas: A Single Center Experience Over 27 Years

Joseph P. Gjolaj, MD, Charlottesville, VA
Arjun Dhawale, MD, South Miami, FL
Laurens Holmes, PhD, DrPH, Wilmington, DE
H. T. Temple, MD, Miami, FL
Frank J. Eismont, MD, Miami, FL

In the sacral chordoma patient, despite the prevalence of recurrence and complications, increased long term survival can be achieved with treatment.

12:18 PM **PAPER: 690**

High Incidence of Regional and In-transit Lymph Node Metastasis in Patients with Alveolar Rhabdomyosarcoma

Yoshihiro Nishida, Nagoya, Japan
Hideshi Sugiura, MD, Nagoya City, Japan
Satoshi Tsukushi, MD, Nagoya, Japan
Hiroshi Urakawa, Nagoya, Japan
Eisuke Arai, Nagoya, Japan
Eiji Kozawa, MD, Nagoya, Japan
Naohisa Futamura, MD, Aichi, Japan
Naoki Ishiguro, MD, Nagoya, Japan

Physicians should be aware of lymphatic spread, including the in-transit spread, in patients with rhabdomyosarcoma, particularly with alveolar type.

Discussion - 6 Minutes

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Friday, March 22

SYMPOSIUM
1:30 PM — 3:30 PM
Room S406

Best of AAOS (AA)
Moderator(s): Annunziato Amendola, MD, Iowa City, IA and Brian J. Cole, MD, Chicago, IL

The Best of AAOS symposium will feature highlights from the best papers and posters presented at the 2013 Annual Meeting as chosen by the AAOS Program Committee.

I. Adult Reconstruction Knee
Fred D. Cushner, MD, New York, NY

II. Sports Medicine/Arthroplasty
Diane L. Dahm, MD, Rochester, MN

III. Foot and Ankle
Steven L. Haddad, MD, Glenview, IL

IV. Pediatrics
Martin J. Herman, MD, Philadelphia, PA

V. Shoulder and Elbow
Spero G. Karas, MD, Atlanta, GA

VI. Hand and Wrist
Fraser J. Leversedge, MD, Durham, NC

VII. Adult Reconstruction Hip
William B. Macaulay, MD, New York, NY

VIII. Practice Management/Rehabilitation
Thomas A. Malvitz, MD, Grand Rapids, MI

IX. Tumor/Metabolic Disease
R. Lor Randall, MD, Salt Lake City, UT

X. Spine
Michael Vives, MD, Mendham, NJ

XI. Trauma
Bruce Ziran, MD, Atlanta, GA

SYMPOSIUM
1:30 PM — 3:30 PM

Grand Ballroom
Improving Outcomes with Total Knee Arthroplasty (Z)
Moderator: Giles R. Scuderi, MD, New York, NY

Patient expectations continue to challenge the evolving techniques and technologies. In an effort to influence the outcome, the pre-operative evaluation and surgical planning will be reviewed. A comparison of conventional and advanced patient specific surgical techniques will be compared. Outcome measures, registry information and complication reporting will be discussed.

Pre-Operative Evaluation and Surgical Planning
Moderator: Giles R. Scuderi, MD, New York, NY

I. Documenting the Indications for Surgery
Carlos J. Lavernia, MD, Coral Gables, FL

II. Counseling the Younger Pateint
Thoms P. Vail, MD, San Francisco, CA

III. The Postraumatic Patient With Prior Incisions and Hardware
Thomas K. Fehring, MD, Charlotte, NC

IV. Avoiding Surgical Site Infections: Who's At Risk
Douglas A. Dennis, MD, Denver, CO

V. Bilateral Deformity: Staged Or Simultaneous
Steven J. MacDonald, MD, London, ON, Canada

VI. Discussion
Surgical Technique and Advanced Technology
Moderator: Steven J. MacDonald, MD, London, ON, Canada

I. Conventional Instruments Can Balance the Gaps
Arlen D. Hanssen, MD, Rochester, MN

II. Computer Navigation Improves Accuracy
Mark W. Pagnano, MD, Rochester, MN

III. Patient Specific Instruments
Adolph V. Lombardi Jr, MD, New Albany, OH

IV. Patient Specific Implants
Tom Minas, MD, Chestnut Hill, MA

V. Smart Tools
Giles R. Scuderi, MD, New York, NY

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

VI. Discussion
Reporting the Outcome
Moderator: Giles R. Scuderi, MD, New York, NY

I. Performance Measures
Jay R. Lieberman, MD, Los Angeles, CA

II. The Value of a Joint Registry
David G. Lewallen, MD, Rochester, MN

IV. Activity After TKA
Michael A. Mont, MD, Baltimore, MD

V. Reporting Complications
William L. Healy, MD, Burlington, MA

VI. Discussion

INSTRUCTIONAL COURSE LECTURE

1:30 PM — 3:30 PM

441 **Advances in Acetabular Reconstruction in Revision Total Hip Arthroplasty: Maximizing Function and Outcomes**
TICKET
Room S503
Moderator: Khaled J. Saleh, MD, MSc, Springfield, IL
William J. Maloney, MD, Redwood City, CA
Wayne G. Paprosky, MD, Winfield, IL
Michael D. Ries, MD, San Francisco, CA

Advanced imaging modality strategies to diagnose and manage acetabular osteolysis, exposure techniques, advances in component removal, and techniques to address bone defects.

442 **Hip Preservation Surgery: How to Avoid and Treat Complications and Failures**
TICKET
Room S103a
Moderator: Christopher Larson, MD, Edina, MN
John C. Clohisy, MD, Saint Louis, MO
Bryan T. Kelly, MD, New York, NY
Michael Leunig, MD, Zurich, Switzerland

Complications and early treatment failures are seen after arthroscopic and open joint preservation procedures. Contemporary strategies to avoid and manage sub-optimal outcomes discussed.

443 **State of the Art in Partial Knee Arthroplasty**
TICKET
Room N228
Moderator: Jess H. Lonner, MD, Philadelphia, PA
Michael E. Berend, MD, Mooresville, IN
David F. Dalury, MD, Baltimore, MD
Aaron A. Hofmann, MD, Salt Lake City, UT

Review the rationale, indications, technical aspects and results of fixed and mobile bearing unicompartmental, patellofemoral, bicompartmental knee arthroplasty.

444 **Current Perspectives in Distal Radius Fixation**
TICKET
Room N227b
Moderator: Peter J. Stern, MD, Cincinnati, OH
Mark E. Baratz, MD, Pittsburgh, PA
Charles S. Day, MD, MBA, Boston, MA
Charles A. Goldfarb, MD, Saint Louis, MO

Introduction and historical perspective, plate fixation, where's the evidence? Are there still viable alternatives to plate fixation? Complications: Iatrogenic, soft tissue, and osseous.

445 **The Difficult Pediatric Supracondylar Humerus Fracture: Tips and Techniques to Avoid Complications**
TICKET
Room S104
Moderator: Steven L. Frick, MD, Orlando, FL
Charles T. Mehlman, DO, MPH, Cincinnati, OH
Kevin G. Shea, MD, Boise, ID
David L. Skaggs, MD, Los Angeles, CA

Case-based learning will be used to convey tips and techniques aimed at helping orthopaedic surgeons avoid complications when caring for pediatric supracondylar humeral fractures.

446 **Adult Lumbar Disc Herniation: Treatment, Complications, Outcomes and Evidence Based Data for Patient and Health Professional Counseling**
TICKET
Room S402b
Moderator: Robert S. Bess, MD, Castle Rock, CO
Douglas C. Burton, MD, KS City, KS
Alexander C. Ching, MD, Portland, OR
Eric O. Klineberg, MD, Sacramento, CA

Will provide evidence based treatment options for adult patients with lumbar disc herniation to aid surgeons in counseling patients and health care professionals.

447 **Strategic Marketing: Spend Less and Expect To Win**
TICKET
Room S106b
Moderator: Bill Champion,Omaha, NE
Tony Edwards,Omaha, NE

Based on the best research and data gathered over nearly 25 years dedicated to marketing orthopaedic practices. Present data-driven strategies for practices interested in establishing a clear competitive advantage in their market, while allocating their resources effectively and efficiently.

448 **AC and SC Injuries, Glenoid and Scapula Fractures**
Room S504a
Moderator: Leesa M. Galatz, MD, Saint Louis, MO
April D. Armstrong, MD, Hershey, PA
Jay D. Keener, MD, Saint Louis, MO
Peter J. Millett, MD, MSc, Vail, CO

Present the current evidence based thoughts on non-humeral based injuries of the shoulder girdle. Include discussion soft tissue injuries about the shoulder including sternoclavicular and acromioclavicular joint injuries. Rapidly evolving management of scapula, glenoid fossa, and clavicle fracture will be reviewed, includes case presentations. The participants are encouraged to bring cases for discussion by the faculty.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Friday, March 22

449 **Elbow Arthroscopy: Indications, Techniques, Outcomes and Complications**
TICKET
Room S405
Moderator: Julie E. Adams, MD, Minneapolis, MN
Mark S. Cohen, MD, Chicago, IL
Graham J. King, MD, London, ON, Canada
Scott P. Steinmann, MD, Rochester, MN

Outline techniques for performing arthroscopic procedures at the elbow, with a specific focus on indications, tips and pearls, and outcomes and alternative treatment strategies. Potential complications will be studied with emphasis on how to avoid them.

450 **Challenging Adolescent Sports Injuries: A Case Based Approach**
TICKET
Room S106a
Moderator: Rick W. Wright, MD, Saint Louis, MO
Asheesh Bedi, MD, Ann Arbor, MI
Matthew J. Matava, MD, Chesterfield, MO
Matthew V. Smith, MD, Town and Country, MO

Case-based approach to reviewing the challenges and controversies in the diagnosis, treatment and outcome a variety of adolescent sports injuries.

451 **Dilemmas of the Throwing Shoulder**
TICKET
Room S501
Moderator: Richard J. Hawkins, MD, Greenville, SC
James R. Andrews, MD, Gulf Breeze, FL
Richard K. N. Ryu, MD, Santa Barbara, CA
John M. Tokish, MD, Kailua, HI

Discuss the various pathologies of the throwing shoulder, including the role of retroversion and soft tissue, the physical examination signs and treatment options.

452 **Fractures in the Osteoperotic and Elderly: Technical Tips and Tricks**
TICKET
Room S401d
Moderator: Daniel S. Horwitz, MD, Danville, PA
Erik Kubiak, MD, Salt Lake City, UT
Frank A. Liporace, MD, Englewood Cliffs, NJ
Stephen A. Sems, MD, Rochester, MN

This course is designed to discuss technical tips and tricks useful in the operative treatment of fractures in the elderly and osteoporotic patient.

453 **Periarticular Fractures of the Lower Extremity: IM Nail versus Plate**
TICKET
Room S502
Moderator: Robert F. Ostrum, MD, Chapel Hill, NC
Cory A. Collinge, MD, Fort Worth, TX
Robert A. Probe, MD, Temple, TX
Paul Tornetta III, MD, Boston, MA

Explore the indications and implant implications for the treatment of periarticular fractures of the proximal and distal femur and tibia. Case based discussions will be used to complement the presentations.

FD8 **The Art of the Orthopaedic Lecture**
TICKET
Room N227a
Moderator: James H. Beaty, MD, Memphis, TN
James J. McCarthy, MD, Cincinnati, OH

Learn to develop a lecture for an orthopaedic audience. From a 6 minute paper presentation to a 60 minute lecture on a specific research project or clinical subject. This session will give you the tools to prepare and present. Powerpoint preparation and tips included. This course is offered at no charge.

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room S105

Adult Reconstruction Knee VII: Complications
Moderator(s): Hari Bezwada, MD, Princeton, NJ
Ray C. Wasielewski, MD, New Albany, OH

1:30 PM **PAPER: 691**
Identification of Polymicrobial Infection in Total Knee Arthroplasty Through Sonicate Fluid Cultures
Viktor Janz, MD, Berlin, Germany
Georgi Wassilew, MD, Berlin, Germany
Georg Matziolis, Berlin, Germany
Stephan Werner Tohtz, MD, Berlin, Germany
Carsten Perka, MD, Berlin, Germany

In this study the use of sonicate fluid cultures was able to improve both the detection of PJI and the rate of polymicrobial isolations compared to conventional microbiological methods in 74 patients.

1:36 PM **PAPER: 692**
Comparative Effectiveness of Prophylactic Antibiotic Choice and Surgical Infection in Arthroplasty
Brent A. Ponce, MD, Birmingham, AL
Benjamin T. Raines, MA, ATC, Decatur, AL
Vick C. Catherine, MS, BA, Chapel Hill, NC
Joshua Richman, Birmingham, AL
Mary Hawn, MD, FACS, Birmingham, AL

Stratified analyses identified an increase in surgical site infection rates among orthopedic patients with vancomycin only prophylaxis compared to other SCIP-approved antibiotics.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

1:42 PM **PAPER: 693**

Aspirin is an Effective Alternative Prophylaxis for Prevention of Pulmonary Embolism Following Joint Arthroplasty

Javad Parvizi, MD, FRCS, Philadelphia, PA
Ronald Huang, MD, Philadelphia, PA
Ibrahim Raphael, MD, Philadelphia, PA
Eric H. Tischler, BA, Philadelphia, PA
Peter F. Sharkey, MD, Media, PA
William J. Hozack, MD, Philadelphia, PA
Richard H. Rothman, MD, Philadelphia, PA

Aspirin is as effective as warfarin in the prevention of pulmonary embolus following joint replacement in healthy patients, with a lower rate of bleeding and wound complications.

Discussion - 6 Minutes

1:54 PM **PAPER: 694**

Risk of Symptomatic VTE Associated with Flying in the Early Postoperative Period after THA and TKA

Herbert J. Cooper, MD, New York, NY
Sheila Sanders, RN, Hickory Hills, IL
Richard A. Berger, MD, Chicago, IL

Among 1465 consecutive patients, there was no difference in the rate of PE, DVT, or VTE between 220 patients who flew in the early postoperative period and 1245 patients who did not fly.

2:00 PM **PAPER: 695**

Inpatient Myocardial Infarction after Elective Primary Hip or Knee Arthroplasty

Usman Zahir, MD, Baltimore, MD
Robert S. Sterling, MD, Owings Mills, MD
Mary L. Forte, PhD, DC, RN, Baltimore, MD

Acute myocardial infarction after elective arthroplasty is as common as PE but with higher mortality. Multiple procedure patients are at the highest risk for acute MI and post-MI mortality.

2:06 PM **PAPER: 696**

The Effect of Aspirin and Low-molecular-weight Heparin on Venous Thromboembolism after Knee Replacement

Simon Jameson, Middlesbrough, United Kingdom
Paul Baker, MB, ChB, Newcastle Upon Tyne, United Kingdom
Susan Charman, BSc, London, United Kingdom
David Deehan, MD, FRCS, England, United Kingdom
Mike R. Reed, MBBS MD, Northumberland, United Kingdom
Paul J. Gregg, Cleveland, United Kingdom
Jan Van Der Meulen, MBBS, London, United Kingdom

Between patients receiving LMWH or aspirin, there was no difference in the risk of pulmonary embolus, 90-day mortality and major haemorrhage in 156798 TKRs

Discussion - 6 Minutes

2:18 PM **PAPER: 697**

Two-stage Revision Total Knee Arthroplasty with an Articulating Spacer: Minimum Five-year Review

Ted Vasarhelyi, MD, MSc, London, ON, Canada
James Howard, MD, London, ON, Canada
Doug Naudie, MD, FRCSC, London, ON, Canada
Richard W. McCalden, MD, London, ON, Canada
Steven J. MacDonald, MD, London, ON, Canada

To review the minimum 5-year results of two-stage revision tka with articulating spacers for chronically infected total knee arthroplasty, and compare these outcomes with non-articulating spacers.

2:24 PM **PAPER: 698**

High Level of Residual Symptoms in Young Patients with Total Knee Arthroplasty

Keith R. Berend, MD, New Albany, OH
Ryan Nunley, MD, Saint Louis, MO
Adolph V. Lombardi Jr, MD, New Albany, OH
Erin Ruh, MS, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO
William G. Hamilton, MD, Alexandria, VA
Craig J. Della Valle, MD, Chicago, IL
Javad Parvizi, MD, FRCS, Philadelphia, PA
Robert L. Barrack, MD, Saint Louis, MO

When interviewed by an independent third party, a surprising percentage of young, active patients report residual symptoms and limitations following modern TKA.

2:30 PM **PAPER: 699**

The Effect of Timing of Manipulation Under Anesthesia to Improve Range-of-Motion Following TKA

Kimona Issa, MD, Santa Clarita, CA
Aaron J. Johnson, MD, Baltimore, MD
Tiffany Tatevossian, MPH, KS City, MO
Mark A. Kester, PhD, Mahwah, NJ
Harpal S. Khanuja, MD, Cockeysville, MD
Peter M. Bonutti, MD, Effingham, IL
Ronald E. Delanois, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

Our study demonstrated significantly improved range-of-motion in patients who had undergone manipulations before 12 weeks compared to the cohorts who had undergone later manipulations.

Discussion - 6 Minutes

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Friday, March 22

2:42 PM **PAPER: 700**

Intraoperative Swab Cultures are Not as Good as Tissue Samples for Diagnosis of Periprosthetic Joint Infection

Vinay Aggarwal, BS, Philadelphia, PA
Carlos A. Higuera, MD, Lakewood, OH
Gregory K. Deirmengian, MD, Broomall, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA

Tissue cultures are better for isolation of infecting organisms than swabs and demonstrated higher sensitivity, specificity, PPV, and NPV for diagnosing PJI.

2:48 PM **PAPER: 701**

Are Bilateral Total Joint Replacement Patients at a Higher Risk of Developing Pulmonary Embolism Following Surgery?

Geoffrey H. Westrich, MD, New York, NY
Alyssa Yeager, New York, NY

In a large patient cohort, there was a three-fold increase in the rate of pulmonary embolism following bilateral total hip and total knee arthroplasty when compared to unilateral procedures.

2:54 PM **PAPER: 702**

Arthroplasty Immediately after an Infected Surgery; How Much is the Risk of Periprosthetic Infection?

Mansour Abolghasemian, MD, Toronto, ON, Canada
Amir Sternheim, Toronto, ON, Canada
Alireza Shakib, MD, Toronto, ON, Canada
Oleg Safir, MD, Toronto, ON, Canada
Allan E. Gross, MD, FRCSC, Toronto, ON, Canada
David Backstein, MD, Toronto, ON, Canada

In a case-control study, we could not find any increased risk of infection in arthroplasties done immediately after a surgery on an infected case in the same operating room, or any infection by an org.

Discussion - 6 Minutes

3:06 PM **PAPER: 703**

Periprosthetic Joint Infection: A Fatal Condition?

Benjamin Zmistowski, BS, Philadelphia, PA
Joseph Karam, MD, Philadelphia, PA
Joel Durinka, MD, Philadelphia, PA
David Casper, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Periprosthetic joint infection is an independent predictor of mortality. The risk of 1st year mortality was four times greater in patients suffering PJI than those undergoing aseptic joint revision.

3:12 PM **PAPER: 704**

Threshold for Synovial Cell Count and Differential for PJI in Knee: Using Standard MSIS Definition

Benjamin Zmistowski, BS, Philadelphia, PA
Carlos A. Higuera, MD, Lakewood, OH
Joseph Mendelis, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

We provide a threshold for synovial cell count and neutrophil percentage using a standard definition for PJI. Fluid analysis and good clinical judgment remain invaluable tools in diagnosing PJI.

3:18 PM **PAPER: 705**

Characterization of Pulmonary Emboli in Orthopaedic Surgery Patients Compared to General Medical Patients

Nathaniel Jove, MD, Royal Oak, MI
Sam Samaan, MD, Royal Oak, MI
David C. Markel, MD, Southfield, MI
Denis Lincoln, Southfield, MI

Post-Operative Total Joint Arthroplasty patients have smaller, multiple pulmonary emboli post operatively compared to medical patients who have fewer and larger pulmonary emboli.

Discussion - 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room N427

Shoulder and Elbow V: Instability, Fractures, and Shoulder Stiffness

Moderator(s): G. Russell Huffman, MD, Philadelphia, PA
Robert Z. Tashjian, MD, Salt Lake City, UT

1:30 PM **PAPER: 706**

Prognostic Factors for Reoperation Following Plate Fixation of Fractures of the Midshaft Clavicle

Laura Schemitsch, BA, Thornhill, ON, Canada
Michael D. McKee, MD, Toronto, ON, Canada
Emil H. Schemitsch, MD, Toronto, ON, Canada
Paul R. Kuzyk, MD, FRCSC, MSc, Toronto, ON, Canada
Milena Vicente, RN, Toronto, ON, Canada

A retrospective review to determine which prognostic factors were associated with reoperation following plate fixation of completely displaced mid-shaft fractures.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

1:36 PM **PAPER: 707**

Open Reduction and Plate Fixation vs. Nonoperative Treatment for Displaced Midshaft Clavicle Fractures

Ewan B. Goudie, MBChB, Edinburgh, United Kingdom
Christopher M. Robinson, MD, Edinburgh, United Kingdom
Iain Murray, MD, Edinburgh, United Kingdom
Paul J. Jenkins, MRCSEd, Edinburgh, United Kingdom
Andrew Brooksbank, MD, Dundee, United Kingdom
Angus Arthur, FRCS, Glasgow, United Kingdom
Tim Chesser, MD, ,bristol, United Kingdom
Iain Packham, FRCS, Bristol, United Kingdom
Mark A. Crowther, MBBS, FRCS, Bristol, United Kingdom

This multicenter, randomized control trial compares primary open reduction and plate fixation with nonoperative treatment in patients with displaced midshaft clavicle fractures.

1:42 PM **PAPER: 708**

Clavicular Bone Tunnel Malposition Leads to Early Failures in Coracoclavicular Ligament Reconstructions

Jay B. Cook, MD, Leesburg, FL
James S. Shaha, MD, Tripler AMC, HI
Douglas J. Rowles, MD, Aiea, HI
Craig R. Bottoni, MD, Honolulu, HI
Steve Shaha, Draper, UT
Lt.Col John M. Tokish, MD, Kailua, HI

Clavicular bone tunnel location is a risk factor for early loss of reduction in anatomic CC ligament reconstructions.

Discussion - 6 Minutes

1:54 PM **PAPER: 709**

Proximal Humeral Fractures Treated with Locked Plating and an Intramedullary Strut Allograft

Brian L. Badman, MD, Avon, IN
Jonathan C. Levy, MD, Fort Lauderdale, FL
Randall Otto, MD, Fenton, MO
Mark A. Mighell, MD, Tampa, FL
Jonathan C. Levy, MD, Fort Lauderdale, FL
Randall Otto, MD, Fenton, MO
Brian L. Badman, MD, Avon, IN

Intramedullary strut allograft can assist in proximal humeral fracture reduction and, in this series, results in a lower incidence of hardware related complications while using a locked plate.

2:00 PM **PAPER: 710**

Scapulothoracic Fusion in Dystrophic and Non-dystrophic Conditions with Failure Analysis

Mathew Sewell, Twickenham, United Kingdom
Deborah S. Higgs, FRCS, London, United Kingdom
Ian Bayley, Middlesex, United Kingdom
Simon Lambert, FRCS, London, United Kingdom

Scapulothoracic fusion provides good satisfaction in 80% of patients with both dystrophic and non-dystrophic pathologies. Smoking, age and previous surgery increase nonunion risk.

2:06 PM **PAPER: 711**

A Comparison of Reconstructive Procedures for Glenoid Bone Loss and Recurrent Anterior Shoulder Instability

Benjamin Noonan, MD, West Fargo, ND
Jon K. Sekiya, MD, Ann Arbor, MI
Scott J. Hollister, PhD, Ann Arbor, MI
Answorth A. Allen, MD, New York, NY
Joshua Dines, MD, Great Neck, NY
Asheesh Bedi, MD, Ann Arbor, MI

Tibial plafond and iliac crest allograft more closely restore the native glenoid dimensions compared to standard Latarjet reconstruction for glenoid bone loss in recurrent anterior instability.

Discussion - 6 Minutes

2:18 PM **PAPER: 712**

Does Suture and Anchor Placement Technique Matter When Performing Remplissage for Hill-Sachs Lesions?

Josh W. Giles, BESc, London, ON, Canada
Ilia Elkinson, MD, Wellington, New Zealand
Harm-Willem Boons, MD, Aarle-Rixtel, Netherlands
Ken Faber, MD, London, ON, Canada
Louis Ferreira, MSc, London, ON, Canada
James A. Johnson, PhD, London, ON, Canada
George S. Athwal, MD, London, ON, Canada

Remplissage technique does have a significant effect on joint biomechanics. Specifically, proper suture placement is critical as over medialization results in excessive stiffen and motion restriction.

2:24 PM **PAPER: 713**

The Histologic and Biomechanical Analysis of the Two Smallest Available Glenoid Anchors for use in Labral Repairs

Matthew J. Smith, MD, Columbia, MO
James L. Cook, DVM, PhD, Columbia, MO
Ferris Pfeiffer, PhD, Boonville, MO
Keiichi Kuroki, DVM, PhD, Columbia, MO

The objective of this study was to evaluate and compare both the histologic responses and biomechnical properties of a "solid" bioabsorbable suture anchor and an "all-suture" anchor

2:30 PM **PAPER: 714**

Open Bankart Repair for Revision of Failed Stabilization: Outcome Analysis at Mean Nine Years

Robert J. Neviaser, MD, Washington, DC
Michael T. Benke, MD, Santa Monica, CA
Andrew Neviaser, MD, Washington, DC

Open Bankart repair offers a highly reliable option with consistently successful outcomes as a revision procedure for a variety of failed prior stabilization procedures, especially arthroscopic Bankart repairs.

Discussion - 6 Minutes

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Friday, March 22

2:42 PM **PAPER: 715**

Arthroscopic Repair of Small and Medium Sized Bony Bankart Lesions

Seung-Hyun Cho, MD, Incheon

A bony Bankart lesion is associated with glenohumeral instability and its incidence ranges from 4% to 70%. Since successful arthroscopic reduction and fixation of an anterior glenoid fracture was desc.

2:48 PM **PAPER: 716**

Long-term Results of Latarjet Procedure for the Treatment of Anterior Glenohumeral Instability

Naoko Mizuno, MD, Osaka, Japan
Patrick J. Denard, MD, Medford, OR
Patric Raiss, MD, Heidelberg, Germany
Gilles Walch, MD, Lyon, France

Latarjet procedure for anterior glenohumeral instability provides excellent long-term results. The prevalence of postoperative development of arthritis is 18.5% at 20 years follow-up.

2:54 PM **PAPER: 717**

All-arthroscopic Revision Procedure for Failed Latarjet Surgery: Technique and Preliminary Results

Antonios Giannakos, MD, Hamburg, Germany
Richard Jany, MD, PhD, Parndorf, Austria
Daniel G. Schwartz, MD, Chicago, IL
Laurent Lafosse, MD, Annecy, France

Arthroscopic revision procedure for failed Latarjet surgery, is a safe and reproducible surgery. Offering all advantages of arthroscopic surgery, it restores shoulder stability after failed Latarjet.

Discussion - 6 Minutes

3:06 PM **PAPER: 718**

Accuracy and Reliability Testing of Two Methods for Measuring Internal Rotation of the Glenohumeral Joint

Thomas W. Throckmorton, MD, Germantown, TN
Justin Hall, MD, Memphis, TN
Frederick M. Azar, MD, Memphis, TN

Estimation of spinous process level for measuring internal rotation of the shoulder demonstrates good inter-observer reliability. However, estimation in degrees is more reliable.

3:12 PM **PAPER: 719**

Blind Versus Ultrasound Guided Glenohumeral Injection of Corticosteroid for Shoulder Stiffness

Yang-Soo Kim, MD, Seoul

Ultrasound-guided injection does not guarantee better outcomes than blind injection in the stiff shoulder.

3:18 PM **PAPER: 720**

Risk Factors for the Nonoperative Treatment of Stiff Shoulder: Multivariable Analysis in 497 Patients

Akira Ando, Sendai, Japan
Hiroyuki Sugaya, MD, Chiba, Japan
Yoshihiro Hagiwara, MD, Sendai, Japan
Norimasa Takahashi, MD, Funabashi, Japan
Nobuaki Kawai, MD, Funabashi, Japan
Kenji Kanazawa, MD, Sendai, Japan
Eiji Itoi, MD, Sendai, Japan

Diabetes mellitus and external rotation under 0° at first visit were risk factors of worse prognosis and age over 60 was of better prognosis in the treatment of stiff shoulder.

Discussion - 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room N426

Sports Medicine/Arthroscopy VII: Hip

Moderator(s): Bruce A. Levy, MD, Rochester, MN
Marc J. Philippon, MD, Vail, CO

1:30 PM **PAPER: 721**

At What Age Do Cam and Pincer Morphology Become Apparent: An Analysis of 225 Pediatric and Adolescent CT Scans

Shafagh Monazzam, MD, San Diego, CA
James D. Bomar, San Diego, CA
Jerry R. Dwek, MD, San Diego, CA
Harish S. Hosalkar, MD, San Diego, CA
Andrew T. Pennock, MD, San Diego, CA

Analysis of 225 pediatric CTs revealed increase in acetabular coverage and a decrease in alpha angle with age; with cam and pincer morphology first appearing at 10 and 12 years of age respectively.

1:36 PM **PAPER: 722**

Complications after Hip Arthroscopy: A Prospective Multicenter Study Using a Validated Grading Classification

Christopher Larson, MD, Edina, MN
John C. Clohisy, MD, Saint Louis, MO
Paul E. Beaule, MD, Ottawa, ON, Canada
M. R. Giveans, PhD, Eden Prairie, MN
Rebecca M. Stone, ATC, Edina, MN
Kathryn Samuelson, BS, Edina, MN

There is very little published literature looking at comprehensive complication rates after hip arthroscopy with current techniques and indications.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

1:42 PM **PAPER: 723**

The Prevalence of CAM Impingement: A Study of 3,500 Adult Femurs

Shane Hanzlik, MD, Shaker Heights, OH
Michael Salata, MD, Cleveland, OH
Michael Abdulian, MD, Studio City, CA
Shane J. Nho, MD, Chicago, IL
Charles A. Bush-Joseph, MD, Chicago, IL
Danielle Gurin, BS, Cleveland, OH

The prevalence of CAM lesions of the femoral neck in 3558 femurs shows a prevalence of 30% in the general population with bilateral involvement in 80% of individuals.

Discussion - 6 Minutes

1:54 PM **PAPER: 724**

Avulsion of Proximal Hamstrings: Is Non-Operative Management Justified?

Kamal Bali, MBBS, Crows Nest, Australia
David G. Wood, FRACS, Wollstonecraft, Australia

Evaluation of outcomes in 488 proximal hamstring avulsion injuries showed that complete avulsions should undergo early fixation while initial conservative management is justified in partial avulsions.

2:00 PM **PAPER: 725**

Morphology of the Anterior Acetabular Rim in an Asymptomatic Population

Michael D. Hellman, MD, Chicago, IL
Christopher E. Gross, MD, Chicago, IL
Michael Hart, Chicago, IL
Ryan Freedman, BS, Chicago, IL
Charles A. Bush-Joseph, MD, Chicago, IL
Shane J. Nho, MD, Chicago, IL

New anterior acetabular rim parameters are measured within an asymptomatic population and appear to be different than within a symptomatic population.

2:06 PM **PAPER: 726**

Hip Morphology as a Predictor of Radiographic Osteoarthritis and Total Hip Arthroplasty at 19-Year Follow Up

Geraint E. Thomas, MA, MBBS, Oxford, United Kingdom
Antony Palmer, MA, BMBCh, Oxford, United Kingdom
Deborah Hart, MD
Tim D. Spector, MD
Harinderjit Gill, PhD, Oxford/Oxon, United Kingdom
David W. Murray, MD, Oxford, United Kingdom
Andrew J. Carr, FRCS, Headington Oxford, United Kingdom
Nigel Arden, MD, Oxford, United Kingdom
Sion Glyn-Jones, MA, MBBS, Oxford, United Kingdom

This study provides longitudinal evidence that measurements of hip morphology characteristic of FAI and undiagnosed mild dysplasia are centre edge angle) are predictive of OA development and THA.

Discussion - 6 Minutes

2:18 PM **PAPER: 727**

Return to Duty After Mini-Open Arthroscopic Assisted Treatment of FAI in an Active Duty Military Population

Justin J. Ernat, MD, Tripler AMC, HI
Daniel Song, MD, Honolulu, HI
Gregory Y. Lee, MD, Kailua, HI
Lt.Col John M. Tokish, MD, Kailua, HI

Surgical treatment of FAI is effective in improving hip pain and function; however, with a return to duty rate of 53% the demands of the military may not be compatible with this subgroup of patients.

2:24 PM **PAPER: 728**

Can Patients Return to High Level Activity After Open Hip Preservation Surgery?

Ljiljana Bogunovic, MD, Saint Louis, MO
Meghan Gottlieb, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO

Open hip preservation surgery with the surgical hip dislocation and/or periacetabular osteotomy does not preclude return to high level activity or sport in active patients.

2:30 PM **PAPER: 729**

Does Hip Motion Range after Arthroscopic Surgery Depend on the Extent of Cam Impingement Resection?

Myung-Sik Park, MD, Jeonju
Hongman Cho, MD, Gwangju
Sun Jung Yoon, Jeonju
Hal D. Martin, DO, Oklahoma City, OK

Range of motion changes after hip arthroscopic surgery.

Discussion - 6 Minutes

2:42 PM **PAPER: 730**

Revision Hip Preservation Surgery following Treatment for Femoroacetabular Impingement

Sarah Knapp, BA, New York, NY
Bryan T. Kelly, MD, New York, NY
Anil S. Ranawat, MD, New York, NY
Struan H. Coleman, MD, New York, NY
Ernest L. Sink, MD, New York, NY

While residual cam deformity was the most commonly treated pathology at time of revision, extra-articular impingement and dysplasia were also addressed surgically.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Friday, March 22

2:48 PM **PAPER: 731**

Arthroscopic Labral Repair Versus Selective Debridement Associated with FAI: A Prospective Randomized Study

Aaron J. Krych, MD, Rochester, MN
Matthew M. Thompson, MD, KS City, MO
ZaKary A. Knutson, MD, Oklahoma City, OK
Joanna Scoon, BA
Struan H. Coleman, MD, New York, NY

In a prospective randomized trial, arthroscopic treatment of FAI with labral repair resulted in superior improvement in functional outcomes and patient satisfaction compared with selective debridement.

2:54 PM **PAPER: 732**

Response from Intra Articular Hip Injection to Predict Outcome after Arthroscopic Management of FAI

Olufemi Ayeni, MD, MSc, Oakville, ON, Canada
Clary J. Foote, MD, Hamilton, ON, Canada
Kevin Debiparshad, MD, Hamilton, ON, Canada
Sarah Crouch, BSc(Cand), Stony Creek, ON, Canada
Ze'ev Maizlin, MD, FRCPC, Hamilton, ON, Canada
Forough Farrokhyar, PhD, Hamilton, ON, Canada
Mohit Bhandari, MD, FRCSC, Hamilton, ON, Canada

The results of this study showed that the response from an intra articular hip injection is a poor predictor of short-term outcomes following arthroscopic management of FAI.

Discussion - 6 Minutes

3:06 PM **PAPER: 733**

The Impact of Ankle Bracing on Functional Ankle Instability in Elite Volleyball Athletes

Michael S. Pinzur, MD, Maywood, IL
Marc Angerame, MD, Charlotte, NC
Pietro M. Tonino, MD, Maywood, IL

The results of this investigation suggest a potential impairment in performance and dynamic stabilization while using a hinged ankle orthosis for prophylactic purposes.

3:12 PM **PAPER: 734**

Can PRP Improve Healing of Achilles Tendon after Surgical Repair? A Case Control Randomized Study

Riccardo Maria Lanzetti, Roma, Italy
Alessandro Ciompi, MD, Roma, Italy
Angelo De Carli, MD, Rome, Italy
Antonio Vadala, MD, Rome, Italy
Domenico Lupariello, Matera, Italy
Giuseppe Argento, MD, Rome, Italy
Mario Vetrano, Rome, Italy
Maria C. Vulpiani, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy

The use of PRP during surgery can improve tendon healing in Achilles tendon rupture, but in our study this did not correlate with a clinical advantage.

3:18 PM **PAPER: 735**

Performance Outcomes after Repair of Complete Achilles Tendon Ruptures in National Basketball Association Players

Rohit Garg, MD, Chicago, IL
Nirav H. Amin, MD, Philadelphia, PA
Andrew B. Old, MD, Philadelphia, PA
Aaron Beck, BA, MS, Philadelphia, PA
Nader Toossi, MD, Philadelphia, PA
Douglas Cerynik, Downingtown, PA

Data analyzed for 18 NBA players with full Achilles ruptures over a 20-year period. 38.9% never returned to play. Playing time and performance decreased significantly for all returning athletes.

Discussion - 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room S102

Spine V: Infections and Complications

Moderator(s): Patrick J. Cahill, MD, Philadelphia, PA
Christopher G. Furey, MD, Cleveland, OH

1:30 PM **PAPER: 736**

Use of Single Dose Tranexamic Acid to Reduce Blood Loss in Operative Thoracolumbar Trauma: A Comparative Study

Bhavuk Garg, MS Ortho, New Delhi, India
Sarvdeep S. dhatt, MS, Chandigarh, India
Vijay Kumar, MD, New Delhi,India, India
Rajesh Malhotra, MS, New Delhi, India

One single intravenous dose of TA (15mg/kg) just before surgery reduces intraoperative as well as postoperative blood loss in patients undergoing operative thoracolumbar trauma, without increasing risk of thromboembolic events.

1:36 PM **PAPER: 737**

The Association between Allogenic Transfusion Volume and Infection Rates following Spine Surgery

Barrett I. Woods, MD, Pittsburgh, PA
Antonia Chen, MD, Pittsburgh, PA
William F. Donaldson III, MD, Pittsburgh, PA
Joon Y. Lee, MD, Pittsburgh, PA
James Kang, MD, Pittsburgh, PA

The volume of perioperative allogenic blood transfusion may be one of many factors that increases the risk of surgical site infection follow thoracolumbar and lumbar spine surgery.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

1:42 PM **PAPER: 738**

A Randomized Clinical Trial for the Treatment of Bedsores in Traumatic Paraplegia Patients

Rajeshwar N. Srivastava, MS, Lucknow, India

There is, however, recent evidence in the literature that negative pressure wound therapy helps in faster healing in a closed environment.

Discussion - 6 Minutes

1:54 PM **PAPER: 739**

Risk Factors and Surgical Outcome of Thoracic Ossification of the Ligamentum Flavum

Kei Ando, MD, Nagoya, Japan
Shiro Imagama, MD, Nagoya, Japan
Zenya Ito, PhD, Nagoya, Japan
Naoki Ishiguro, MD, Nagoya, Japan

Ninety-six patients with thoracic OLF were evaluated. Patients with longer duration of symptoms, the ossification of dura mater, and Type D OALL had poorer surgical outcomes.

2:00 PM **PAPER: 740**

Intrawound Vancomycin Powder Prevented Bacterial Infection in a Rabbit Spine Surgical Model

Lukas P. Zebala, MD, Saint Louis, MO
Tapanut Chuntarapas, MD, Saint Louis, MO
Mike Talcott, DVM DACLAM, Saint Louis, MO
K. Daniel Riew, MD, Saint Louis, MO

Intrawound Vancomycin powder appears to be 100% effective at preventing surgical site infection in a rabbit spine surgery model.

2:06 PM **PAPER: 741**

◆ Intrawound Vancomycin Powder Reduces Surgical Site Infections in Posterior Cervical Fusion

Cyrus T. Caroom, MD, Temple, TX
Jessica Tullar, PhD, Houston, TX
Jason R. Jones, BS, MS, Georgetown, TX
Christopher D. Chaput, MD, Temple, TX

A prospective study with historical controls of 112 cases of multilevel posterior cervical fusion showed a decreased rate of surgical site infection with intrawound application of vancomycin powder.

Discussion - 6 Minutes

2:18 PM **PAPER: 742**

Bacteriology and Risk Factors of Late Deep Infection Following Spinal Fusion with Instrumentation

Sumeet Garg, MD, Denver, CO
Jaren LaGreca, BA, Aurora, CO
Mark Hotchkiss, BA, Aurora, CO
Kevin Messacar, MD, Aurora, CO
Ann-Christine Nyquist, MD, MSPH, Aurora, CO
Patrick Carry, Aurora, CO
Mark A. Erickson, MD, Aurora, CO

A 3% incidence of delayed deep infection following instrumented spinal fusion was identified at a single center with Propionibacterium acnes as the most commonly identified organism.

2:24 PM **PAPER: 743**

Spinal Epidural Abscesses: Risk Factors, Medical vs. Surgical Management; A Retrospective Review of 100 Cases

Timothy B. Alton, MD, Seattle, WA
Amit R. Patel, MD, York, PA
Carlo Bellabarba, MD, Seattle, WA
Jens R. Chapman, MD, Seattle, WA
Lee J. Michael, MD, Seattle, WA
Harsha Malempati, MD, Vancouver, BC, Canada
Richard J. Bransford, MD, Seattle, WA

A Single-Center Retrospective Review of 100 Patients with Spinal Epidural Abscesses: Risk Factors, Current Trends, Radiographic Analysis, and Outcomes of Medical vs Surgical Management.

2:30 PM **PAPER: 744**

Preoperative Narcotics and Anterior Cervical Surgery: A Post-hoc Analysis of Two Prospective, Randomized Trials

Michael P. Kelly, MD, Saint Louis, MO
Paul A. Anderson, MD, Madison, WI
K. Daniel Riew, MD, Saint Louis, MO

No differences in outcomes existed between patients taking high and low strength narcotics preoperatively.

Discussion - 6 Minutes

2:42 PM **PAPER: 745**

Rate of Venous Thromboembolic Events after Spine Surgery

William W. Schairer, San Francisco, CA
Andrew Pedtke, MD, San Francisco, CA
Serena S. Hu, MD, San Francisco, CA

We used a claims database with 100% of emergency, ambulatory, and inpatient claims to evaluate the rate of thromboembolic events up to 90 days after spine surgery.

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Friday, March 22

2:48 PM **PAPER: 746**

Patient-Specific Factors and Co-Morbidities that Influence Mortality and Complications After Spinal Fusion

Andrew J. Schoenfeld, MD, Canutillo, TX
Paul A. Carey, MD, El Paso, TX
Philip J. Belmont Jr, MD, El Paso, TX
Andrew J. Schoenfeld, MD, Canutillo, TX

Several factors, including patient age, BMI, the absolute number of medical co-morbidities, pulmonary conditions, procedural times, and pre-operative albumin < 3.5 seem to influence the risk of post-operative morbidity.

2:54 PM **PAPER: 747**

90-Day Readmission Rate after Spine Fusion for Adult Deformity

William W. Schairer, San Francisco, CA
Alexandra Carrer, MD, New York, NY
Vedat Deviren, MD, San Francisco, CA
Serena S. Hu, MD, San Francisco, CA
Praveen V. Mummaneni, San Francisco, CA
Christopher Ames, MD, San Francisco, CA
Dean Chou, MD, San Francisco, CA
Steven Takemoto, PhD, San Francisco, CA
Sigurd H. Berven, MD, San Francisco, CA

This study evaluated the 90-day readmission rate after spine fusion for adult deformity, and assessed causes and associated risk factors.

Discussion - 6 Minutes

3:06 PM **PAPER: 748**

Towards Quality and Safety in Spinal Surgery: Use of a Multicenter Database Registry for Quality Improvement

Suken A. Shah, MD, Wilmington, DE
Michelle Marks, NMD, Tucson, AZ
Maty Petcharaporn, BS, San Diego, CA
Baron Lonner, MD, New York, NY
Peter O. Newton, MD, San Diego, CA

A multicenter adolescent idiopathic scoliosis (AIS) database registry was utilized to provide peer benchmark comparison data which can be used for process improvement and ongoing performance feedback.

3:12 PM **PAPER: 749**

◆ Reducing Adverse Event Reporting Bias in Spine Surgery

Joshua D. Auerbach, MD, Chappaqua, NY
Kevin B. McGowan, PhD, New York, NY
Marci Halevi, New York, NY
Greg Maislin, MS, MA, Wynnewood, PA

The use of an independent Clinical Events Committee to evaluate all adverse events from an industry-sponsored IDE trial revealed that 37% of all adverse events were re-classified, the vast majority of which were upgrades in the lvel of severity, or a designation of greater relatedness to surgery or device.

3:18 PM **PAPER: 750**

The National Burden of Revision Spinal Fusion: A Focus on Patient Characteristics and Complications

Sean Rajaee, MS, Woodland Hills, CA
Linda E. Kanim, MA, Los Angeles, CA
Hyun W. Bae, MD, Los Angeles, CA

This study presents (1) national trends in revision spinal fusion and (2) a comparison of co-morbidities, inpatient complications and surgical factors in revision spinal fusion compared to primary fusion discharges.

Discussion - 6 Minutes

PAPER PRESENTATION

1:30 PM — 3:30 PM
Room S103

Practice Management/Rehabilitation III: Education

Moderator(s): Kevin P. Black, MD, Hershey
Roy Davidovitch, MD, New York, NY
Richard O. Lander, MD, Palmerston North, New Zealand

1:30 PM **PAPER: 751**

Fluid Resuscitation Using Enteral Route is a Safe and Effective Alternative to Parental Resuscitation

Kavita Baghel, Lucknow, India
Rajeshwar N. Srivastava, MS, Lucknow, India
Saloni Raj, Bangalore, India

Fluid resuscitation using enteral route is a safe and effective alternative to parental resuscitation in patients undergoing major elective surgery.

1:36 PM **PAPER: 752**

Physical Therapy after Unicompartmental Knee Arthroplasty: Is it Necessary?

Walter A. van der Weegen, MD, Geldrop, Netherlands
Noortje Koolen, Asten, Netherlands
Rogier van Drumpt, Geldrop, Netherlands
H. J. Hoekstra, MD, Sterksel, Netherlands

The majority of patients (70%) recover very well after UKA without out-patient physical therapy (PT). If PT is needed, a short treatment course is sufficient to restore normal recovery.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

1:42 PM **PAPER: 753**

Time-Driven Activity-Based Costing in Orthopaedic Surgery: A Game Changer?

Apurva Shah, MD, MBA, Iowa City, IA
Sohrab Virk, MD, Columbus, OH
William P. Hennrikus, BA, Boston, MA
Mary L. Witkowski, MBA, Boston, MA
Donald S. Bae, MD, Boston, MA
William Maxwell, Boston, MA
Peter M. Waters, MD, Boston, MA

Time-driven activity-based costing (TDABC) offers healthcare provider organizations an improved understanding of cost and cost drivers.

Discussion - 6 Minutes

1:54 PM **PAPER: 754**

The Fate of Manuscripts Rejected by The Journal of Bone and Joint Surgery: American Volume

Kanu M. Okike, MD, Baltimore, MD
Mininder S. Kocher, MD, MPH, Boston, MA
Benedict U. Nwachukwu, Boston, MA
Charles T. Mehlman, DO, MPH, Cincinnati, OH
James D. Heckman, MD, Manchester, VT
Mohit Bhandari, MD, FRCSC, Hamilton, ON, Canada

Most manuscripts not accepted by JBJS were published elsewhere within 5 years of rejection, and the factors predictive of subsequent publication were primarily investigator-related.

2:00 PM **PAPER: 755**

AAOS Disclosure Policy Fails to Accurately Inform Its Members of Conflicts of Interest

Michael Tanzer, MD, Montreal, QC, Canada
Dylan Tanzer, Hampstead, Canada
Karen Smith, CRA, Montreal, QC, Canada

This study reveals that surgeon compliance is very poor when comparing the disclosures of the Orthopaedic companies to the disclosures of these consultants in the AAOS Disclosure Program Records.

2:06 PM **PAPER: 756**

Role of Vitamin D in Osteoarthritis Knee: A Six-Month Double Blind, Randomized, Placebo Control Trial

Divya Sanghi, Lucknow, India
Rajeshwar N. Srivastava, MS, Lucknow, India
Saloni Raj, Bangalore, India

Inadequate sunlight exposure and lower serum levels of 25(OH)D appears to be associated with an increased risk for progression of Osteoarthritis knee

Discussion - 6 Minutes

2:18 PM **PAPER: 757**

Residual Limb Measures During Work-Related Activities in Men with Transtibial Amputation due to Trauma

William J. Ertl, MD, Oklahoma City, OK
Carol Dionne, DPT, PhD, Oklahoma City, OK
Jonathan Day, CPO, Oklahoma City, OK
David M. Thompson, PT, PhD, Oklahoma City, OK
Brenda J. Smith, PhD, Stillwater, OK
Sesh Commuri, PhD, Norman, OK

Residual limb activity in osteomyoplastic trans-tibial amputees.

2:24 PM **PAPER: 758**

◆ Long-term Safety and Efficacy of Tanezumab as Treatment for Osteoarthritis

Evan F. Ekman, MD, Columbia, SC
Alfonso Bello, MD, Glenview, IL
David Radin, MD, Stamford, CT
Isabelle Davignon, Ann Arbor, MI
Michael D. Smith, Groton, CT
Mark T. Brown, MD, Groton, CT
Christine West, Groton, CT
Kenneth M. Verburg, PhD, Groton, CT

Tanezumab monotherapy has sustained clinical utility in patients experiencing inadequate analgesia with existing therapies and potential to significantly impact orthopedic practice

2:30 PM **PAPER: 759**

Differentiating Septic Arthritis from Acute Atraumatic Joint Effusion

Robert A. Gallo, MD, Hershey, PA
John Roberts
Schaefer Eric, Hershey, PA

Differentiating septic arthritis from other causes of effusion can be difficult. Among variables tested, only CRP was statistically different among culture-positive and culture-negative effusions.

Discussion - 6 Minutes

2:42 PM **PAPER: 760**

Critical Analysis of a Trauma Fellowship-modeled Six-year Orthopaedic Surgery Training Program

Alan H. Daniels, MD, Providence, RI
Matthew McDonnell, MD, Providence, RI
Michael G. Ehrlich, MD, Providence, RI
Peter G. Trafton, MD, Providence, RI
Roman A. Hayda, MD, Providence, RI
Christopher T. Born, MD, Providence, RI
Staci Fischer, Providence, RI
Christopher W. DiGiovanni, MD, Providence, RI

The trauma fellowship-modeled sixth year of training was felt to be an extremely valuable experience by a majority of trainees, especially those who completed residency under duty hour restrictions

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Friday, March 22

2:48 PM **PAPER: 761**

Prevalence of Answers to OITE Questions in Three Commonly Used Orthopaedic Review Sources

Chad A. Krueger, MD, Fort Sam Houston, TX
Irshad A. Shakir, MD, Saint Louis, MO
Brian C. Fuller, MD, Fort Sam Houston, TX

Online based orthopaedic review sources may expose residents to more OITE answers than traditional text-based review sources.

2:54 PM **PAPER: 762**

Orthopaedic Surgery Residency Application Process: Survey of Graduating Medical Students

Debdut Biswas, MD, Chicago, IL
Nikhil N. Verma, MD, Chicago, IL
Walter W. Virkus, MD, Chicago, IL
Brett R. Levine, MD, Chicago, IL

A survey study of graduating medical students applying for residency in Orthopaedic Surgery reveals the factors that influenced them when evaluating and ranking individual residency training programs.

Discussion - 6 Minutes

3:06 PM **PAPER: 763**

A Surgical Skills Simulation Training Program in an Articular Fracture Model for Orthopaedic Junior Residents

Jenniefer Y. Kho, MD, Iowa City, IA
Matthew D. Karam, MD, Iowa City, IA
Gary T. Ohrt, Iowa City, IA
Geb Thomas, PhD, Iowa City, IA
Tameem M. Yehyawi, MD, Iowa City, IA
Donald D. Anderson, PhD, Iowa City, IA
John L. Marsh, MD, Iowa City, IA

Simulation training in an articular fracture model improves performance in junior residents, as measured by higher Objective Structured Assessment of Technical Skills scores and less fluoroscopy time.

3:12 PM **PAPER: 764**

The Impact of Tort Reform and Quality Improvements on Medical Liability Claims: A Tale of Two States

Kenneth Illingworth, MD, Springfield, IL
Steve Shaha, Draper, UT
Brooke Robinson, MPh, Springfield, IL
Michael Sinha
Khaled J. Saleh, MD, MSc, Springfield, IL

Quality improvements alone can significantly decrease healthcare costs by decreasing the frequency of medical liability claims.

3:18 PM **PAPER: 765**

Disparity Between Primary Care Physicians and Orthopedists in the Use of Magnetic Resonance Imaging

Paul Johnson, MD, Latham, NY
Jared T. Roberts, MD, Watervliet, NY
Ian J. Dempsey, MSIV, Albany, NY
Shazaan Hushmendy, Albany, NY

We found significant differences between Primary Care Physicians and Orthopedists in the rate of MRI scans ordered and in the utility of those scans in identifying arthroscopically operable pathology.

Discussion - 6 Minutes

SURGICAL SKILLS COURSE

1:30 PM — 4:30 PM

11SK **Let's Do A Total Shoulder Replacement**

TICKET

Moderator: Edward V. Craig, MD, New York, NY
Lynn A. Crosby, MD, Augusta, GA
Thomas B. Edwards, MD, Houston, TX
Evan L. Flatow, MD, New York, NY
John W. Sperling, MD, MBA, Rochester, MN

Room S402a

Through presentation by lecture, video, saw-bones laboratory, and case discussion, registrants will learn a safe and effective technique of unconstrained and reverse shoulder arthroplasty. Simulated bone models only.

SYMPOSIUM

4:00 PM — 6:00 PM
Grand Ballroom

Hip Arthroscopy: To the Cutting Edge… Without Falling Off (BB)

Moderator: Dean K. Matsuda, MD, Los Angeles, CA

A fast-paced case-based interactive discussion with renowned faculty on emerging, evolving, and controversial hip arthroscopy topics with audience participation.

I. Introductions and Indications
Dean K. Matsuda, MD, Los Angeles, CA

II. Dysplasia
J.W. Thomas Byrd, MD, Nashville, TN

III. Femoroacetabular Impingement Controversies I
John C. Clohisy, MD, Saint Louis, MO

IV. Femoroacetabular Impingement Controversies II
Marc J.Philippon, MD, Vail, CO

V. Femoroacetabular Impingement Controversies III
Thomas G. Sampson, MD, San Francisco, CA

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

VI. Chondral Repair and Restoration
Marc R. Safran, MD, Redwood City, CA

VII. Osteosynthesis and OCD
Dean K. Matsuda, MD, Los Angeles, CA

VIII. Peritrochanteric Space Disorders
Asheesh A. Bedi, MD, Ann Arbor, MI

IX. Subgluteal Pubalgia
Christopher M. Larson, MD, Edina, MN

X. Case Presentations/Question and Answer Session
Panel

SYMPOSIUM
4:00 PM — 6:00 PM
Room S406

Orthopaedic Trauma Mythbusters (CC)
Moderator: Robert F. Ostrum, MD, Chapel Hill, NC

Examine some of the myths associated with the care of fracture and trauma patients. Evidence based lectures, case presentations, and audience response will be part of this learning experience.

I. Minimally Invasive Fracture Surgery Is Of Minimal Benefit To The Patient
Robert F. Ostrum, MD, Chapel Hill, NC

II. Case Presentations
Paul Tornetta III, MD, Boston, MA

III. Intra-op Cultures Have No Role In The Management Of Open Fractures And Should Be Abandoned
J. Tracy Watson, MD, Saint Louis, MO

IV. Case Presentations
Robert A. Probe, MD, Temple, TX

V. Locking Plates Are Always Best For Tibial Plateau Fractures
Paul Tornetta III, MD, Boston, MA

VI. Case Presentations
J. Tracy Watson, MD, Saint Louis, MO

VII. Femoral Shaft Fractures Should Be Fixed Only On The Day Of Injury
Robert A. Probe, MD, Temple, TX

VIII. Case Presentations
Robert F. Ostrum, MD, Chapel Hill, NC

INSTRUCTIONAL COURSE LECTURE

4:00 PM — 6:00 PM

◆ 461 **Complications after Total Hip Arthroplasty: Current Strategies for Prevention and Treatment**
Room N228
Moderator: Craig J. Della Valle, MD, Chicago, IL
Fares S. Haddad, FRCS, London, United Kingdom
David J. Jacofsky, MD, Phoenix, AZ
Robert M. Meneghini, MD, Fishers, IN

Learn to avoid and optimize the management of complications associated with total hip arthroplasty including dislocation and leg length discrepancy, infection, symptomatic DVT and periprosthetic fractures.

462 **Strategic Marketing: Spend Less and Expect To Win**
Room S502
Moderator: Bill Champion,Omaha, NE
Tony Edwards, Omaha,NE

Based on the best research and data gathered over nearly 25 years dedicated to marketing orthopaedic practices. Present data-driven strategies for practices interested in establishing a clear competitive advantage in their market, while allocating their resources effectively and efficiently.

463 **Massive Rotator Cuff Tears: Arthroscopy to Arthroplasty**
Room S405
Moderator: Robert H. Bell, MD, Akron, OH
Frances Cuomo, MD, New York, NY
Reuben Gobezie, MD, Cleveland, OH
Gerald R. Williams Jr, MD, Philadelphia, PA

Cover the diagnosis, classification and treatment of massive cuff tears, including open and arthroscopic repair, the use of grafts and transfers, and arthroplasty options.

464 **Risks, Benefits and Evidence-Based Recommendations for Improving the Outcome of ACL Reconstruction**
Room S104
Moderator: James H. Lubowitz, MD, Taos, NM
Matthew T. Provencher, MD, San Diego, CA
John M. Tokish, MD, Kailua, HI
Nikhil N. Verma, MD, Chicago, IL

Describe the risks and benefits of ACL reconstruction with focus on anatomy, graft selection, rehabilitation, and fixation. Each case presentation will be the basis for a faculty panel discussion and audience question and answer session, where faculty will review evidence-based recommendations for improving outcome based upon comparative effectiveness research.

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Friday, March 22

◆465 **Lumbar Spinal Stenosis: Today and Tomorrow**
Room S501
Moderator: Darrel S. Brodke, MD, Salt Lake City, UT
D G. Anderson, MD, Moorestown, NJ
Theodore J. Choma, MD, Columbia, MO
Brandon Lawrence, MD, Salt Lake Cty, UT

This course will cover the indications and evidence base for current treatment options in spinal stenosis, as well as future trends, including minimally invasive techniques.

466 **The Management of Meniscal Pathology: From Partial Meniscectomy to Transplantation**
Room S503
Moderator: Laith M. Jazrawi, MD, New York, NY
Philip A. Davidson, MD, Park City, UT
James N. Gladstone, MD, New York, NY
Eric Strauss, MD, New York, NY

Provide a focused consolidation of expert lectures on current diagnoses and management of meniscus pathology and treatment.

467 **Fractures and Dislocations About the Elbow and Their Adverse Sequelae: Contemporary Perspectives**
Moderator: Mark S. Cohen, MD, Chicago, IL
Graham J. King, MD, London, ON, Canada
Shawn W. O'Driscoll, MD, Rochester, MN
Scott P. Steinmann, MD, Rochester, MN

Room S103a

Based upon clinical cases and surgical videos, this course will address contemporary treatments and controversies regarding traumatic injuries about the elbow and their sequela.

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room S105

Adult Reconstruction Hip VII: Metabolic Issues in Total Hip Arthroplasty / Complications in Total Hip Arthroplasty
Moderator(s): David C. Ayers, MD, Worcester, MA
John Owen, MD, Sydney, Australia

4:00 PM **PAPER: 766**
No Increased Risk of Venous Thromboembolism with Tranexamic Acid after Primary Hip and Knee Arthroplasty
Blake P. Gillette, MD, Rochester, MN
Lori J. Desimone, PA-C, Rochester, MN
Hugh M. Smith, MD, PhD, Rochester, MN
Christopher Duncan, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

Venous thromboembolic complications compared with and without intraoperative tranexamic acid after primary total hip and knee arthroplasty within three different DVT prophylactic regimens.

4:06 PM **PAPER: 767**
Topical Tranexamic Acid is a Useful Adjunct in a Blood Management Program for Primary Total Hip Arthroplasty
Brian R. Hamlin, MD, Pittsburgh, PA
Gerhardt Konig, MD, Pittsburgh, PA
Jonathan Waters, MD, Pittsburgh, PA
Anthony M. DiGioia III, MD, Pittsburgh, PA

The topical application of the antifibrinolytic tranexamic acid significantly decreased the blood loss and transfusion requirements in patients undergoing primary total hip arthroplasty.

4:12 PM **PAPER: 768**
Pulmonary Embolus Following Total Joint Arthroplasty: Identification and Stratification of Risk Factors
Javad Parvizi, MD, FRCS, Philadelphia, PA
Ronald Huang, MD, Philadelphia, PA
William V. Arnold, MD, Jenkintown, PA
Ibrahim Raphael, MD, Philadelphia, PA
James J. Purtill, MD, Philadelphia, PA
Richard H. Rothman, MD, Philadelphia, PA

Patients that are obese, undergo knee procedures, have an elevated CCI, COPD, atrial fibrillation, anemia, depression, and postoperative DVT are at a higher risk of developing a pulmonary embolism.

Discussion - 6 Minutes

4:24 PM **PAPER: 769**
Mobile Compression Devices are Efficacious for VTE Prophylaxis Following Total Joint Arthroplasty
Ryan Nunley, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO
James A. Keeney, MD, Saint Louis, MO
Staci Johnson, M.Ed, Saint Louis, MO
Douglas J. McDonald, MD, Saint Louis, MO

Use of a mobile compression device is excellent for VTE prophylaxis in primary and revision total joint arthroplasty and is associated with high efficacy and high patient compliance.

4:30 PM **PAPER: 770**
Thromboembolic and Bleeding Events following Elective Hip and Knee Arthroplasty using Oral Factor Xa Inhibitor
John J. Murnaghan, MD, MSc, Toronto, ON, Canada
Deborah A. Murnaghan, RN, CRC, Toronto, ON, Canada
Helen Razmjou, PhD, Toronto, ON, Canada
Andrea Donovan, MD, Toronto, ON, Canada
Vikas K. Bansal, MD, Toronto, ON, Canada
Jeffrey D. Gollish, MD, Toronto, ON, Canada

Prospective observational study of 2342 subjects followed for 3 mos had 1.2% VTE, 4 deaths (not attributed to VTE or bleeding), 1 major bleed and 5% transfusions.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

4:36 PM **PAPER: 771**

Should Patients Undergoing Elective Arthroplasty Be Screened for Malnutrition?

Glenn J. Kerr, MD, Glen Allen, VA
Max Greenky, Philadelphia, PA
Ronald Huang, MD, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA
James J. Purtill, MD, Philadelphia, PA
William J. Hozack, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Malnutrition is prevalent in total joint arthroplasty patients. Serum albumin and transferrin are useful pre-operative screening labs and are predictive of an increased rate of complications.

Discussion - 6 Minutes

4:48 PM **PAPER: 772**

Hemoglobin A1C is a Marker for Surgical Risk in Diabetic Patients Undergoing Total Joint Arthroplasty

Nicholas J. Giori, MD, Palo Alto, CA
Alexander H. Harris, PhD, MS

In 6090 diabetic patients having TJA, those with HbA1c > 7% had 68% increased odds of 30 day mortality ($p<.05$) and 24% increased odds of complications compared to patients with HbA1c<7% ($p=.02$).

4:54 PM **PAPER: 773**

Dexamethasone Reduces Hospital Length of Stay and Improves Pain and Nausea after Total Hip Arthroplasty

Jeffrey Backes, MD, Columbus, OH
Joel R. Politi, MD, Columbus, OH
Bryan Chambers, MD, Columbus, OH
Jared C. Bentley, MD, Columbus, OH

This prospective RCT shows dexamethasone reduces pain, opioid consumption, nausea, antiemetic consumption, improves postoperative mobilization, and shortens LOS after total hip arthroplasty.

5:00 PM **PAPER: 774**

Does CTPA lead to Overdiagnosis of PE and Subject Patients to Iatrogenic Harm Following Total Joint Arthroplasty?

James A. Browne, MD, Charlottesville, VA
Wendy Novicoff, PhD, Charlottesville, VA
Michele R. D'Apuzzo, MD, Charlottesville, VA

This database study suggests the use of CTPA may lead to overdiagnosis and subject patients to potential harm from overtreatment.

Discussion - 6 Minutes

5:12 PM **PAPER: 775**

Opioid Use Prior to Total Hip Arthroplasty May Lead to Worse Clinical Outcomes

Robert Pivec, MD, Baltimore, MD
Aaron J. Johnson, MD, Baltimore, MD
Qais Naziri, MD, Brooklyn, NY
Peter M. Bonutti, MD, Effingham, IL
Christopher R. Costa, MD, Dallas, TX
Michael A. Mont, MD, Baltimore, MD

Patients who use narcotics prior to total hip arthroplasty may be more likely to suffer from opioid-induced hyperalgesia after surgery and have worse clinical outcomes.

5:18 PM **PAPER: 776**

Complications Following Conversion Total Hip Replacement After Fixation of Intertrochanteric Hip Fractures

Christine Pui, MD, Minneapolis, MN
Mathias P. Bostrom, MD, New York, NY
Geoffrey H. Westrich, MD, New York, NY
Craig J. Della Valle, MD, Chicago, IL
William B. Macaulay, MD, New York, NY
Michael A. Mont, MD, Baltimore, MD
Douglas E. Padgett, MD, New York, NY

Conversion total hip replacement for intertrochanteric hip fracture after cephalomedullary fixation is associated with a significantly higher complication rate than after sliding hip screw fixation.

5:24 PM **PAPER: 777**

Prospective Study of Unplanned Admission to the Intensive Care Unit after Total Hip Arthroplasty

Atul F. Kamath, MD, Rochester, MN
Jacob T. Gutsche, MD, Philadelphia, PA
Laura Kosseim, MD, Philadelphia, PA
Zev N. Kornfield, MD, Philadelphia, PA
Keith D. Baldwin, MD, Sicklerville, NJ
Craig L. Israelite, MD, Philadelphia, PA

Triage to the ICU after elective THA proves a complex resource decision point. After implementation of our triage model, the rate of unplanned ICU admissions dropped from 7.1% to 2.2% ($p=0.013$).

Discussion - 6 Minutes

5:36 PM **PAPER: 778**

Predictors of Hospital-Acquired Conditions after Elective Joint Arthroplasty

Carlos A. Higuera, MD, Lakewood, OH
Ronald Huang, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

The foundation for a risk stratification for hospital acquired comorbidities after TJA was developed. This may be used when assessing quality and reimbursement of such procedures.

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Friday, March 22

5:42 PM **PAPER: 779**

Mortality, Cost and Downstream Disease of Total Hip Arthroplasty Patients in the Medicare Population

Scott T. Lovald, PhD, MBA, Philadelphia, PA
Kevin Ong, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Jordana K. Schmier, MA, Alexandria, VA
Kevin J. Bozic, MD, MBA, San Francisco, CA
Steven M. Kurtz, PhD, Philadelphia, PA

Cost, mortality and disease outcomes were compared between hip osteoarthritic patients who underwent total hip replacement therapy and those who did not.

5:48 PM **PAPER: 780**

90-Day Readmission Rate for Total Hip Arthroplasty

William W. Schairer, San Francisco, CA
David Sing, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA

This study assessed all planned and unplanned hospital readmissions following total hip arthroplasty (THA) procedures, and identified risk factors associated with unplanned hospital readmission.

Discussion - 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room N427

Shoulder and Elbow VI: Elbow Disorders

Moderator(s): Theodore A. Blaine, MD, New Haven, CT
Thomas Throckmorton, MD, Germantown, TN

4:00 PM **PAPER: 781**

The Epidemiology of Lateral and Medial Epicondylitis and Its Surgical Treatment

Neil G. Harness, MD, Villa Park, CA
Gabriel T. Trainer, MD, Corona Del Mar, CA

This study found the incidence and prevalence of lateral and medial epicondylitis in a large, adult patient population and the number of epicondylitis cases that are treated surgically within one year.

4:06 PM **PAPER: 782**

Suture Anchor Repair is More Effective for Chronic Lateral Epicondylitis than Debridement

Raymond R. Monto, MD, Nantucket, MA

The long term clinical results of combined extensor carpi radialis brevis (ECRB) debridement and suture anchor repair were superior to ECRB debridement alone.

4:12 PM **PAPER: 783**

Prospective Randomized Study for Treatment of Lateral Epicondylitis Comparing PRP and Three Different Methods

Sang-hoon Lhee, Seoul

According to our level 1 study for lateral epicondylitis, PRP showed better outcome compared to prolotherapy, ESWT and physiotherapy. Ultrasound serial followup showed no difference among 4 methods.

Discussion - 6 Minutes

4:24 PM **PAPER: 784**

◆ Intermediate Term Follow Up on Distal Humeral Hemiarthroplasty

Rick F. Papandrea, MD, Waukesha, WI

Intermediate follow up of 3 to 11 years demonstrates good to excellent results in 7 of 8 distal humeral hemiarthroplasties.

4:30 PM **PAPER: 785**

Arthrodesis for Failed Elbow Arthroplasty

Philip Mulieri, MD, Danbury, CT
Randall Otto, MD, Fenton, MO
Mark A. Mighell, MD, Tampa, FL
Randall Otto, MD, Fenton, MO
Philip Mulieri, MD, Danbury, CT

Elbow arthrodesis with plating and grafting can result in acceptable outcomes for patients with failed elbow arthroplasty, but it is not recommended as a salvage procedure for an infected elbow.

4:36 PM **PAPER: 786**

◆ Effect of Radial Head Implant Shape on Joint Contact Area and Location during Static Loading

Hannah L. Shannon, London, ON, Canada
Simon R. Deluce, London, ON, Canada
Emily Lalone, PhD, London, ON, Canada
Ryan Willing, PhD, London, ON, Canada
Graham J. King, MD, London, ON, Canada
James A. Johnson, PhD, London, ON, Canada

In this biomechanical study, the effect of implant shape on radiocapitellar joint contact area and location was examined.

Discussion - 6 Minutes

4:48 PM **PAPER: 787**

Incidence of Post-Operative Elbow Contractures

Mark Schrumpf, MD, Sausalito, CA
Huong Do, MA, New York, NY
Stephen Lyman, PhD, New York, NY
Robert G. Marx, MD, New York, NY
Aaron Daluiski, MD, New York, NY

The incidence of post traumatic elbow contracture that undergoes surgical release depends upon the severity of the initial diagnosis and treatment.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

4:54 PM **PAPER: 788**

Heterotopic Ossification After Surgery of Distal Humerus Fractures

Antonio Maria Foruria de Diego, MD, PhD, Madrid, Spain
Tom M. Lawrence, MD, Nottingham, United Kingdom
Salvador Augustin, MD, Madrid, Spain
Bernard F. Morrey, MD, San Antonio, TX
Joaquin Sanchez-Sotelo, MD, Rochester, MN

Hectopic bone continues to be a clinically significant complication interfering with elbow motion in one third of the patients undergoing surgery for distal humerus fractures

5:00 PM **PAPER: 789**

◆ Radial Head Implant Shape Does Not Affect Radiocapitellar Kinematics During In-Vitro Forearm Rotation

Hannah L. Shannon, London, ON, Canada
Simon R. Deluce, London, ON, Canada
Josh W. Giles, BESc, London, ON, Canada
Jim A. Johnson, PhD, London, ON, Canada
Graham J. King, MD, London, ON, Canada

This in-vitro biomechanical study compared radiocapitellar kinematics for three implant s as well as the native head to determine the optimal shape of a radial head implant to ensure proper tracking.

Discussion - 6 Minutes

5:12 PM **PAPER: 790**

◆ Factors Affecting Supination Strength Following a Distal Biceps Rupture

Christopher C. Schmidt, MD, Pittsburgh, PA
Brandon Brown, BS, Pittsburgh, PA
Prasad J. Sawardeker, MD, Eureka, MO
Martin deGravelle, MD, Delhi, LA
Mark C. Miller, PhD, Pittsburgh, PA

Our measurements show greater than previously reported supination strength loss; furthermore the strength loss is independent of forearm position, dominance, time from injury, pain and disability.

5:18 PM **PAPER: 791**

Implication of Proximal Ulna Anatomy in Distal Biceps Tendon Ruptures and Elbow Osteoarthritis

Alec Cikes, MD, Lausanne, Switzerland
Julien Chapleau, Montreal, QC, Canada
Jonah Hebert-Davies, MD, Montreal, QC, Canada
Emilie Sandman, MD, Outremont, QC, Canada
Roger P. van Riet, MD, Wilrijk, Belgium
Dominique Rouleau, MD, Montreal, QC, Canada

The etiology of osteoarthritis and distal biceps tendon rupture is multifactorial. However, the proximal ulna dorsal angulation plays a role in both pathologies by affecting the elbow range of motion.

5:24 PM **PAPER: 792**

Prognosis for Recovery of Posterior Interosseous Nerve Palsy After Distal Biceps Repair

Phillip T. Nigro, MD, Darien, IL
Richard A. Cain Jr, MD, Tampa, FL
Mark A. Mighell, MD, Tampa, FL

All patients that developed a posterior interosseous nerve palsy after primary distal biceps repair eventually recovered at an average of 86 days postoperatively.

Discussion - 6 Minutes

5:36 PM **PAPER: 793**

Results of Lateral Ulno-Collateral Ligament Repairs of the Elbow: Is a Tendon Graft Necessary?

Mark Schrumpf, MD, Sausalito, CA
Aaron Daluiski, MD, New York, NY
Joseph Nguyen, MPH, New York, NY
Robert N. Hotchkiss, MD, New York, NY

Direct surgical repair of the lateral ulnar collateral ligament complex (LUCL) can reliably be performed with good outcomes regardless of the chronicity of the injury.

5:42 PM **PAPER: 794**

Anatomical Study of the Coracoid Process: Safety Margin and Practical Implication

Benno Ejnisman, MD, Sao Paulo, Brazil
Bernardo Terra, MD, Vitória, Brazil
Eduardo A. Figueiredo Sr, MD, São Paulo, Brazil
Alberto C. Pochini, MD, sao paulo, Brazil
Carlos Andreoli, MD, San Paulo, Brazil
Gustavo C. Monteiro, MD, Sao Paulo, Brazil
Carina Cohen, MD, Sao Paulo, Brazil
Paulo S. Belangero, MD, Sao Paulo, Brazil

The aim of this study is to define a safety margin for coracoid process osteotomy that does not compromise the coracoclavicular ligaments and that can be identified reproducibly during surgery.

5:48 PM **PAPER: 795**

A Novel Investigation into the Mechanism of Acute Elbow Dislocation

Joseph Schreiber, MD, New York, NY
Russell F. Warren, MD, New York, NY
Robert N. Hotchkiss, MD, New York, NY
Aaron Daluiski, MD, New York, NY

Acute elbow dislocations fall into one of four discrete patterns. They occur in relative extension from a valgus deformity suggesting an initial and requisite MCL disruption.

Discussion - 6 Minutes

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Friday, March 22

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room N426

Hand and Wrist III: Nerve, Imaging, and Outcomes Evaluation
Moderator(s): Julie E. Adams, MD, Minneapolis, MN
Gordon A. Brody, MD, Palo Alto, CA

4:00 PM **PAPER: 796**
Utility of Electrodiagnostic Studies in the Diagnosis of Ulnar Nerve Entrapment
Vamsi Kancherla, MD, Bethlehem, PA
Kristofer S. Matullo, MD, Ambler, PA

EMG and NCS have a low sensitivity for the diagnosis of ulnar nerve entrapment in patients demonstrating clinical improvement after surgery.

4:06 PM **PAPER: 797**
Changes in Treatment Plan for Carpal Tunnel Syndrome Based on Electrodiagnostic Test Results
Stéphanie J. Becker, MD, Boston, MA
Heeren Makanji, MS, Boston, MA
David C. Ring, MD, Boston, MA

Electrodiagnostic testing had a significant and clinically relevant impact on treatment plans for carpal tunnel syndrome.

4:12 PM **PAPER: 798**
The Association Between Multiple Trigger Digits and Ipsilateral Carpal Tunnel Syndrome
Lauren E. Wessel, BS, Saint Louis, MO
Duretti Fufa, MD, Minneapolis, MN
Martin I. Boyer, MD, Saint Louis, MO
Ryan P. Calfee, MD, Saint Louis, MO

A three-fold incidence of CTS was found in patients treated for multiple TD versus those with single TD. Awareness of this association may aid in early diagnosis and treatment of CTS these patients.

Discussion - 6 Minutes

4:24 PM **PAPER: 799**
Outcomes of Mini-Open Carpal Tunnel Release at a Minimum Ten-Year Follow Up
Dexter Louie, BA, Boston, MA
Brandon E. Earp, MD, Boston, MA
Jamie E. Collins, MA, Boston, MA
Elena Losina, MD, Boston, MA
Jeffrey N. Katz, MD, Brookline, MA
Eric M. Black, MD, Boston, MA
Barry P. Simmons, MD, Boston, MA
Philip E. Blazar, MD, Boston, MA

At a minimum of 10 years after mini-OCTR patients report high satisfaction, low levels of symptoms and functional impairment, and very low levels of revision surgery.

4:30 PM **PAPER: 800**
Increased MMP-3, bFGF and VEGF Expressions in Idiopathic Carpal Tunnel Syndrome
Sittisak Honsawek, MD, PhD, Bangkok, Thailand
Pravit Kitidumrongsook, MD, Bangkok, Thailand
Vinai Parkpian, MD, Bangkok, Thailand

Increased MMP-3, bFGF, and VEGF expression was associated with the degenerative changes of transverse carpal ligament and may play a role in pathogenesis of carpal tunnel syndrome.

4:36 PM **PAPER: 801**
Comparison between Long Nerve Grafts and Nerve Transfers for Axillary Nerve Injuries
Scott W. Wolfe, MD, New York, NY
Parker Johnsen, BS, Christiansburg, VA
Adele Mirbey, BA, New York, NY
Joseph Feinberg, MD, New York, NY
Steve K. Lee, MD, New York, NY

While nerve grafts >7cm have traditionally been associated with poor outcomes, we demonstrated excellent and comparable results of long nerve grafts and nerve transfers for axillary nerve palsy.

Discussion - 6 Minutes

4:48 PM **PAPER: 802**
◆ The Effects of a Posture Shirt on Throwing Velocity, Throwing Accuracy and Vascular Blood Flow
C. Thomas Vangsness Jr, MD, Los Angeles, CA
Tom House, PhD, Del Mar, CA
Stephen Gibbs, Houston, TX

Strength and balance are a very important part of baseball.

4:54 PM **PAPER: 803**
Wrist Arthrodesis in Patients with Spastic Disorders Affecting the Upper Limb
Valentin Neuhaus, MD, Boston, MA
John J. Kadzielski, MD, BA, Newton, MA
Chaitanya S. Mudgal, MD, Boston, MA

In this retrospective case series we investigated the effective outcome of wrist arthrodesis in our cohort of adults with spastic wrist deformities.

5:00 PM **PAPER: 804**
Functional Outcomes of Microsurgical Toe Transfers for Reconstruction of Pediatric Adactylous Hand Deformities
Jesse Kaplan, BS, Newport Beach, CA
Neil F. Jones, MD, Orange, CA

Children with congenital missing digits who undergo reconstruction by microsurgical toe-to-hand transfer can achieve remarkable gains in function, sensation and ability to perform daily activities.

Discussion - 6 Minutes

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

5:12 PM **PAPER: 805**

Intraoperative Fluorescent Angiography to Assess Flap Perfusion and Optimize Coverage of Wartime Extremity Wounds

Reed Heckert, MD, Bethesda, MD
Scott M. Tintle, MD, Fairfax, VA
Mark Fleming, DO, Clarksburg, MD
Ian L. Valerio, MD, MS, MBA, Bethesda, MD

This technique allows for intraoperative imaging of free, pedicle or local tissue flaps to optimize coverage of traumatic wounds and fractures.

5:18 PM **PAPER: 806**

Does Recent Deep Vein Thrombosis and/or Pulmonary Embolus Preclude Complex Extremity Flap Reconstruction?

Reed Heckert, MD, Bethesda, MD
Scott M. Tintle, MD, Fairfax, VA
Mark Fleming, DO, Clarksburg, MD
Ian L. Valerio, MD, MS, Bethesda, MD

Free and pedicle tissue transfers can be safely performed in patients with extremity trauma in the setting of acute PE or DVT.

5:24 PM **PAPER: 807**

Axial MRI Sequences Versus Coronal Sequences for Detecting Scapholunate Ligament Tears: Which is More Sensitive?

Harry G. Greditzer IV, MD, Miami Beach, FL
Check C. Kam, MD, Zionsville, IN
Douglas N. Mintz, MD, Miami, FL
Paul D. Clifford, MD, Miami Shores, FL
Robert R. Gray, MD, Miami, FL
Jean Jose, MSc, DO, Miami, FL

Scapholunate ligament (SL) injuries can often be difficult to detect using non-contrast magnetic resonance imaging. Our study demonstrates that SL tears are more readily detectable on axial sequences.

Discussion - 6 Minutes

5:36 PM **PAPER: 808**

Factors Associated with being a Nonresponder to a Research Study

Arjan G. Bot, MD, Boston, MA
Jade A. Anderson, Boston, MA
Valentin Neuhaus, MD, Boston, MA
David C. Ring, MD, Boston, MA

We enrolled 104 patients in a prospective study and asked them to complete a 6 month follow-up in order to study differences between patients that did follow-up and those that did not.

5:42 PM **PAPER: 809**

The Comparison of Paper- and Web-based Questionnaires in Patients with Hand and Upper Extremity Illness

Arjan G.J. G. Bot, MD, Boston, MA
Mariano E. Menendez, Boston, MA
Valentin Neuhaus, MD, Boston, MA
Chaitanya S. Mudgal, MD, Boston, MA
David C. Ring, MD, Boston, MA

We prospectively evaluated the differences in QuickDASH, PHQ-2, PSEQ, pain, SHAI-6 and PCS-6 questionnaire outcomes when administered in web- and paper-based format in hand patients.

5:48 PM **PAPER: 810**

Quality of Internet Health Information on Thumb Carpometacarpal Joint Arthritis

Robin N. Kamal, MD, Providence, RI
Gabrielle M. Paci, BA, Boston, MA
Michelle Gosselin, BS, Providence, RI
Alan H. Daniels, MD, Providence, RI
Michael J. Rainbow, PhD, Cambridge, MA
Arnold-Peter C. Weiss, MD, Providence, RI

Internet health information regarding CMC arthritis of the thumb is of generally poor quality and highly variable.

Discussion - 6 Minutes

PAPER PRESENTATION

4:00 PM — 6:00 PM
Room S102

Spine VI: Basic Science and Miscellaneous

Moderator(s): Robert A. Hart, MD, Portland, OR
Ahmad Nassr, MD, Rochester, MN

4:00 PM **PAPER: 811**

Variations in Costs of Spinal Implants

Sohrab Pahlavan, MD, Orange, CA
Samuel Bederman, MD, PhD, FRCSC, Orange, CA

Comparing purchasing records of a group of academic medical centers revealed variability in the unit costs of spinal implants, which did not correlate to the purchase volumes.

4:06 PM **PAPER: 812**

MRI Utilization Before and Three Years After Acquisition of an In-Office Scanner for a Six-Man Orthopedic Group

John G. Finkenberg, MD, San Diego, CA

MRI utilization increased with practice volume and decreased over recent years due to utilization review.

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Friday, March 22

4:12 PM **PAPER: 813**

Validity of Computed Tomography versus Manual Measurements in the Three-Dimensional Spine Structure

Jason T. Le, BS, Norfolk, VA
Woojin Cho, MD, PhD, New York, NY
Adam L. Shimer, MD, Charlottesville, VA
Brian C. Werner, MD, Charlottesville, VA
John A. Glaser, MD, Charleston, SC
Francis H. Shen, MD, Charlottesville, VA

CT and manual measurements were made on cadaver, and compared along multiple anatomical parameters. Both methods compared well. Anatomical landmarks are important in achieving a precise specimen.

Discussion - 6 Minutes

4:24 PM **PAPER: 814**

Diffusion Tensor Imaging in Assessing the Extent of Severity of Spinal Cord Injury in a Calf Spinal Cord Model

S Rajasekaran, PhD, Coimbatore, India
Rishi M M. Kanna, MRCS, Coimbatore, India
Ajoy P. Shetty, Coimbatore, India

Diffusion Tensor Imaging of the Spinal Cord is a novel method of quantifying the severity of spinal cord injury and to differentiate intact and injured fiber tracts of spinal cord.

4:30 PM **PAPER: 815**

Oxy133, A Novel Oxysterol, Induces Osteogenic Differentiation In Vitro and Promotes Spine Fusion In Vivo

Scott Montgomery, MD, Venice, CA
Jared Johnson, MD, Los Angeles, CA
Bayan Aghdasi, BA, Clovis, CA
Haijun Tian, MD, Shanghai, China
Hirokazu Inoue, MD, Shimotsuke, Japan
Jeffrey C. Wang, MD, Sherman Oaks, CA
Michael D. Daubs, MD, Santa Monica, CA
Farhad Parhami, PhD

Oxy133 induced osteogenic differentiation in vitro and spinal fusion in vivo, demonstrating potential to promote bone formation in orthopaedic applications such as spinal fusion and fracture healing.

4:36 PM **PAPER: 816**

A Novel Source of Mesenchymal Stem Cells: Isolation and Characterization

Joseph S. Fernandez-Moure, MD, MD, Houston, TX
Bradley K. Weiner, MD, Houston, TX
Pranela Rameshwar, PhD, Newark, NJ
Barbara Bass, Houston, TX
Ennio Tasciotti, PhD, Houston, TX

Isolation and characterization of mesenchymal stromal cells from spinal lamina cortical bone for use in bone grafting and tissue engineering.

Discussion - 6 Minutes

4:48 PM **PAPER: 817**

Human Adipose Derived Stromal Cells in a Novel 3D Culture System for Spine Fusion: An In Vitro and In Vivo Investigation

Brian C. Werner, MD, Charlottesville, VA
Haixiang Liang, MD, Charlottesville, VA
Hulan Shang, Charlottesville, VA
Gary Balian, PhD, Charlottesville, VA
Adam J. Katz, MD, Gainesville, FL
Francis H. Shen, MD, Charlottesville, VA

Human adipose-derived stromal cells cultured as multicellular aggregates allow improved manipulation during transplantation and exhibit increased osteogenic differentiation and matrix mineralization.

4:54 PM **PAPER: 818**

Laser Surface Topography to Assess Wear and Deformation in Retrieved Total Disc Replacements

Fadi Taher, MD, New York, NY
Darren R. Lebl, MD, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
Joseph Nguyen, MPH, New York, NY
Timothy M. Wright, PhD, New York, NY
Celeste Abjornson, PhD, New York, NY

Sixteen retrieved total disc replacements (TDRs) were examined by laser scanning. Average dimensional changes were greater and affected a larger surface area in lumbar compared to cervical TDRs.

5:00 PM **PAPER: 819**

Pedicle Screw Re-Insertion Using Previous Pilot Hole and Trajectory Does Not Reduce Fixation Strength

Daniel Kang, MD, Bethesda, MD
Ronald A. Lehman, MD, Potomac, MD
Adam Bevevino, MD, Washington, DC
Michael Donohue, MD, BS, Chevy Chase, MD
Rachel E. Gaume, BS
Divya Ambati, A, Fairfax, VA
Anton E. Dmitriev, Fort Belvoir, VA

Despite a significant reduction in pedicle screw insertional torque with re-insertion along a previous tract, there was no significant difference in pedicle screw pullout strength.

Discussion - 6 Minutes

5:12 PM **PAPER: 820**

Thoracic Disc Herniation with and without Myelopathy: Analysis of 9,811 Patients

Amit Jain, MD, Baltimore, MD
Emmanuel N. Menga, MD, Baltimore, MD
Surbhi Jain, Portland, OR
Hamid Hassanzadeh, MD, Baltimore, MD
Addisu Mesfin, MD, Rochester, NY

Treatment of myelopathy due to thoracic disc herniation is shifting predominantly toward use of posterior surgical approaches.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Friday, March 22

5:18 PM **PAPER: 821**

Physical Exam Findings in Patients with Cord Signal Change on MRI

Han Jo Kim, MD, Saint Louis, MO
Chaiwat Piyaskulkaew, MD, Saint Louis, MO
Addisu Mesfin, MD, Rochester, NY
Stuart H. Hershman, MD, Miami, FL
Jeremy L. Fogelson, MD, Rochester, MN
K. Daniel Riew, MD, Saint Louis, MO

Patients with cord signal change present with inconsistent physical exam findings and many do not exhibit any signs or symptoms of myelopathy.

5:24 PM **PAPER: 822**

Assessment of Nerve Root Decompression by Mechanomyography

Jad Khalil, MD, Rochester, MN
Edward R. Anderson III, MD, San Antonio, TX
Petrovic Olga, PA-C, Detroit, MI
Wendela Rebecca, Southfield, MI
Stephen Bartol, MD, Detroit, MI

MMG, a novel spinal root localization and monitoring technique provides direct feedback regarding adequacy of decompression of nerve roots in the lumbar spine.

Discussion - 6 Minutes

5:36 PM **PAPER: 823**

Glucosamine Supplementation May Have a Negative Effect on Intervertebral Disc Matrix

Lloydine Jacobs, MD, Pittsburgh, PA
James Kang, MD, Pittsburgh, PA
Gwendolyn Sowa, MD, PhD, Pittsburgh, PA

Disc degeneration is a major contributor of spine pain. Billions are spent yearly on glucosamine. We found that it negatively affects disc matrix and works differently in normal vs degenerated discs.

5:42 PM **PAPER: 824**

Intervertebral Disc Regeneration with an Injectable Biopolymeric Hydrogel Containing Growth Factors

Steven Ericksen, MD, Wichita, KS
Casey Bachison, MD, Eden, UT
Tristan Maerz, MS, Royal Oak, MI
Kevin Baker, PhD, Royal Oak, MI
Daniel K. Park, MD, Troy, MI
Harry N. Herkowitz, MD, Royal Oak, MI
Jeffrey S. Fischgrund, MD, Southfield, MI

In vivo delivery of TGF-B3, BMP-4, TIMP-2 via an injectable Chitosan hydrogel stimulates regeneration of the intervertebral disc.

5:48 PM **PAPER: 825**

Metabolic and Endocrine Abnormalities in Spinal Fusion Patients with Pseudarthrosis

Colin G. Crosby, MD, Atlanta, GA
Kevin R. O'Neill, MD, Saint Louis, MO
Jesse E. Bible, MD, MHS, Nashville, TN
Clinton J. Devin, MD, Nashville, TN

In this study, 93% patients that developed symptomatic pseudarthrosis after spinal fusion surgery had metabolic or endocrine abnormalities detected. Vitamin D abnormalities were present in 50% of patients.

5:54 PM **PAPER: 826**

Pedicle Screw Hubbing in the Adult and Immature Thoracic Spine: A Biomechanical and Micro-CT Evaluation

Daniel Kang, MD, Bethesda, MD
Ronald A. Lehman, MD, Potomac, MD
Adam Bevevino, MD, Washington, DC
Rachel E. Gaume, BS
Haines Paik, MD, Boston, MA
Anton E. Dmitriev, Fort Belvoir, VA
Lawrence G. Lenke, MD, Saint Louis, MO

Hubbing of pedicle screws resulted in significantly lower POS compared to conventional pedicle screws in the adult and immature thoracic spine.

Discussion - 6 Minutes

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Tuesday-Wednesday

AWARD PROGRAMS

OVT01 ..... Station 1

Midfoot Anatomy, Pathology and Physical Examination
Matthias Vanhees, MD, Stabroek, Belgium
Saskia Van Bouwel, MD, Stabroek, Belgium
Francis van Glabbeek, PhD, Edegem, Belgium
Geoffroy S. Vandeputte, MD, Bonheiden, Belgium

This video gives a brief and clear insight into the anatomy, the most common pathology, and the physical examination of the midfoot.

(Product no. V13001, DVD-Video, 15:00 minutes)

OVT02 ..... Station 2

Index Finger Ray Resection
Robert M. Orfaly, MD, Portland, Oregon

An index finger ray resection of a painful and stiff digit is presented with specific attention to soft tissue handling. The post-operative treatment plan and expected outcomes are also discussed.

(Product no. V13002, DVD-Video, 12:00 minutes)

OVT03 ..... Station 3

Stoppa Approach for Removal of the Intrapelvic Cup for Acetabular Revision
Francisco Chana, MD, PhD, Madrid, Spain
Manuel Villanueva, MD, PhD, Madrid, Spain
José M. Rojo-Manaute, MD, PhD, Madrid, Spain
María Pérez-Díaz, MD, Madrid, Spain
José Fernández-Mariño, MD, PhD, Madrid, Spain
Javier Vaquero-Martín, MD, PhD, Madrid, Spain

This video describes the preoperative planning and the surgical procedure for removing severely displaced acetabular components.

(Product no. V13003, DVD-Video, 19:00 minutes)

OVT04 ..... Station 4

Surgical Technique for Articulating Spacers With Stem Extensions To Treat The Infected TKA-Part 1
Stephen J. Incavo, MD, Houston, Texas
Azim Karim, MD, Houston, Texas
Brian Domingues, BA, Cypress, Texas

In this video we present the technique of using a commercially available articulating cement spacer modified by the addition of stem extensions for the treatment of deep infection.

(Product no. V13004, DVD-Video, 12:00 minutes)

Thursday-Saturday

AWARD PROGRAMS

OVT05 ..... Station 1

Instability After Total Knee Arthroplasty. Limits of Constraints
Manuel Villanueva, MD, PhD, Madrid, Spain
Francisco Chana, MD, PhD, Madrid, Spain
Javier Pereiro, MD, Madrid, Spain
Antonio Ríos-Luna, MD, PhD, El Ejido, Almeria, Spain
José M Rojo-Manaute SR, MD, PhD, Madrid, Spain
Felipe Benito Del Carmen, MD, Madrid, Spain
Homid Fahandez-Saddi, MD, Madrid, Spain
Antonio J. Perez-Caballer, MD, Las Rozas (Madrid), Spain

The authors illustrate some of the most common causes and patterns of instability after a TKA and identify the limits of constraint that might make surgical reconstruction procedures more predictable.

(Product no. V13005, DVD-Video, 20:00 minutes)

OVT06 ..... Station 2

Arthroplasty for Chronic Locked Posterior Shoulder Dislocations
Cezar Sandu, MD, Dallas, Texas
Justin R. Brazeal, MD, College Station, Texas
Michael A. Wirth, MD, San Antonio, Texas

This video illustrates open reduction and hemiarthroplasty. Outcome was assessed by a modified American Shoulder and Elbow Score, a simple shoulder test, and visual analog scores.

(Product no. V13006, DVD-Video, 11:00 minutes)

OVT07 ..... Station 3

Open Reduction in Missed Irreducible Congenital Dislocation of the Hip
Cesare Faldini, MD, Bologna, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Francesco Traina, MD, Bologna, Italy
Francesco Acri, MD, Bologna, Italy
Camilla Pungetti, MD, Bologna, Italy
Daniele Fabbri, MD, Bologna, Italy
Marcello De Fine, MD, Bologna, Italy
Alberto Di Martino, MD, Rome, Italy
Alice Bondi, MD, Cesrnatico, Italy

This video shows the open reduction of a missed irreducible dislocated hip through the anterior approach in a 5-year-old patient affected by developmental dysplasia of the hip.

(Product no. V13007, DVD-Video, 18:00 minutes)

An alphabetical faculty financial disclosure list can be found starting on page 292.

OVT08 ..... Station 4

Aseptic Both Bone Forearm Nonunion Treated by Plate and Opposite Allograft Strut
Cesare Faldini, MD, Bologna, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Matteo Nanni, MD, Bagheria, Italy
Maria Teresa Miscione, MD, Bologna, Italy
Michele D'Amato, MD, Bologna, Italy
Raffaele Borghi, MD, Bologna, Italy
Alberto Di Martino, MD, Rome, Italy
Alice Bondi, MD, Cesrnatico, Italy
Costantino Errani, MD, Bagheria, Italy
Antonio Mazzotti, MD, Bologna, Italy

This video shows the surgical treatment of aseptic forearm nonunion. From the previous skin incisions, both ulna and radio were exposed.

(Product no. V13008, 18:00 minutes)

3D

OVT26 ..... 3D

Latarjet Technique and Biomechanics in Shoulder Instability
Giovanni Di Giacomo, MD, Rome, Italy
Alberto Costantini, MD, Rome, Italy
Andrea De Vita, MD, Rome, Italy
Nicola De Gasperis, MD, Rome, Italy

The authors demonstrate an arthroscopic technique that allows reparative and reconstructive surgical procedures aimed at selective treatment of the injured structures.

OVT62 ..... 3D

Hip Arthroplasty - the Direct Anterior Approach without a Traction Table
Michael Nogler, MD, Austria
Martin Krismer, MD, Austria
David Putzer, Innsbruck, Austria

This video teaches the anatomy of the hip as seen from anterior and the DAA approach, allowing the learner to reproduce each single step in surgery. Key points are given at each section.

Tuesday-Wednesday

ADULT RECONSTRUCTION HIP

OVT09 ..... Station 5

Short Stem Metaphyseal Engaging Implants: Design, Implantation and Alignment
Alejandro Marquez-Lara, MD, Chicago, Illinois
Daniel M. Curtis, BA, Chicago, Illinois
Ronak Patel, MD, Chicago, Illinois
S. David Stulberg, MD, Chicago, Illinois

This video illustrates the use of metaphyseal-engaging short stem implants in total hip arthroplasty (THA) within the proximal femur to achieve an extensive circumferential fit.

(Product no. V13009, DVD-Video, 12 minutes)

OVT11 ..... Station 6

Metaphyseal Short Stem Total Hip Arthroplasty
Sam Hakki, MD, Saint Petersburg, Florida

This video illustrates a minimally invasive, bone sparing short stem primary hip arthroplasty.

(Product no. V13011, DVD-Video, 15 minutes)

OVT13 ..... Station 7

Modified Supercapsular Percutaneously-Assisted Total Hip (SuperPATH) - Technique and Results
James Chow, MD, Phoenix, Arizona

This video portrays a combined superiorly-based minimally-invasive approach that exploits the interval between the piriformis and minimus.

(Product no. V13013, DVD-Video, 24:00 minutes)

Thursday-Saturday

ADULT RECONSTRUCTION HIP

OVT10 ..... Station 5

Minimal Invasive Peri-acetabular Osteotomy: Surgical Technique and Outcomes
Federico De Meo, MD, Messina, Italy
Manuel Ribas Fernandez, MD, Barcelona, Spain
Carlomagno A. Cardenas Nylander, MD, Barcelona, Spain
Vittorio Bellotti, Barcelona, Spain
Emanuele Astarita, Barcelona, Spain
Pietro Cavaliere SR, MD, Reggio Calabria, Italy

This video shows the step-by-step details that the authors believe are crucial to the good practice of the Söballe minimally invasive modification of the Bernese procedure.

(Product no. V13010, DVD-Video, 20:00 minutes)

OVT12 ..... Station 6

Total Hip Arthroplasty: Computer Assisted Navigation for Acetabular Positioning
Richard H. Walker, MD, San Diego, California
Amy K. Steinhoff, MD, San Diego, California

In this video, the authors describe patient planar registration, a novel technique for registration for THA performed in LDP that avoids the dissatisfaction with the LDP prior to navigation.

(Product no. V13012, DVD-Video, 20:00 minutes)

OVT62 ..... Station 7

Hip Arthroplasty - the Direct Anterior Approach without a Traction Table
Michael Nogler, MD, Austria
Martin Krismer, MD, Austria
David Putzer, Innsbruck, Austria

This video teaches the anatomy of the hip as seen from anterior and the DAA approach, allowing the learner to reproduce each single step in surgery. Key points are given at each section.

(Product no. V13062, DVD-Video, 22:00 minutes)

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Tuesday-Wednesday

ADULT RECONSTRUCTION KNEE

OVT14 ..... Station 8

Technique For Removal of Structured Titanium Cementless Total Knee Replacement
Ira H. Kirschenbaum, MD, Bronx, New York
Pawel Hanulewicz, MD, Sayreville, New Jersey

This video illustrates a technique for the effective removal and preparation of the bone for a revision knee replacement.

(Product no. V13014, DVD-Video, 20:00 minutes)

OVT16 ..... Station 9

Total Knee Arthroplasty Utilizing Surgical Navigation With an Automated Robotic Cutting Guide
Louis Keppler, MD, Independence, Ohio
Timothy McTighe, Dr. H.S. (hc), Chagrin Falls, Ohio

In this video the authors address, the specific techniques that are encountered to successfully prepare and implant a conventional cemented total knee with the use of automated cutting guides.

(Product no. V13016, DVD-Video, 20:00 minutes)

OVT18 ..... Station 10

Safe and Accurate Utilization of Patient Specific Instrumentation in Total Knee Arthroplasty
Anay R. Patel, MD, Chicago, Illinois
Mark A. Yaffe, MD, Chicago, Illinois
Raju S. Ghate, MD, Chicago, Illinois
S. D. Stulberg, MD, Chicago, Illinois

The authors present a technique for using patient specific instrumentation in TKA. The technique emphasizes the methods for confirming proper guide placement and verifying proper boney resection.

(Product no. V13018, DVD-Video, 16:00 minutes)

Thursday-Saturday

ADULT RECONSTRUCTION KNEE

OVT15 ..... Station 8

Minimal Invasive, Navigated Implantation of a Total Knee Replacement
Jean-yves Jenny, MD, Illkirch, France

In this video we demonstrate the use of a non-image based navigation system for total knee replacement using instruments adapted for use with a 10 cm (typically) skin incision.

(Product no. V13015, DVD-Video, 15:00 minutes)

OVT17 ..... Station 9

Surgical Technique for the Removal of the Infected Primary TKA and 2nd Stage Revision-Part 2
Azim Karim, MD, Houston, Texas
Stephen J. Incavo, MD, Houston, Texas
Brian Domingues, BA, Cypress, Texas

This video demonstrates a technique using a commercially available articulating cement spacer for the treatment of deep infection in primary and revision total knee arthroplasty.

(Product no. V13017, DVD-Video, 12:00 minutes)

OVT19 ..... Station 10

Quantifying Sagittal Plane Kinetics and Flexion Gap Balance in TKR's Utilizing Integrated Sensors
Martin W. Roche, MD, Fort Lauderdale, Florida
Christopher R. Anderson, MS, Sunrise, Florida

The authors present a surgical technique that utilizes micro sensors embedded in the tibial trial insert to provide a quantitative assessment of the inter-compartmental loads and center of load.

(Product no. V13019, DVD-Video, 13:00 minutes)

Tuesday-Wednesday

FOOT AND ANKLE

OVT20 ..... Station 11

Endoscopic Plantar Fascia Release
Randy R. Clark, MD, Saint George, Utah
Richard D. Ferkel, MD, Van Nuys, California

In this video, the authors evaluate and appropriately diagnose the causes of heel pain, review operating room set-up, and demonstrate the surgical technique to perform a successful endoscopic EPFR.

(Product no. V13020, DVD-Video, 9:00 minutes)

Thursday-Saturday

FOOT AND ANKLE

OVT21 ..... Station 11

Arthroscopic Bone Marrow Stimulation of the Ankle: Technical Tips from Simple to Complicated Cases
Chayanin Angthong, MD, Pathum Thani, Thailand
Ichiro Yoshimura, MD, Fukuoka, Japan
Kazuki Kanazawa, MD, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan

From this presentation, the audiences will learn about operative indications, preoperative evaluation, operative techniques, and pearls and pitfalls of ankle arthroscopic bone marrow stimulation.

(Product no. V13021, DVD-Video, 15:00 minutes)

An alphabetical faculty financial disclosure list can be found starting on page 292.

Tuesday-Wednesday

HAND AND WRIST

OVT22 ..... Station 12

Treatment of Nonunion of Radius Bone With Vascularized Femural Corticoperiosteal Free Flap

Matteo Guzzini, MD, Rome, Italy
Antonini Andrea, MD, Rome, Italy
Antonio Vadala, MD, Rome, Italy
Daniele Paravani, MD, Rome, Italy
Dominedò Cristina, Rome, Italy
Andrea Ferretti, MD, Rome, Italy

Free vascularized corticoperiosteal graft is harvested from the medial femoral condyle. For the microsurgical portion of the operation the authors performed a termino-terminal anastomosis of the DGA.

(Product no. V13022, DVD-Video, 8:00 minutes)

Tuesday-Wednesday

PEDIATRICS

OVT23 ..... Station 13

Treatment of the Persistent/Recurrent Clubfoot Following the Ponseti Method

Alice Chu, MD, Livingston, New Jersey
Wallace B. Lehman, MD, New York, New York
Mathew Hamula, BA, BS, New York, New York

In this video, the authors provide an overview of persistent/recurrent (relapsed) clubfoot and the treatment of relapsed bilateral clubfeet by repeating the principles of the original Ponseti method.

(Product no. V13023, DVD-Video, 15:00 minutes)

OVT25 ..... Station 14

Percutaneous Pinning of Supracondylar Humerus Fractures

John Koerner, MD, Hoboken, New Jersey
Sanjeev Sabharwal, MD, Chatham, New Jersey

This video demonstrates the treatment of pediatric supracondylar humerus fractures including initial evaluation, operating room setup, surgical technique, and pearls for difficult cases.

(Product no. V13025, DVD-Video, 13:00 minutes)

Thursday-Saturday

PEDIATRICS

OVT24 ..... Station 13

Correction of Foot Deformities by Triple Arthrodesis

Francesco Turturro, MD, Rome, Italy
Antonello Montanaro, MD, Rome, Italy
Luca Labianca, MD, Rome, Italy
Vincenzo Di Sanzo, MD, PhD, Rome, Italy
Cosma Calderaro, MD, Rome, Italy
Andrea Ferretti, MD, Rome, Italy

Illustrates the resection of bone wedges from the TC, TN and CC joints separates the foot into three movable segments, which allows the correction of all the foot deformities.

(Product no. V13024, DVD-Video, 8:00 minutes)

Tuesday-Wednesday

SHOULDER AND ELBOW

OVT28 ..... Station 15

Autograft Reconstruction for Sternoclavicular (SC) Joint Instability

Peter J. Millett, MD, MSc, Vail, Colorado
Frank Martetschlager, MD, Vail, Colorado

In this video, the authors present a technique for sternoclavicular joint stabilization using a gracilis tendon autograft.

(Product no. V13028, DVD-Video, 8:00 minutes)

OVT30 ..... Station 16

Reverse Shoulder Arthroplasty: Steps to Get it Right

Richard J. Hawkins, MD, Greenville, South Carolina

This video illustrates the steps needed to correctly perform a reverse arthroplasty. Positioning, approach, glenosphere insertion, humeral insertion, and fit are included.

(Product no. V13030, DVD-Video, 15:00 minutes)

OVT32 ..... Station 17

Arthroscopic Assisted HemiCAP Insertion for Large Engaging Hill Sachs Lesions

Ed Bateman, MD, Gosford, Australia

Demonstration, assessment and indications for treatment of Hill-Sachs lesions as well as an arthroscopic technique for inserting HemiCAPs® into Hill-Sachs lesions.

(Product no. V13032, DVD-Video, 13:00 minutes)

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OVT34 ..... Station 16

Biceps Tenodesis: Open Subpectoral and Arthroscopic Technique
Adam B. Yanke, MD, Chicago, Illinois
Peter N. Chalmers, MD, Chicago, Illinois
Anthony A. Romeo, MD, Chicago, Illinois
Nikhil N. Verma, MD, Chicago, Illinois

The authors present an arthroscopic and open technique for tenodesis of the LHB. Both techniques address the bicipital groove as a pain generator by removing the tendon from the groove.

(Product no. V13034, DVD-Video, 19:00 minutes)

OVT36 ..... Station 19

Arthroscopic Treatment of Calcific Tendinitis in the Rotator Cuff
Eric C. Makhni, MD, New York, New York
Brian M. Schulz, MD, New York, New York
William N. Levine, MD, New York, New York

This video illustrates an arthroscopic management technique for calcific tendinitis in a patient with unusually extensive disease.

(Product no. V13036, DVD-Video, 13:00 minutes)

Thursday-Saturday

SHOULDER AND ELBOW

OVT27 ..... Station 14

Treatment Of Recurrent Anterior Glenohumeral Instability: J-plasty Procedure
Giacomo Marchi, MD, Gardone Val Trompia, Italy
Celeste Bertone, MD, Brescia, Italy
Dario Petriccioli, MD, Brescia, Italy

The video shows the technical details of the J-plasty a procedure for recurrent anterior glenohumeral instability.

(Product no. V13027, DVD-Video, 13:00 minutes)

OVT29 ..... Station 15

Intraoperative Nerve Monitoring During Shoulder Arthroplasty
Andrew F. Kuntz, MD, Philadelphia, Pennsylvania
Bryan B. Wilent, PhD, Philadelphia, Pennsylvania
Gerald R. Williams Jr, MD, Philadelphia, Pennsylvania
Joseph A. Abboud, MD, Philadelphia, Pennsylvania

In this video, the authors present the nerve monitoring technique used during shoulder arthroplasty. Setup, patient positioning, anesthesia considerations, and intraoperative practices are included.

(Product no. V13029, DVD-Video, 10:00 minutes)

OVT31 ..... Station 16

Total Shoulder Arthroplasty: Steps to Get it Right
Richard J. Hawkins, MD, Greenville, South Carolina

This video illustrates the correct steps to perform a routine total shoulder arthroplasty and avoid complications. The example is a routine OA with a concentric glenohumeral relationship.

(Product no. V13031, DVD-Video, 15:00 minutes)

OVT33 ..... Station 17

Reverse Total Shoulder Arthroplasty Technical Note and Results
Thomas W. Wright, MD, Gainesville, Florida
Gonzalo Samitier Solis, MD, Clawson, Michigan
Aimee Struk, MEd, MBA, ATC, Gainesville, Florida

In this video, the authors demonstrate their surgical technique used for rotator cuff tear arthropathy (CTA). A >2 years follow-up results as well as a staged rehabilitation program is included.

(Product no. V13033, DVD-Video, 15:00 minutes)

OVT35 ..... Station 18

Arthroscopic Technique for Biological Augmentation of AC Joint Instability
Peter J. Millett, MD, MSc, Vail, Colorado
Frank Martetschlager, MD, Vail, Colorado

In this video, the authors present an arthroscopically assisted AC joint reconstruction with tendon graft augmentation.

(Product no. V13035, DVD-Video, 9:00 minutes)

OVT42 ..... Station 19

Physical Exam of the Throwing Shoulder
Richard J. Hawkins, MD, Greenville, South Carolina

This video demonstrates the relevant and important physical examination features in the throwing shoulder of a professional pitcher to help diagnose pathologies unique to the throwing shoulder.

(Product no. V13042, 16:00 minutes)

Tuesday-Wednesday

SPORTS MEDICINE AND ARTHROSCOPY

OVT37 ..... Station 20

Hip Capsulotomies Should be Routinely Repaired: A Demonstration of Arthroscopic Capsular Plication
Benjamin Domb, MD, Westmont, Illinois
Itamar Botser, MD, Palo Alto, California
Anthony P. Trenga, Westmont, Illinois

The video presents a surgical demonstration of capsular plication for closure of the capsule.

(Product no. V13037, DVD-Video, 13:00 minutes)

An alphabetical faculty financial disclosure list can be found starting on page 292.

OVT39 ..... Station 21

Labral Preservation Techniques During Hip Arthroscopy

Scott D. Martin, MD, Boston, Massachusetts

Labral preservation techniques during hip arthroscopy are demonstrated with emphasis on surgical technique, concomitant decompression techniques and preservation of the chondrolabral junction.

(Product no. V13039, CD-Rom, Interactive)

OVT41 ..... Station 22

Acetabular Retrograde Drilling: A New Arthroscopic Technique for the Treatment of Chondral Lesions in FAI

Dante Parodi, MD, Santiago, Chile
Javier Besomi, MD, Santiago, Chile
Pablo Mococain-Mac Iver, MD, Santiago, Chile
Carlos Tobar, MD, Santiago, Chile
Juanjose Valderrama, MD, Santiago, Chile
Jaime Lopez, MD, Santiago, Chile
Joaquin Lara, MD, Santiago, Chile

The authors present a new surgical technique of arthroscopic retrograde drilling for the treatment of grade 1 and 2 acetabular chondral lesions in patients with femoroacetabular impingement.

(Product no. V13041, 7:00 minutes)

OVT44 ..... Station 23

The Circumferential Compression Stitch for Meniscus Repair

Justin D. Saliman, MD, Los Angeles, California

This video presentation discusses the basic premise of the circumferential compression stitch for meniscus repair and provides early clinical examples of its utility and feasibility.

(Product no. V13044, 20:00 minutes)

OVT46 ..... Station 24

Individualized Anatomic ACL Reconstruction

Bart Muller, MD, Pittsburgh, Pennsylvania
Marcus Hofbauer, MD, Pittsburgh, Pennsylvania
Michael G. Baraga, MD, Doral, Florida
Freddie H. Fu, MD, Pittsburgh, Pennsylvania

Considerations associated with ACL anatomy and the individual patient's lifestyle, profession, and preferences are discussed.

(Product no. V13046, 20:00 minutes)

OVT48 ..... Station 25

ACL Anatomic Single Bundle Reconstruction Technical Note and Results

Michael W. Moser, MD, Gainesville, Florida
Gonzalo Samitier Solis, MD, Clawson, Michigan
Terese L. Chmielewski, PT, PhD, Gainesville, Florida
Trevor Lentz, PT, Gainesville, Florida

This video shows a detailed demonstration of a novel anatomic, single-bundle, all arthroscopic outside-in anterior cruciate ligament (ACL) reconstruction technique and rehabilitation program.

(Product no. V13048, 13:00 minutes)

OVT50 ..... Station 26

Anatomic Double Bundle Anterior Cruciate Ligament Reconstruction Technique

Brian F. Wilson, MD, Topeka, Kansas
Darren L. Johnson, MD, Lexington, Kentucky

In this video, the authors present their technique for double bundle reconstruction with a soft tissue graft.

(Product no. V13050, 10:00 minutes)

OVT52 ..... Station 27

PCL Reconstruction Using LARS Artificial Ligament

Kashif Akhtar, MBBS, MEd, FRCS, Buckinghamshire, United Kingdom
David Houlihan-Burne, MD, Uxbridge, Middlesex, United Kingdom

In this video, the authors demonstrate the clinical findings on examination of a PCL deficient knee, appropriate theatre setup, correct portal placement.

(Product no. V13052, 12:00 minutes)

OVT54 ..... Station 28

Treatment of Patellar Cartilage Defects with OATS System

Rafael Calvo, MD, Santiago, Chile
David Figueroa, MD, Santiago, Chile
Paulina De La Fuente, MD, Santiago, Chile
Alex Vaisman, MD, Santiago, Chile

The goal of this video is to illustrate the surgical technique of an osteochondral autograft transfer system for isolated chondral lesions of the patella.

(Product no. V13054, 8:00 minutes)

OVT56 ..... Station 29

Surgical Repair of Proximal Hamstring Avulsion in the Athlete

Tal S. David, MD, San Diego, California
Gabriel L. Petruccelli, MD, Darnestown, Maryland

This video media covers the evaluation and management of proximal hamstring avulsion injuries. Indications for surgery, relevant anatomy and surgical technique are reviewed.

(Product no. V13056, 15:00 minutes)

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Thursday-Saturday

SPORTS MEDICINE AND ARTHROSCOPY

OVT38 ..... Station 20

Hip Arthroscopy: Management of Chondral Lesions Due to FAI

Srino Bharam, MD, New York, New York
Abiola Atanda, MD, New York, New York
Mathew Hamula, BA, BS, New York, New York

This video presents arthroscopic techniques for managing chondral lesions of the hip. It also shows a case series focusing on microfracture technique for grade IV chondral lesions associated with FAI.

(Product no. V13038, DVD-Video, 11:00 minutes)

OVT40 ..... Station 21

Evaluation and Management of a Young Athlete with Impingement: A Case-Based Approach

Anil S. Ranawat, MD, New York, New York
Caroline Park, New York, New York
David deForest Keys, New York, New York
Bruno Kavanagh, New York, New York
Abraham Varghese, New York, New York
David Hook, New York, New York

In this interactive program, users are presented with questions at each stage of diagnosis, from the physical exam to radiography and MRI assessment.

(Product no. V13040, CD-Rom, Interactive)

OVT43 ..... Station 22

UCL reconstruction: Modified Docking Technique

Douglas J. Wyland, MD, Spartanburg, South Carolina
Stephen C. Hamilton, MD, Greenville, South Carolina

The modified docking technique is used to complete the reconstruction of the medial ulna collateral ligament. The modification demonstrates using a socket on the ulnar side as opposed to a bone tunnel.

(Product no. V13043, 14:00 minutes)

OVT45 ..... Station 23

Five Minute Fifteen Point Diagnostic Arthroscopic Knee Exam

Randy R. Clark, MD, Saint George, Utah
Mark H. Getelman, MD, Tarzana, California

This video presents a fifteen point checklist of the arthroscopic knee anatomy that is viewed during knee arthroscopy.

(Product no. V13045, 10:00 minutes)

OVT47 ..... Station 24

The Safe Mode for Hamstrings Harvesting

Hubert Lanternier, MD, Saint Nazaire, France
Scott D. Gillogly, MD, Atlanta, Georgia
Henri Robert, MD, Mayenne, France
Michael J. Maynard, MD, New York, New York
Mark K. Bowen, MD, Winnetka, Illinois
Xavier Cassard, MD, Cornebarrieu, France

This short video illustrates a "safe mode" for harvesting the semitendinosus, the gracilis, or both. The installation, the tourniquet, the instruments needed, and the landmarks are detailed.

(Product no. V13047, 6:00 minutes)

OVT49 ..... Station 25

Anatomic Single Bundle ACL Reconstruction With Hamstring Tendons

David Figueroa, MD, Santiago, Chile
Rafael Calvo, MD, Santiago, Chile
Alex Vaisman, MD, Santiago, Chile
Agustin Leon, MD, Santiago, Chile
Pablo Mococain-Mac Iver, MD, Santiago, Chile

This video shows a detailed, step by step, anatomic ACL reconstruction through an accessory medial portal. Tips and tricks are emphasized to perform a successful ACL reconstruction.

(Product no. V13049, 10:00 minutes)

OVT51 ..... Station 26

Anatomic ACL Reconstruction - All Comers

Mark D. Miller, MD, Charlottesville, Virginia
Joseph Hart, PhD, ATC, Charlottesville, Virginia
Gregory Kurkis, Medical Student, Charlottesville, Virginia

In this video, the authors present techniques for achieving anatomic anterior cruciate ligament (ACL) reconstructions in a variety of clinical scenarios.

(Product no. V13050, 20:00 minutes)

OVT53 ..... Station 27

Patellar Tendon Augmentation With Hamstring Tendon Autograft

Laith M. Jazrawi, MD, New York, New York
Robert J. Daher, MD, West Harrison, New York
Abiola Atanda, MD, New York, New York
Ankit Bansal, BS, New York, New York
Mathew Hamula, BA, BS, New York, New York

In this video, the authors present a case of chronic patellar tendon rupture augmentation using a hamstring tendon autograft.

(Product no. V13053, 11:00 minutes)

An alphabetical faculty financial disclosure list can be found starting on page 292.

OVT55 ..... Station 28

Medial Patellofemoral Ligament Reconstruction for Patellar Instability

Shital Parikh, MD, Cincinnati, Ohio
Eric Wall, MD, Cincinnati, Ohio

This video illustrates a modified technique for MPFL reconstruction for symptomatic patellar instability that uses a hamstring autograft.

(Product no. V13055, 17:00 minutes)

OVT56 ..... Station 29

Surgical Repair of Proximal Hamstring Avulsion in the Athlete

Tal S. David, MD, San Diego, California
Gabriel L. Petruccelli, MD, Darnestown, Maryland

This video media covers the evaluation and management of proximal hamstring avulsion injuries. Indications for surgery, relevant anatomy and surgical technique are reviewed.

(Product no. V13056, 15:00 minutes)

Thursday-Saturday

TRAUMA

OVT57 ..... Station 30

Removal of a Broken Intramedullary Nail and Exchange Nailing for Tibial Nonunion

Kenneth A. Egol, MD, New York, New York
Abiola Atanda, MD, New York, New York
Mathew Hamula, BA, BS, New York, New York
Jason P. Hochfelder, MD, New York, New York

In this video, the authors demonstrate the technique of retrieving the broken implant and exchange nailing for the tibial nonunion.

(Product no. V13057, 10:00 minutes)

Thursday-Saturday

TUMORS

OVT58 ..... Station 31

Minimally Invasive Technique for Curettage of Benign Bone Tumors Using Endoscopic Technique

Costantino Errani, MD, Bagheria, Italy
Mohammadreza Chehrassan, MD, Bologna, Italy
Angelo Toscano, MD, Mori (TN), Italy
Matteo Nanni, MD, Bagheria, Italy
Alice Bondi, MD, Cesrnatico, Italy
Marcello De Fine, MD, Bologna, Italy
Salvatore Calderone, MD, Palermo, Italy
Francesco Traina, MD, Bologna, Italy
Jennifer Kreshak, MD, Bologna, Italy
Cesare Faldini, MD, Bologna, Italy

This video presents an innovative, minimally invasive technique for curettage and packing of benign bone tumors performed by a small bone window.

(Product no. V13058, 11:00 minutes)

OVT59 ..... Station 31

Resection of Axillary Sarcoma

Brendan Comer, BA, New York, New York
Brett Hayden, MS, New York, New York
Camilo E. Villalobos, MD, New York, New York
James C. Wittig, MD, New York, New York

This video demonstrates an extensile surgical approach to remove the tumor safely while meticulously separating the neurological and vascular structures from the tumor.

(Product no. V13059, 8:00 minutes)

OVT60 ..... Station 31

Radical Resection of the Glenoid and Scapular Neck for Sarcoma and Reconstruction

Brendan J. Comer, BA, New York, New York
Brett Hayden, BA, New York, New York
Camilo E. Villalobos, MD, New York, New York
James C. Wittig, MD, New York, New York

Video shows a radical resection of the left scapular neck including the lateral one half of the scapula and complex reconstruction of left shoulder girdle with static stabilization of the humeral head

(Product no. V13060, 11:00 minutes)

OVT61 ..... Station 31

Non-invasive 'Magnetic' Distal Femoral Expandable Endoprosthesis

Brendan J. Comer, New York, New York
Brett Hayden, BA, New York, New York
Camilo E. Villalobos, MD, New York, New York
James C. Wittig, MD, New York, New York

A limb-sparing resection of a distal femur is performed for 8 year-old male patient with an Ewing's Sarcoma involving the distal femur.

(Product no. V13061, 16:00 minutes)

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Adult Reconstruction Hip

Scientific Exhibit SE01

Femoral Neck Modularity in THA: Not a Bridge Too Far!

Stephen B. Murphy, MD, Boston, Massachusetts
J. D. Blaha, MD, Ann Arbor, Michigan
James Chow, MD, Phoenix, Arizona
Alon Katz, MSc, Cleveland, Ohio
A. Seth Greenwald, DPhil Oxon, Cleveland Heights, Ohio

This exhibit provides a laboratory basis for establishing the structural integrity and corrosion of both mixed and same metal modular femoral neck/stem combinations.

Scientific Exhibit SE02

Factors Influencing Total Hip Arthroplasty in Obese Patients

Menachem M. Meller, MD, Merion, Pennsylvania
Anne E. E. Sumner, Bethesda, Maryland
Mark H. Gonzalez, MD, Chicago, Illinois
A. Seth Greenwald, DPhil Oxon, Cleveland Heights, Ohio

The care of the obese patient presenting with degenerative arthritis is a contemporary dilemma for the Joint replacement surgeon.

Scientific Exhibit SE03

An Evidence-Based Approach for the Evaluation of the Painful Metal-on-Metal Total Hip Replacement

Isabelle Catelas, PhD, Ottawa, Canada
Greg Cron, PhD, Ottawa, Canada
Daniel Figeys, PhD, MSc, BS, Ottawa, Canada
Mark Pahuta, MD, Ottawa, Canada
Kawan S. Rakhra, MD, Ottawa, Canada
Mark Schweitzer, Ottawa, Canada
Paul E. Beaule, MD, Ottawa, Canada

There is insufficient evidence to use metal ions as a prognostic factor for risk of revision surgery after metal-on-metal THR.

Scientific Exhibit SE04

Do Large (Jumbo) Cups Cause Hip Center Elevation in Revision THA?

Michael D. Ries, MD, San Francisco, California
Chima D. Nwankwo, BA, San Francisco, California
Nick N. Dong, Mahwah, New Jersey
Christopher D. Heffernan, Mahwah, New Jersey

A jumbo cup technique can result in joint line elevation between ½ and 1 cm due to both a geometric shift in the cup center and also superior reaming despite positioning of the inferior edge of the cup at the level of the interteardrop line.

Scientific Exhibit SE05

The Hip Society: Optimizing Management of Patients With Metal-on-Metal Hips

Adolph V. Lombardi, Jr, MD, New Albany, Ohio
Thomas K. Fehring, MD, Charlotte, North Carolina
Joshua J. Jacobs, MD, Chicago, Illinois
Young-Min Kwon, MD, PhD, Boston, Massachusetts
Steven J. MacDonald, MD, London, Canada
Michael A. Mont, MD, Baltimore, Maryland

This purpose of this exhibit is to provide a useful resource for orthopaedic surgeons providing care to MoM hip arthroplasty patients.

Scientific Exhibit SE06

Reducing Surgical Site Infections in Total Joint Arthroplasty: It's a War and Not Just One Battle

Brian R. Hamlin, MD, Pittsburgh, Pennsylvania
Anthony M. DiGioia III, MD, Pittsburgh, Pennsylvania
Timothy J. Levison, MS, Pittsburgh, Pennsylvania

An enhanced perioperative strategy has proven effective in reduction of surgical site infection in a total joint arthroplasty program.

Scientific Exhibit SE07

AAOS Research Development Committee: Femoroacetabular Impingement (FAI) and Hip OA

John C. Clohisy, MD, Saint Louis, Missouri
Young Jo Kim, MD, PhD, Boston, Massachusetts
Erin L. Ransford, Rosemont, Illinois

Examine the etiology of osteoarthritis of the hip, define the basic science and current knowledge of FAI, review treatment options, and evaluate challenges and strategies to better understand FAI.

Scientific Exhibit SE08

Registries Collecting Level I-IV Data: Institutional and Multicenter Use

Viktor Hansen, MD, Boston, Massachusetts
Meridith E. Greene, Boston, Massachusetts
Marc A. Bragdon, Boston, Massachusetts
Audrey Nebergall, Boston, Massachusetts
Christopher J. Barr, BS, Boston, Massachusetts
David C. Leung, BS, Boston, Massachusetts
Charles R. Bragdon, PhD, Boston, Massachusetts
James I. Huddleston III, MD, Redwood City, California
Henrik Malchau, MD, Boston, Massachusetts

Sharing our 10-year registry experience, we aim to aid the USA national registry through development of other local registries, resulting in improved patient care and decreased economic burden of TJA.

Scientific Exhibit SE09

AAOS BME and Biological Implants Committee: Skin Patch Testing and Associated Total Joint Outcomes

William M. Mihalko, MD, PhD, Germantown, Tennessee
Stuart B. Goodman, MD, Redwood City, California

This report will aid in serving as a source for all surgeons concerning the possible diagnosis of a hypersensitivity reaction for some TJA patients with poor outcomes.

Scientific Exhibit SE10

Study of the Head-neck Taper Surface of Large-diameter Hard Bearing Hip Prostheses

Massimiliano Baleani, MSc, Bologna, Italy
Susan Stea, BS, Bologna, Italy
Paolo Erani, BS, Bologna, Italy
Alina Beraudi, PhD, Bologna, Italy
Barbara Bordini, MD, Bologna, Italy
Aldo Toni, MD, Bologna, Italy

Taper damage is related to head dimension and follow-up.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Scientific Exhibit SE11

Pathomechanics of FAI and Hip Dysplasia: Current Clinical and Translational Science Perspectives

Michael D. D. Harris, BS, Salt Lake City, Utah
Christopher L. Peters, MD, Salt Lake City, Utah
Jill Erickson, PA, Salt Lake City, Utah
Corinne R. R. Henak, BS, Salt Lake City, Utah
Ashley L. Kapron, BS, Salt Lake City, Utah
Christine L. L. Abraham, BA, Salt Lake City, Utah
Jeffrey A. A. Weiss, Salt Lake Cty, Utah
Andrew E. Anderson, PhD, Salt Lake City, Utah

We demonstrate how imaging, motion analysis, and 3D modeling can be combined to characterize complex anatomy and estimate subject-specific and population-based pathomechanics of FAI and dysplasia.

Scientific Exhibit SE12

How to Approach the Challenging Femoral Stem Revision

Jason K. Lowry, MD, Dallas, Texas
Robert Pivec, MD, Baltimore, Maryland
Christine B. Molina, Fontana, California
Aaron J. Johnson, MD, Baltimore, Maryland
Tarak S. Shah, Bristow, Virginia
Bhaveen Kapadia, MD, Baltimore, Maryland
Kimona Issa, MD, Santa Clarita, California
Michael A. Mont, MD, Baltimore, Maryland

This review serves to guide the approach to the difficult femoral stem revision.

Scientific Exhibit SE13

The Anterior Approach on a Regular OR Table With One Ipsilateral Assistant: Development of a Safe Surgical Technique

Kristoff Corten, MD, Pellenberg, Belgium
Michael Leunig, MD, Zurich, Switzerland
Jean-Pierre Simon, MD, Pellenberg, Belgium
Christophe Meyer, Pellenberg, Belgium
Johan Bellemans, MD, Langdorp, Belgium
Liselore Maeckelbergh, Torhout, Belgium

The development of the supine anterior approach on a regular OR table with 1 ipsilateral assistant and without fluoroscopic guidance is presented and compares to the posterolateral approach.

Scientific Exhibit SE14

A Comprehensive Blood Management Program in Primary Total Joint Arthroplasty

Brian R. Hamlin, MD, Pittsburgh, Pennsylvania
Anthony M. DiGioia III, MD, Pittsburgh, Pennsylvania
Gerhardt Konig, MD, Pittsburgh, Pennsylvania
Jonathan Waters, MD, Pittsburgh, Pennsylvania
Timothy J. Levison, MS, Pittsburgh, Pennsylvania

A comprehensive blood management program greatly reduces the requirements for allogeneic blood usage and is associated with less cost, shorter length of stay, and improved outcomes.

Adult Reconstruction Knee

Scientific Exhibit SE15

Stability of the Implanted Knee During Activities of Daily Living

Clare K. Fitzpatrick, PhD, Denver, Colorado
Chadd Clary, PhD, Warsaw, Indiana
Lorin Maletsky, PhD, Lawrence, Kansas
Douglas A. Dennis, MD, Denver, Colorado
Paul J. Rullkoetter, PhD, Denver, Colorado

The objective of the current study was to assess the dynamic stability of four contemporary TKA designs during high demand activities.

Scientific Exhibit SE16

A Novel Technique of Tomography Detected Small Periprosthetic Bone Defects in TKA

Yukihide Minoda, MD, Osaka, Japan
Hiroyoshi Iwaki, MD, Osaka, Japan
Taku Yoshida, MD, Osaka-city,Osaka, Japan
Mitsuhiko Ikebuchi, MD, Abeno-ku Osaka, Japan
Shigekazu Mizokawa, MD, PhD, Osaka, Japan
Kazutaka Sugimoto, MD, Tokyo, Japan
Shingo Baba, Kyoto, Japan
Akira Kasai, BS, Kyoto-City, Japan
Hiroaki Nakamura, MD, Osaka, Japan

Periprosthetic small bone defect, which could not be detected using fluoroscopically guided radiographs, could be detected using a novel technique of tomography with high sensitivity and specificity.

Scientific Exhibit SE17

High Level of Residual Symptoms in Young Patients With TKA

Keith R. Berend, MD, New Albany, Ohio
Ryan Nunley, MD, Saint Louis, Missouri
Adolph V. Lombardi, Jr, MD, New Albany, Ohio
Erin Ruh, MS, Saint Louis, Missouri
John C. Clohisy, MD, Saint Louis, Missouri
William G. Hamilton, MD, Alexandria, Virginia
Craig J. Della Valle, MD, Chicago, Illinois
Javad Parvizi, MD, FRCS, Philadelphia, Pennsylvania
Robert L. Barrack, MD, Saint Louis, Missouri

When interviewed by an independent third party, a surprising percentage of young, active patients report residual symptoms and limitations following modern TKA.

Scientific Exhibit SE18

The Knee Society: Current Status of Arthroplasty of the Knee

Adolph V. Lombardi, Jr, MD, New Albany, Ohio
Jess H. Lonner, MD, Philadelphia, Pennsylvania
Steven J. MacDonald, MD, London, Canada
Keith R. Berend, MD, New Albany, Ohio
Aaron A. Hofmann, MD, Salt Lake City, Utah
Giles R. Scuderi, MD, New York, New York
Thomas P. Sculco, MD, New York, New York

Patellofemoral, medial and lateral unicompartmental, cruciate-retaining total, ultracongruent total, posterior-stabilized total, and varus-valgus constrained total knee arthroplasty are reviewed.

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Scientific Exhibit SE19

The Management of Extensor Mechanism Complications in Total Knee Arthroplasty

Denis Nam, MD, New York, New York
Michael B. Cross, MD, New York, New York
Matthew P. Abdel, MD, New York, New York
Lauren E. Lamont, MD, New York, New York
Keith R. Reinhardt, MD, New York, New York
Benjamin A. McArthur, MD, New York, New York
David J. Mayman, MD, New York, New York
Arlen D. Hanssen, MD, Rochester, Minnesota
Thomas P. Sculco, MD, New York, New York

This scientific exhibit will present a clinical and diagnostic approach to the management of patients with extensor mechanism and patellofemoral complications following a total knee arthroplasty.

Scientific Exhibit SE20

The Utility and Role of Osteotomies About the Knee

Eric Strauss, MD, New York, New York
Laith M. Jazrawi, MD, New York, New York
Bhavesh B. Joshi, DO, New York, New York

With improved techniques and technology, there is a need for a comprehensive review of the knee osteotomy utility for the management of various knee pathologies corrected by orthopaedic surgeons.

Scientific Exhibit SE21

High Flexion in Contemporary Total Knee Design - A Cause of Increased UHMWPE Damage: A Finite Element Study

Edward Morra, MSME, Cleveland, Ohio
A. Seth Greenwald, DPhil Oxon, Cleveland Heights, Ohio

This study investigates the tibial plateau stresses that occur during high flexion activities in four contemporary total knee designs where evolving crosslinked polyethylenes can be employed.

Scientific Exhibit SE22

Prevention and Treatment of Complications With Medial Unicompartment Knee Arthroplasty (UKA)

Geoffrey F. Dervin, MD, Ottawa, Canada
Paul R. Kim, MD, Ottawa, Canada
Peter Thurston, Ottawa, Canada
Kyle Kemp, MSc, Ottawa, Canada

Early failures of UKA can be sub-classified as a means of understanding failure mechanisms and potentially avoiding several in future.

Scientific Exhibit SE23

The Risks and Benefits of Alternate Bearing Use in Total Knee Arthroplasty

William M. Mihalko, MD, PhD, Germantown, Tennessee
Hani Haider, PhD, Omaha, Nebraska
Anish Potty, MD, Springfield, Illinois
Khaled J. Saleh, MD, MSc, FRCSC, FACS, Springfield, Illinois

We will show the limited clinical basis for use of highly crossed linked polyethylene in a TKA but biomechanical evidence would suggest its use may be suspect to earlier failure mechanisms.

Scientific Exhibit SE24

Long-Term Outcomes of Manipulation Under Anesthesia for Stiffness in Primary Total Knee Arthroplasty

Robert Pivec, MD, Baltimore, Maryland
Kimona Issa, MD, Santa Clarita, California
Aaron J. Johnson, MD, Baltimore, Maryland
Mark A. Kester, PhD, Mahwah, New Jersey
Michael A. Mont, MD, Baltimore, Maryland

This study evaluated MUA outcomes and complications of patients treated with manipulations under anesthesia for a stiff knee following primary total knee arthroplasty.

Scientific Exhibit SE25

Basic Uses of Hyaluronic Acid in Early Knee Arthritis

Laith M. Jazrawi, MD, New York, New York
Eric Strauss, MD, New York, New York
Shady Prestol, BA, New York, New York
Ankit Bansal, BS, New York, New York
Michael Di Benedetto, Oceanside, New York

This exhibit will review the current indications, evidence, and controversies surrounding use of injectable Hyaluronic acid (HA) in patients with early knee arthritis.

Scientific Exhibit SE26

A Large-Scale, Multi-Modality Comparative Retrieval Analysis of 500 Tibial Inserts

Douglas Van Citters, PhD, Hanover, New Hampshire
John H. Currier, MS, Hanover, New Hampshire
Michael B. Mayor, MD, Hanover, New Hampshire
Barbara H. Currier, MChE, Hanover, New Hampshire
Evan M. Carlson, MS, Hanover, New Hampshire
Steven D. Reinitz, BA, Hanover, New Hampshire
Ivan M. Tomek, MD, Lebanon, New Hampshire
Stephen R. Kantor, MD, Lebanon, New Hampshire
John P. Collier, DE, Hanover, New Hampshire

A retrieval study of 500 inserts shows that current designs and materials are moving in the right direction, and that refinement of the non-articular surface of TKA would be beneficial to patients.

Scientific Exhibit SE27

Why Do Posterior Stabilized Knees Fail?

Khaled J. Saleh, MD, MSc, FRCSC, FACS, Springfield, Illinois
William M. Mihalko, MD, PhD, Germantown, Tennessee
Leo A. Whiteside, MD, Saint Louis, Missouri
William A. Jiranek, MD, Richmond, Virginia
Youssef El Bitar, MD, Willowbrook, Illinois

The exhibit will provide a comprehensive overview of all the factors involved in failure of the PS TKAs and the modes of their failure.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Scientific Exhibit SE28
Lifetime Risk of TKR: Role of Knee Injury, Obesity, and Occupational Exposure
Elena Losina, MD, Boston, Massachusetts
Meghan E. Daigle, BS, Boston, Massachusetts
Robert J. Wright, MD, Boston, Massachusetts
Thomas S. Thornhill, MD, Boston, Massachusetts
Jeffrey N. Katz, MD, Brookline, Massachusetts

Established risk factors for knee OA have great influence on the timing and lifetime risk of total knee replacement.

Scientific Exhibit SE29
Mechanism of Primary Knee Arthroplasty Failure: Difference of a Decade
William C. Schroer, MD, Saint Louis, Missouri
Keith R. Berend, MD, New Albany, Ohio
Michael E. Berend, MD, Mooresville, Indiana
Ryan Nunley, MD, Saint Louis, Missouri
C. L. Barnes, MD, Little Rock, Arkansas
Adolph V. Lombardi, Jr, MD, New Albany, Ohio
Michael P. Bolognesi, MD, Durham, North Carolina

In a multicenter study, 37% of knee failures occurred within two years after TKA. Aseptic loosening, instability and infection account for 67% of knee failures.

Scientific Exhibit SE30
Management of the Patella in Revision Total Knee Arthroplasty
Christopher E. Gross, MD, Chicago, Illinois
Matthew Tetreault, BA, Pittsburgh, Pennsylvania
Scott M. Sporer, MD, Wheaton, Illinois
Craig J. Della Valle, MD, Chicago, Illinois

In most aseptic revision total knee arthroplasties, a well-fixed patellar component can be retained, and if revision is required, a standard polyethylene component is sufficient in most cases.

Scientific Exhibit SE31
Alignment in Total Knee Arthroplasty: Where Have We Come From and Where Are We Going?
Aaron J. Johnson, MD, Baltimore, Maryland
Steven F. Harwin, MD, New York, New York
Stephen M. Howell, MD, Sacramento, California
Jonathan R. Dattilo, BS, Baltimore, Maryland
Michael A. Mont, MD, Baltimore, Maryland
Samik Banerjee, MS, Baltimore, MD

This exhibit emphasizes an understanding of the native alignment of the knee, methods for correction of intra- and extra-articular deformity of the knee, and summarizes the existing literature.

Basic Research

Scientific Exhibit SE32
Applied Anatomy of Capsular and Tendon Releases for Anterior Approach THA: A Cadaveric and Clinical Study
Jose A. Rodriguez, MD, New York, New York
Brian Walters, MD, New York, New York
Herbert J. Cooper, MD, New York, New York

A cadaveric study documenting the relationship between the hip capsule and surrounding pericapsular structures, and their relevance in the anterior surgical approach to the hip.

Scientific Exhibit SE33
Generational Perspectives on Current Orthopaedic Challenges: Identifying the Gaps
Chad A. Krueger, MD, Fort Sam Houston, Texas
Daniel J. Stinner, MD, Nashville, Tennessee

This exhibit showcases a new communication technique that removes physical barriers, allows for open discussion and highlights different generation perspectives on current orthopaedic issues.

Scientific Exhibit SE34
The Impact of Vitamin D Deficiency on Musculoskeletal Health and Orthopaedic Outcomes
Shen-Ying R. Ma, MD, New York, New York
Michael E. Angeline, MD, Williams Bay, Wisconsin
Cecilia Pascual Garrido, MD, Denver, Colorado
Clifford Voigt, MD, New York, New York
Russell F. Warren, MD, New York, New York
Scott A. Rodeo, MD, New York, New York

The goal of this exhibit is to provide an overview on vitamin D's role in musculoskeletal health, its impact on patient outcomes, and provide current best practices for managing hypovitaminosis D.

Scientific Exhibit SE35
Antibiotic Stewardship in Orthopedic Surgery: Principles and Practice
Joseph A. Bosco III, MD, New York, New York
Sapna A. Mehta, MD, New York, New York
Lorraine Hutzler, BA, New York, New York
Michael Phillips, MD, New York, New York

The principles of antibiotic stewardship include determining the appropriate indications for antibiotic administration, choosing the most suitable antibiotics based on knowledge of potential pathogens and determining the proper dosage and length of administration of these antibiotics.

Foot and Ankle

Scientific Exhibit SE36
Spring Ligament Reconstruction in Adult-Acquired Flatfoot Deformity
Pallavi Nair, BS, Washington, Dist. of Columbia
Andrew Malzberg, BA, New York, New York
Constantine Demetracopoulos, MD, New York, New York
Jonathan T. Deland, MD, New York, New York

The purpose of this exhibit is to give implications of when to perform a spring ligament reconstruction to address flatfoot deformity, and to explain our new described techniques.

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Scientific Exhibit SE37

Bipolar Fresh Total Osteochondral Allograft: Why, Where, When

Sandro Giannini, MD, Bologna, Italy
Roberto Buda, Bologna, Italy
Marco Cavallo, MD, Bologna, Italy
Alberto Ruffilli, MD, Bologna, Italy
Gherardo Pagliazzi, Bologna, Italy
Francesco Acri, MD, Bologna, Italy
Deianira Luciani, MD, Bologna, Italy
Simona Neri, PhD, Bologna, Italy
Francesca Vannini, MD, Bologna, Italy

Bipolar fresh total osteochondral allograft is a good option for the treatment of end stage arthritis in young and middle-aged selected patients.

Scientific Exhibit SE38

Contemporary Management of Foot Drop

Edward Tang, MD, San Leandro, California
Arjun Srinath, MD, Weston, Florida
John T. Campbell, MD, Baltimore, Maryland
Clifford L. Jeng, MD, Baltimore, Maryland
Rebecca Cerrato, MD, Fallston, Maryland
Mark S. Myerson, MD, Baltimore, Maryland

Foot drop is a pathologic condition with multiple etiologies that is encountered by many orthopaedic surgical subspecialists. We discuss and display current concepts and management of this problem.

Hand and Wrist

Scientific Exhibit SE39

Complex Regional Pain Syndrome: An Algorithmic Approach to Diagnosis and Management

Nicolai Baecher, MD, Washington, Dist. of Columbia
Thomas Sanders, MD, Falls Church, Virginia
Michael Kessler, MD, Chevy Chase, Maryland

CRPS presents considerable problems for the practicing orthopedist. We present an overview of the current literature, and an algorithmic approach to guide management of this complex problem.

Scientific Exhibit SE40

Comparing Non-Locking Distal Radius Fixation Systems With Volar Locking Plates

William H. Seitz, Jr, MD, Cleveland, Ohio
William H. Seitz III Jr, MD, Cleveland, Ohio
Matthew Christian, MD, Baltimore, Maryland
Paul D. Postak, Cleveland, Ohio
A. Seth Greenwald, DPhil Oxon, Cleveland Heights, Ohio

Fixed angle, volar locking plates have become widely used in treatment of unstable distal radius fractures.

Pediatrics

Scientific Exhibit SE41

LLRS Exhibit: Avoiding Complications in Limb Lengthening

Stuart A. Green, MD, Los Alamitos, California

This LLRS exhibit will alert registrants to problems associated with limb lengthening and define both prophylactic measures to prevent their happening, and strategies to overcome them if they occur.

Scientific Exhibit SE42

POSNA: Infantile DDH: Screening, Safe-swaddling, Harness Application and Follow-up Protocol

Harish S. Hosalkar, MD, San Diego, California
Scott J. Mubarak, MD, San Diego, California
Ernest L. Sink, MD, New York, New York
Kishore Mulpuri, MD, Vancouver, Canada
Charles T. Price, MD, Orlando, Florida

This exhibit focuses on DDH Screening, Safe-swaddling, Harness application and follow-up Protocol.

Scientific Exhibit SE43

Subtalar Arthroereisis in Paediatric Flexible Flatfoot: Algorithm of Treatment and Results at Five Years

Antongiulio Marmotti, MD, Torino, Italy
Margherita Germano, MD, Torino, Italy
Mattia Cravino, MD, Torino, Italy
Alessia Tron, MD, Pino, Italy
Alessandra Tellini, MD, Alpignano-Turin, Italy
Rainero Del Din, MD, Perosa Argentina, Italy
Gianluca Collo, MD, Torino, Italy
Roberto Rossi, MD, Torino, Italy
Filippo Castoldi, MD, Torino, Italy

Extra-articular subtalar arthroereisis with calcaneo stop allows for properly orienting the talus over the calcaneus with good clinical and radiographic results at a minimum of 5 years of follow up.

Scientific Exhibit SE44

Management of Pediatric Shoulder Instability in the Skeletally Immature Population: A Review of Current Concepts

Xinning Li, MD, Lexington, Massachusetts
Richard R. Ma, MD, New York, New York
Natalie M. Egge, MD, Worcester, Massachusetts
Lawrence Gulotta, MD, New York, New York
Joshua Dines, MD, Great Neck, New York
Brett D Owens, MD, West Point, New York

Pediatric shoulder instability after primary glenohumeral dislocation can be a challenging clinical problem.

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Practice Management

Scientific Exhibit SE45

Professionalism Curriculum in Orthopaedic Residency: Teaching and Evaluating Residents

Donna P. Phillips, MD, New York, New York
Kenneth A. Egol, MD, New York, New York
Sondra Zabar, MD, New York, New York
Joseph D. Zuckerman, MD, New York, New York

The purpose of this exhibit is to demonstrate our experience with a comprehensive professionalism curriculum utilizing innovative and objective methods of resident CS and P evaluation.

Scientific Exhibit SE46

A Surgical Skills Training Curriculum for PGY-1 Orthopaedic Residents

Tameem M. Yehyawi, MD, Iowa City, Iowa
John L. Marsh, MD, Iowa City, Iowa
Matthew D. Karam, MD, Iowa City, Iowa

A surgical skills training curriculum for PGY-1 orthopaedic surgery residents designed to take place in January of 2013.

Scientific Exhibit SE47

The Work Injury Recovery Center: A Productive Endeavor in an Orthopaedic Practice

James V. Nepola, MD, Iowa City, Iowa
John P. Albright, MD, Iowa City, Iowa
Phinit Phisitkul, MD, Iowa City, Iowa
Sergio A. Mendoza-Lattes, MD, Iowa City, Iowa
Matthew J. Teusink, MD, Tampa, Florida
Sean Boarini, BA, Iowa City, Iowa
Casondra Roethler, Iowa City, Iowa

A model for a comprehensive musculoskeletal worker's compensation clinic and it's professional as well as financial rationale is presented.

Scientific Exhibit SE48

AAOS Evidence-Based Practice Committee: Evidence-Based Orthopaedics

David Jevsevar, MD, MBA, Saint George, Utah
Leeaht Gross, Rosemont, Illinois

Evidence-Based Practice is an essential aspect of patient care. Evidence bas always been part of decision making and now has even greater importance.

Scientific Exhibit SE49

AAOS Medical Liability Committee: Alternative Dispute Resolution: A Review

Andrew D. Markiewitz, MD, Cincinnati, Ohio
Thomas B. Fleeter, MD, Reston, Virginia
David H. Sohn, MD, Perrysburg, Ohio

As an alternative to costly and time-consuming litigation, Alternative Dispute Resolution (ADR) programs recognize suboptimal outcomes do occur and should be recognized outside of the legal system.

Scientific Exhibit SE50

AAOS Ethics Committee: Resident Ethics Series: From Design to Implementation

Charles Carroll IV, MD, Winnetka, Illinois

The AAOS Ethics Committee has designed a Resident's Ethics Series and this exhibit will review the program and discuss implementation of the program.

Shoulder and Elbow

Scientific Exhibit SE51

Telesurgery: Use of Augmented Reality in Orthopaedic Education

Brent A. Ponce, MD, Birmingham, Alabama
Terry B. Clay, BS, Birmingham, Alabama
Joseph A. Kundukulam, BS, Birmingham, Alabama
Keith W. Weaver, MD, Birmingham, Alabama
Jonathan K. Jennings, MD, Birmingham, Alabama
Evan Sheppard, BS, West Orange, New Jersey
Matthew May, BA, Birmingham, Alabama
Herrick Siegel, MD, Birmingham, Alabama

Virtual Interactive Presence and Augmented Reality (VIPAR) system can be used to assist in complex orthopaedic surgery by having the remote surgeon be present.

Scientific Exhibit SE52

The Arthroscopic Treatment of Elbow Osteoarthritis

Nathan W. Skelley, MD, Saint Louis, Missouri
Aaron M. Chamberlain, MD, Saint Louis, Missouri
Jay D. Keener, MD, Saint Louis, Missouri
Ken Yamaguchi, MD, Chesterfield, Missouri
Leesa M. Galatz, MD, Saint Louis, Missouri

The purpose of this exhibit is to review the use of arthroscopy as a treatment modality for elbow osteoarthritis.

Scientific Exhibit SE53

Cost Effective 3D Modeling Utilizing Standard CT Scan Data and Shareware Free Software

Rick F. Papandrea, MD, Waukesha, Wisconsin
Bradley R. Kuzel, MD, Duluth, Minnesota

Inexpensive creation of 3D bone models from standard CT scan data manipulated with free software.

Scientific Exhibit SE54

Suprascapular Neuropathy: An Elusive Cause of Shoulder Pain

Lewis L. Shi, MD, Chicago, Illinois
Eugene Ek, MBBS, PhD, FRACS, New York, New York
Michael T. Freehill, MD, Winston-Salem, North Carolina
Peter S. Vezeridis, MD, Boston, Massachusetts
Jeffrey D. Tompson, BA, Boston, Massachusetts
Laurence D. Higgins, MD, Boston, Massachusetts
Jon J. Warner, MD, Boston, Massachusetts

Suprascapular neuropathy is often overlooked as a cause of shoulder pathology. We present the most current understanding of its patho-anatomy, diagnosis, treatment, and its relationship to cuff tears.

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Scientific Exhibit SE55

Reverse Shoulder Arthroplasty With Latissimus Dorsi/Teres Major Transfer: Technique, Rehabilitation and Results

Eugene Ek, MBBS, PhD, FRACS, New York, New York
Lewis L. Shi, MD, Chicago, Illinois
Jeffrey D. Tompson, BA, Boston, Massachusetts
Katherine Phillips, PT, MS, Boston, Massachusetts
Laurence D. Higgins, MD, Boston, Massachusetts
Jon J. Warner, MD, Boston, Massachusetts

In patients with posterosuperior cuff deficiency, a reverse shoulder arthroplasty with latissimus dorsi and teres major transfer can reliably increase active forward flexion and external rotation.

Scientific Exhibit SE56

Blood Supply to the Proximal Humerus: Implications for Fracture Reconstruction

Mahmoud M. Khair, MD, New York, New York
Marschall B. Berkes, MD, New York, New York
Travis G. Maak, MD, Salt Lake City, Utah
David M. Dines, MD, Great Neck, New York
Josh Dines, MD, Great Neck, New York
Dean G. Lorich, MD, New York, New York

This exhibit reviews the data guiding the management of proximal humerus fractures emphasizing blood supply. It describes new approaches and techniques as well as provides a treatment algorithm.

Scientific Exhibit SE57

Humeral Retroversion: Variability in Measurement Practices and Implications for Understanding Humeral Geometry

Spencer Woolwine, CS, Newport Beach, California
Michael L. Pearl, MD, Los Angeles, California
Gabriel Merton, San Diego, California
Fabian Van de Bunt, Amsterdam, Netherlands

By reviewing version literature to date, we can differentiate studies by methodology and approach to humeral geometry, and clarify implications of specific choices to expected values of measurement.

Scientific Exhibit SE58

Resurfacing Arthroplasty for Contained Cuff Tear Arthropathy

William H. Seitz, Jr, MD, Cleveland, Ohio
Yuji Umeda, MD, Cleveland, Ohio
Ernest Michaud, OTR/L, Cleveland, Ohio

Cuff Tear Arthropathy (CTA) remains a challenging problem for surgeon and patient alike.

Spine

Scientific Exhibit SE59

Scoliosis Research Society: Rates and Causes of Mortality Associated With Spine Surgery Based on 108,419 Procedures

Justin S. Smith, MD, Charlottesville, Virginia
Christopher Ames, MD, San Francisco, California
Lawrence G. Lenke, MD, Saint Louis, Missouri
David W. Polly, Jr, MD, Minneapolis, Minnesota
Manish K. Kasliwal, MD, Charlottesville, Virginia
Paul A. Broadstone, MD, Chattanooga, Tennessee
Steven D. Glassman, MD, Louisville, Kentucky
Alexander Vaccaro, MD, PhD, Gladwyne, Pennsylvania
Christopher I. Shaffrey, MD, Charlottesville, Virginia

This study provides rates and causes of mortality associated with spine surgery for a broad range of diagnoses for adult and pediatric patients.

Scientific Exhibit SE60

Risk-analysis of MRSA in Patients With Traumatic Vertebral Fractures and Spinal Cord Injury

Markus Eichler, MD, Heidelberg, Germany
Bernd Wiedenhoefer, MD, Heidelberg, Germany
Michael Akbar, MD, Heidelberg, Germany

his scientific exhibit emphasizes the MRSA-colonization problem in a specific patient population. Patients with spinal column fractures with neurological deficits are highly at risk for MRSA.

Scientific Exhibit SE61

Spinal Epidural Abscesses: Risk Factors, Medical Versus Surgical Management: A Retrospective Review of 100 Cases

Timothy B. Alton, MD, Seattle, Washington
Amit R. Patel, MD, York, Pennsylvania
Jens R. Chapman, MD, Seattle, Washington
Michael J. Lee, MD, Seattle, Washington
Carlo Bellabarba, MD, Seattle, Washington
Richard J. Bransford, MD, Seattle, Washington

A Single-Center Retrospective Review of 100 Patients with Spinal Epidural Abscesses: Risk Factors, Current Trends, Radiographic Analysis, and Outcomes of Medical vs Surgical Management.

Scientific Exhibit SE62

Comparison of In-hospital Complications Associated With ACDF and Cervical Disc Arthroplasty

Sergiy Nesterenko, MD, Baltimore, Maryland
Lee H. Riley III, MD, Baltimore, Maryland
Richard L. Skolasky, Jr, ScD, Baltimore, Maryland

Perioperative complications reflected in the nationwide inpatient database differ between the patients with cervical discogenic pathology treated with either ACDF or disc arthroplasty.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Sports Medicine and Arthroscopy

Scientific Exhibit SE63

Nonoperative Treatment for Anterior Cruciate Ligament Injury in Recreational Alpine Skiers

Iftach Hetsroni, MD, Tel Aviv, Israel
Demetris Delos, MD, New York, New York
Greg Fives, PT, Northport, New York
Brian W. Boyle, BA, Montclair, New Jersey
Kaitlyn A. Lillemoe, BA, New York, New York
Robert G. Marx, MD, New York, New York

In recreational skiers who sustain ACL injury and have low-grade Lachman at 6-12 weeks after the injury, good outcome and normal anterior laxity can be expected at more than 2 years without surgery.

Scientific Exhibit SE64

The Management of the Biceps Tendon: Proximal to Distal

Laith M. Jazrawi, MD, New York, New York
Eric Strauss, MD, New York, New York
Young W. Kwon, MD, PhD, New York, New York
Andrew S. Rokito, MD, New York, New York
Matthew Hamula, BA, BS, New York, New York
Omar N. Khatib, MD, Milwaukee, Wisconsin

The purpose of this scientific exhibit is to present practitioners with cutting edge evidence on the pathophysiology, biomechanics, diagnosis, and the management of biceps tendon disorders.

Scientific Exhibit SE65

Magnetic Resonance Imaging of the Hip: Techniques and Spectrum of Disease

Ashvin K. Dewan, MD, Baltimore, Maryland
Michael K. Shindle, MD, Madison, New Jersey
Bryan T. Kelly, MD, New York, New York
Andrew J. Cosgarea, MD, Lutherville, Maryland
John A. Carrino, MD, Baltimore, Maryland
A. J. Khanna, MD, Bethesda, Maryland

The spectrum of hip disease detectable by magnetic resonance imaging and the application of new and current magnetic resonance imaging techniques are reviewed in this exhibit.

Scientific Exhibit SE66

The Mechanical Etiology of Pain in the Non-arthritic Hip: Presentation, Evaluation and Management

Travis G. Maak, MD, Salt Lake City, Utah
Lazaros A. Poultsides, MD, New York, New York
Bryan A. Warme, MD, Ames, Iowa
Stephen K. Aoki, MD, Salt Lake City, Utah
Christopher L. Peters, MD, Salt Lake City, Utah
Ernest L. Sink, MD, New York, New York
Bryan T. Kelly, MD, New York, New York

This exhibit discusses non-arthritic mechanical hip pain and diagnosis, clinical and radiographic evaluation, and management algorithms.

Scientific Exhibit SE67

MeTeOR: Preliminary Results of an RCT of Arthroscopic Partial Meniscectomy Versus PT in Patients > 45

Jeffrey N. Katz, MD, Brookline, Massachusetts
Elena Losina, MD, Boston, Massachusetts
Robert J. Wright, MD, Boston, Massachusetts
MeTeor Trial Investigators, Brookline, Massachusetts

This randomized trial of surgery vs. PT in 351 subjects with meniscal tear and osteoarthritis showed similar functional improvement at 6 months in both arms but 30% crossover in nonoperative arm.

Scientific Exhibit SE68

Management of Acromioclavicular Joint Injuries: A Review of Current Concepts, Outcomes and Surgical Techniques

Xinning Li, MD, Lexington, Massachusetts
Richard R. Ma, MD, New York, New York
Asheesh Bedi, MD, Ann Arbor, Michigan
David M. Dines, MD, Great Neck, New York
David W. Altchek, MD, New York, New York
Joshua Dines, MD, Great Neck, New York

Most patients will do well with type I and II AC injuries treated conservatively. However, management of type III AC joint injuries are controversial.

Scientific Exhibit SE69

Children Exposed to Increased Exercise Gain Skeletal Benefits Without Any Increase in Fracture Risk

Fredrik T. Detter, MD, Malmö, Sweden
Bjorn Rosengren, MD, PhD, Malmö, Sweden
Jan-Ake Nilsson, BSc, Malmö, Sweden
Magnus Dencker, MD, PhD, Malmö, Sweden
Magnus Karlsson, MD, Malmö, Sweden

Increased physical activity for 6 years in a population based cohort of 7-9 year old children improved bone mass and in girls also bone structure without increasing the fracture risk.

Scientific Exhibit SE70

Evaluation and Management of Injuries to the Posterolateral Corner of the Knee: Techniques and Outcomes

Jason A. Collins, MD, New York, New York
Eric Strauss, MD, New York, New York
Laith M. Jazrawi, MD, New York, New York
Joshua Namm, MD, San Francisco, California
Bhavesh B. Joshi, DO, New York, New York

This exhibit will provide a review of the PLC injury including: anatomy, biomechanics, classification, clinical findings, imaging, treatment, surgical techniques, clinical outcomes, and complications.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Scientific Exhibit SE71

An Algorithmic Approach to the Management of Recurrent Lateral Patellar Dislocation

Asheesh Bedi, MD, Ann Arbor, Michigan
Travis G. Maak, MD, Salt Lake City, Utah
Demetris Delos, MD, New York, New York
Moira M. McCarthy, MD, New York, New York
Beth E. Shubin Stein, MD, New York, New York
Elizabeth A. Arendt, MD, Minneapolis, Minnesota
David W. Altchek, MD, New York, New York
Joshua Dines, MD, Great Neck, New York

An evidence-based discussion of the clinical & radiographic evaluation, surgical indications & techniques, and outcomes of the various options for patellofemoral instability in the active patient.

Scientific Exhibit SE72

Revision Anterior Cruciate Ligament (ACL) Surgery After Primary Double-Bundle ACL-Reconstruction

Marcus Hofbauer, MD, Pittsburgh, Pennsylvania
Christopher D. Murawski, New York, New York
Kellie K. Middleton, MPH, Pittsburgh, Pennsylvania
Bart Muller, MD, Pittsburgh, Pennsylvania
Freddie H. Fu, MD, Pittsburgh, Pennsylvania

Representative cases are presented as potential solutions for ACL revision surgery and to constitute that revision after double-bundle ACL reconstruction is reasonable to accomplish.

Scientific Exhibit SE73

The Anterolateral Ligament of the Knee: Anatomy, Radiology, Biomechanics and Clinical Implications

Steven A. Claes, MD, Pellenberg, Belgium
Stijn Bartholomeeusen, MD, Malle, Belgium
Evie E. Vereecke, PhD, Kortrijk, Belgium
Jan M. Victor, MD, GENT, Belgium
Peter Verdonk, MD, PhD, Ghent, Belgium
Johan Bellemans, MD, Langdorp, Belgium

The ALL is a distinct structure with definite biomechanical properties, yielding new insights for the diagnosis and treatment of knee instability previously attributed to isolated injuries of the ACL.

Scientific Exhibit SE74

Multiple Ligament Knee Injuries: Diagnosis and Treatment of an Uncommon But Challenging Orthopaedic Problem

Demetris Delos, MD, New York, New York
Travis G. Maak, MD, Salt Lake City, Utah
Kristofer Jones, MD, New York, New York
Mahmoud M. Khair, MD, New York, New York
Robert G. Marx, MD, New York, New York
Russell F. Warren, MD, New York, New York

This exhibit will review the nature of multiple ligament knee injuries, their diagnosis, and treatment.

Scientific Exhibit SE75

AAOS Women Health Issues Advisory Board: Celebrating 40 Years of Title IX: The Influence on Your Orthopaedic Practice

Sheila M. Algan, MD, Oklahoma City, Oklahoma
Elizabeth A. Arendt, MD, Minneapolis, Minnesota
Jennifer M. Weiss, MD, Los Angeles, California
Erin L. Ransford, Rosemont, Illinois

Forty years later, Title IX continues to change the lives of females by enabling active participation in sports. This exhibit examines how orthopaedic surgery has been impacted by Title IX.

Scientific Exhibit SE76

Two-Year Outcome of Arthroscopic Capsular Repair of the Hip: A Matched Pair Group Study

Benjamin Domb, MD, Westmont, Illinois
Zachary J. Finley, BA, Westmont, Illinois
Ryan Baise, Orland Park, Illinois
Itamar Botser, Palo Alto, California

Both capsular repair and capsular release following hip arthroscopy showed excellent results at two years follow-up. However, capsular repair showed higher hip specific outcome scores and lower pain.

Scientific Exhibit SE77

Cell Based Articular Cartilage Repair in the Knee: An Evidence-Based Review

Seth Sherman, MD, Columbia, Missouri
Tyler J. Jenkins, BS, Columbia, Missouri
Martin Gregory, BA, Columbia, Missouri
James L. Cook, DVM, PhD, Columbia, Missouri
James P. Stannard, MD, Columbia, Missouri

This is an evidence based review of cell based articular cartilage repair techniques in the knee. These techniques have the potential to restore both the structure and function of hyaline cartilage.

Scientific Exhibit SE78

Anterior Cruciate Ligament Reconstruction: Observations on 25-Years of Experience

Jaskarndip Chahal, MD, Mississauga, Canada
Andrew Lee, MD, Chicago, Illinois
Bernard R. Bach, Jr, MD, River Forest, Illinois

We describe a single surgeon's experience with ACLR over 25 years in a cohort of 1981 patients with respect to the rate of reoperation, revision ACLR, and rate of contralateral surgery.

Trauma

Scientific Exhibit SE79

The Syndesmosis: Knowledge Update and Surgical Techniques

Roy Davidovitch, MD, New York, New York
Daniel O. Howard, BS, New York, New York
Kenneth A. Egol, MD, New York, New York

This multimedia presentation aims to review the anatomy, surgical indications and techniques for syndesmotic reduction and fixation.

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Scientific Exhibit SE80
Open Knee Joint Injuries: Computed Tomography Scan Is a New Diagnostic Tool That Is Better Than the Saline Load Test
Sanjit R. Konda, MD, Charlotte, North Carolina
Daniel O. Howard, BS, New York, New York
Davidovitch Roy, MD, New York, New York
Kenneth A. Egol, MD, New York, New York

Computed tomography scan has been shown to improve detection of occult traumatic arthrotomies when compared to the Saline Load Test and a low radiation dose protocol does not diminish its accuracy.

Scientific Exhibit SE81
The Results of Acetabulum Fractures Treatment After 10 Years of Follow-up
Kenan Senohradski, MD, Belgrade, Serbia

Fracture of acetabulum are relatively common injuries of the pelvis that are most frequently associated with high-energy trauma.The aim was to show the treatment results after 10 years of follow-up.

Scientific Exhibit SE82
Bio-texture Modeling for Assistance of Acetabular Fracture Surgery: Tactile 3D Bony Manufacturing
Sang Y. Lee, MD, Kobe, Japan
Takahiro Niikura, MD, PhD, Kobe, Japan
Maki Sugimoto, MD, Kobe, Hyogo, Japan
Takaaki Koga, MD, Kobe, Japan
Yoshihiro Dogaki, Kobe City, Hyogo, Japan
Etsuko Okumachi, MD, Kobe, Japan
Takahro Waki, Kobe, Japan
Ryosuke Kuroda, MD, Kobe, Japan
Masahiro Kurosaka, MD, Kobe, Japan

Tactile three-dimensional bony manufacturing for acetabular fractures using 3D printing technology provides essential and additional information by direct visual and tactile feedback.

Scientific Exhibit SE83
Quadrilateral Plate Fixation Through the Iliofemoral Approach
Ramesh Sen, PhD, Chandigarh, India

The iliofemoral approach permits direct visualization of the entire anterior column and spring plate fixed anteriorly on the iliopectineal eminence provides better mechanical support.

Scientific Exhibit SE84
The Use of Percutaneous Autologous Bone Marrow Grafting for Non-union
Vishal Hegde, BA, New York, New York
Anas Saleh, MD, Beachwood, Ohio
Saad M. Hasan, BA, New York, New York
Kofi A. Mensah, MD, New York, New York
Joseph M. Lane, MD, New York, New York

Percutaneous autologous bone marrow grafting is a minimally invasive alternative to autologous bone grafting for non-unions. Physicians should be made aware of this technique and its appropriate use.

Scientific Exhibit SE85
Removal of Orthopaedic Hardware: Tips, Tricks and Pitfalls
Kenneth A. Egol, MD, New York, New York
Steven C. Gross, MD, New York, New York
Roy Davidovitch, MD, New York, New York

Surgeons performing revision surgery must be able to identify common and uncommon examples of broken or retained trauma implants and utilize strategies to enable their safe and prompt removal.

Scientific Exhibit SE86
AAOS Extremity War Injuries Project Team
James R. Ficke, MD, San Antonio, Texas
Jamie Gregorian, JD, Washington, Dist. of Columbia

The Extremity War Injuries Project Team will present developments in orthopaedic treatments of the wounded warrior, as well as recognize AAOS members who have donated their time to treat the wounded.

Tumor

Scientific Exhibit SE87
From the MSTS: Musculoskeletal Pathology: Unknowns as Art
Robert H. Quinn, MD, San Antonio, Texas
Michael P. Mott, MD, Detroit, Michigan
Joel Mayerson, MD, Columbus, Ohio
Therese Bocklage, MD, Albuquerque, New Mexico
Paul E. Wakely, Jr, MD, Columbus, Ohio
G D. Letson, MD, Tampa, Florida
Valerae O. Lewis, MD, Houston, Texas
Joseph Benevenia, MD, Newark, New Jersey

This exhibit will consist of pathologic unknowns in a visual quiz format. All imagese were specifically selected for their artistic and visual, as well as scientific, appeal.

Scientific Exhibit SE88
AAOS Biological Implant Committee: Bioceramics in the Treatment of Benign Bone Tumors
Steven Gitelis, MD, Chicago, Illinois
Ross M. Wilkins, MD, Evergreen, Colorado
Yale Fillingham, MD, Chicago, Illinois

Bioceramic bone graft substitutes are a reasonable choice to reconstruct contained osseous defects secondary to benign bone tumors.

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The Alternate Paper designation indicates that this poster has been selected to be given as a paper in the event that one of the papers in the chosen session has to be withdrawn.

Adult Reconstruction Hip

Poster No. P001
Iliopsoas Muscle Atrophy was Evident in the Patients with Hip Osteoarthritis - MRI Analysis of 800 Cases
Koh Shimizu, MD, Chiba, Japan
Sara Shimizu, MD, Chiba, Japan

This MRI study revealed greater muscle atrophy of the iliopsoas before THA, and the recovery was not sufficient even after THA in patients with hip osteoarthritis.

Poster No. P002
Trends in the Surgical Management of Hip Dysplasia in Adults
Jonathan R. Hutt, MBBS, London, United Kingdom

In young adults, non-arthroplasty procedures for hip dysplasia have increased fourfold in number over 10 years, without any significant change in the numbers performed in the paediatric population.

Poster No. P003
Hip Translation in Normal Volunteers and Patients with Acetabular Dysplasia
Keisuke Akiyama, MD, PhD, Osaka City, Japan
Takashi Sakai, MD, Suita, Japan
Junichiro Koyanagi, MD, Osaka, Japan
Hideki Yoshikawa, MD, Osaka, Japan
Kazuomi Sugamoto, MD, Osaka, Japan

Hip instability was increased in proportion to age and the severity of acetabular dysplasia.

Poster No. P004
Can the Alpha Angle Predict the Incidence of Hip Pain in 200 Volunteers?
Paul E. Beaule, MD, Ottawa, ON, Canada
Heather Belanger, RN, Ottawa, ON, Canada
Kawan S. Rakhra, MD, Ottawa, ON, Canada
Gina Di Primio, MD, Ottawa, ON, Canada

Our results indicate that an elevated alpha angle may be associated with new onset hip pain in this cohort of patients.

Poster No. P005
Molecular Characterization of Articular Cartilage from Young Adults with Femoral Acetabular Impingement
Shingo Hashimoto, MD, Kobe, Japan
Corey S. Gill, MD, Dallas, TX
Zhiqi Zhang Jr, MD, PhD, Guangzhou, China
Linda J. Sandell, PhD, St Louis, MO
John C. Clohisy, MD, Saint Louis, MO

Data from the current study identifies potential early biomarkers of osteoarthritic hip disease and support increased metabolic and inflammatory activity that is consistent with early osteoarthritis.

Poster No. P006
Birmingham Interlocking Triple Pelvic Osteotomy - Outcome at 10 to 18 Years
Dylan Jewell, MD, Worcestershire, United Kingdom
John N. O'Hara, MD, Birmingham, United Kingdom
Callum McBryde, MD, Birmingham, United Kingdom

This study determines the survival and outcomes of the Birmingham Interlocking Triple Pelvic Osteotomy. Kaplan-Meier survival analysis shows 10, 15 and 18-year survival of 76, 54 and 50% respectively.

Poster No. P007
Epidemiology of Periprosthetic Femur Fractures in 33,275 Primary Total Hip Arthroplasties
Matthew P. Abdel, MD, New York, NY
David G. Lewallen, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

In 33,275 primary THAs, intraoperative femoral fractures occurred 9X more often with uncemented stems, but there was an equivalent prevalence of postoperative fractures in cemented & uncemented stems.

Poster No. P008
The Prevalence of Acetabular Retroversion in Asymptomatic Adults
Georgi Wassilew, MD, Berlin, Germany
Heller O. Markus, PhD, Berlin, Germany
Perka Carsten, MD, Berlin, Germany
Viktor Janz, MD, Berlin, Germany
Stephan Werner Tohtz, MD, Berlin, Germany

Our study show that asymptomatic possible acetabular retroversion is not a rare condition, so patients presenting with pain around the hip who may have evidence of FAI should be subjected to strict diagnostic scrutiny.

Poster No. P009
◆The Results of Intertrochanteric Curved Varus Osteotomy for Idiopathic Osteonecrosis of the Femoral Head
Michio Hamanishi, MD, Minami-Ku Hiroshima, Japan
Yuji Yasunaga, MD, Hiroshima City, Japan
Takuma Yamasaki, MD, Hiroshima, Japan
Ryo Mori, MD, Horoshima, Japan
Takeshi Shoji, MD, Hiroshima, Japan
Mitsuo Ochi, MD, PhD, Hiroshima, Japan

The results of intertrochanteric curved varus osteotomy for idiopathic osteonecrosis of the femoral head were successful. Operative indication should be decided carefully when small intact area is est.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P010

Total Joint Replacement in Patients over 90 Years of Age is a Viable Option but Requires Risk Adjustment

Alternate Paper: Adult Reconstruction Hip I: Primary Total Hip Arthroplasty

James A. Browne, MD, Charlottesville, VA
Wendy Novicoff, PhD, Charlottesville, VA
Michele R. D'Apuzzo, MD, Charlottesville, VA

Age over 90 is associated with increased complications and mortality after total joint arthroplasty.

Poster No. P011

Has Total Hip Arthroplasty in Patients 30 Years and Younger Improved Over Time? A Systematic Review

Muyibat A. Adelani, MD, Saint Louis, MO
James A. Keeney, MD, St Louis, MO
Geneva Baca, Saint Louis, MO
Allison Palisch, BS, Saint Louis, MO
Susan Fowler, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO

The literature on total hip arthroplasty in patients 30 years of age and younger demonstrates an improvement in clinical outcomes and survivorship over time.

Poster No. P012

Cementless THA in Patients Age 50 and Under at Minimum 10-Year Follow Up: What Can Be Learned Concerning Durability?

Ryan K. Takenaga, MD, Iowa City, IA
Nicholas Bedard, BS, Iowa City, IA
Steve S. Liu, MD, Iowa City, IA
John J. Callaghan, MD, Iowa City, IA

Cementless THA with a second generation extensively coated stem demonstrated durable fixation in a younger patients at minimum 10 years. No hips were revised for loosening.

Poster No. P013

No Difference in Activity Levels Between Very Young and General Total Hip Arthroplasty Patients Following Surgery

Tennison Malcolm, BS, Cleveland, OH
Wael K. Barsoum, MD, Bay Village, OH
Steven J. Spalding, MD, Cleveland, OH
Andrew Zeft, MD, MPH, Cleveland, OH
Alison K. Klika, MS, Cleveland, OH

The activity of total hip arthroplasty ≤30 fails to show any difference from traditional, older arthroplasty patients, likely due to the unique effect of comorbidities in very young patients.

Poster No. P014

Young Total Hip Arthroplasty Patients: How Active are They?

James A. Keeney, MD, St Louis, MO
Ryan Nunley, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO

Young THA patients are diverse: highly active males with OA, moderately active females with OA and DDH, and low activity females with osteonecrosis or inflammatory arthritis.

Poster No. P015

Anterior Approach Hip Arthroplasty: Does a Short Stem Increase the Risk of Fracture?

Keith R. Berend, MD, New Albany, OH
Michael J. Morris, MD, New Albany, OH
Adolph V. Lombardi Jr, MD, New Albany, OH

The nearly 1% risk of post-operative fracture with the anterior supine approach appears to be offset by a lower rate of dislocation or infection versus traditional approaches.

Poster No. P016

Migration and Thigh Pain with a New Short Modular Femoral Stem for Total Hip Replacement

Jose A. Rodriguez, MD, New York, NY
Herbert J. Cooper, MD, New York, NY
Parthiv A. Rathod, MD, Flushing, NY

There was a high incidence of thigh pain with a new short modular femoral stem associated with a tendency for early varus migration with the tip touching the lateral cortex of the femur.

Poster No. P017

Which Muscle Sparing Approach is Better - Direct Anterior or Antero-lateral in Total Hip Arthroplasty?

Hiroyoshi Iwaki, MD, Osaka, Japan
Yukihide Minoda, MD, Osaka, Japan
Mitsuhiko Ikebuchi, MD, Abeno-ku Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan

We compared 50 direct anterior approach and 50 antero-lateral approach in total hip arthroplasty. Recovery rates were similar in both group, however the cup orientation is significantly more stable in.

Poster No. P018

Differences in Hip Strength Recovery with Direct Anterior and Posterior Approach Total Hip Arthroplasty

Parthiv A. Rathod, MD, Flushing, NY
Takumi Fukunaga, DPT, ATC, New York, NY
Ajit J. Deshmukh, MD, New York, NY
Amar S. Ranawat, MD, New York, NY
Jose A. Rodriguez, MD, New York, NY

Both DAA and PA THA offer similar recovery in hip muscle strength up to 1 year with exceptions of persistent ER strength deficit in PA group and flexion strength deficit at 6 weeks in DAA group.

Poster No. P019

Effect of Femoral Offset on Pain and Function Following Total Hip Arthroplasty

Kevin A. Cassidy, MD, New York, NY
Manish S. Noticewala, MD, New York, NY
William B. Macaulay, MD, New York, NY
Jonathan H. Lee, MD, New York, NY
Jeffrey A. Geller, MD, New York, NY

Reducing offset by more than 5mm as compared to the contralateral non-diseased hip can decrease function, while increasing offset by more than 5mm does not increase pain nor decrease function.

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Poster No. P020

Are Hip Precautions Necessary after Posterior Approach to Total Hip Arthroplasty?

Aidin Eslampour, MD, West Bloomfield, MI
Greg Erens, MD, Decatur, GA
Thomas L. Bradbury, MD, Atlanta, GA
James R. Roberson, MD, Atlanta, GA
Alex A. Johnson, Decatur, GA

Intraoperative stability testing is necessary during primary total hip arthroplasty. If the hip meets stability criteria intraoperatively, hip precautions may not be necessary.

Poster No. P021

The Association Between Femoral Tilt and Impingement Free Range-of-motion in Total Hip Arthroplasty

Tobias Renkawitz, MD, PhD, Bad Abbach, Germany
Martin Haimerl, PhD, MSc, Feldkirchen, Germany
Markus Weber, Bad Abbach, Germany
Michael Woerner, Bad Abbach, Germany
Phillipp Lechler, MD, Marburg, Germany
Joachim Grifka, MD, Pentling, Germany

The Femoral Tilt has a significant impact on recommended cup positions within the concept of "femur first" or "combined anteversion".

Poster No. P022

Efficacy of Intra-operative Digital Radiography in Total Hip Arthroplasty

Brad L. Penenberg, MD, Beverly Hills, CA
William S. Bolling, MD, Beverly Hills, CA
Michelle Riley, PA, Beverly Hills, CA

use of intra-operative digital radiography is reliable and permits improved precision of component placement in total hip arthroplasty.

Poster No. P023

Sexual Function Improves Significantly After Primary Total Hip and Knee Arthroplasty: A Prospective Study

Parthiv A. Rathod, MD, Flushing, NY
Ajit J. Deshmukh, MD, New York, NY
Amar S. Ranawat, MD, New York, NY
Jose A. Rodriguez, MD, New York, NY

THA or TKA improved overall sexual function in 90% of patients with higher rate of improvement after THA than TKA. Sexual function needs to be included in routine evaluation of patients after THA /TKA.

Poster No. P024

Patient Education Influence on Patient Reported Outcomes after Total Hip Replacement

Meridith E. Greene, Boston, MA
Ola Rolfson, MD, PhD, Gothenburg, Sweden
Max Gordon, MD, Stockholm, Sweden
Henrik Malchau, MD, Boston, MA
Goran Garellick, MD, PhD, Goteborg, Sweden

The highest education attained and the marital status of patients in addition to their age, gender, and co-morbidities significantly influence patient reported outcomes after THR.

Poster No. P025

A Clinical Investigation of Metal Ion Release in Total Joint Replacements

Elie Khoury, MD, Albury, Australia
Jenny Burke, Pagewood, Australia
Ronald M. Gillies, Sydney, Australia

This paper has investigated the metal ion release due to total hip replacement (THR), hip resurfacing (HR) and total knee replacement (TKR). All patient metal ion levels were in the safe range.

Poster No. P026

Cup Anteversion is Smaller on Anteroposterior Radiographs and Larger on Cross-table Lateral Radiographs than on CT

Tomohiro Nomura, MD, Fukuoka City, Japan
Masatoshi Naito, MD, Fukuoka, Japan
Yoshinari Nakamura, MD, Fukuoka, Japan
Takahiro Ida, MD, Fukuoka, Japan
Daisuke Kuroda, MD, Fukuoka City, Japan
Tomohiro Kobayashi, MD, Fukuoka, Japan
Tomonobu Hagio, MD, Fukuoka, Japan
Tetsuya Sakamoto, MD, Fukuoka, Japan
Kunihide Muraoka, Fukuoka, Japan

Accurate assessment of cup anteversion is important after total hip arthroplasty. We compared the accuracy of cup anteversion assessment on anteroposterior and cross-table lateral radiographs with CT.

Poster No. P027

Acetabular Cup Positioning in Total Hip Replacement: The Impact of Obesity

Benjamin A. McArthur, MD, New York, NY
Ettore Vulcano, MD, New York, NY
Denis Nam, MD, New York, NY
Michael B. Cross, MD, New York, NY
Joseph Nguyen, MPH, New York, NY
Eduardo A. Salvati, MD, New York, NY

We compared the incidence of malpositioning of total hip replacement acetabular cups in obese and non-obese patients for a high-volume surgeon using a posterolateral approach and found no difference.

Poster No. P028

Are Morbidly Obese Patients Undergoing Total Hip Arthroplasty at Higher Risk for Component Malposition?

Shaun E. Chandran, MD, Pls Vrds Pnsl, CA
Leah Elson, Boston, MA
Viktor Hansen, MD, Boston, MA
Henrik Malchau, MD, Boston, MA
Young-Min Kwon, MD, PhD, Boston, MA

The results of our study suggest that obese patients are at higher risk for acetabular component malposition.

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Poster No. P029
A Novel Method for Accurate and Reproducible Functional Cup Positioning in Total Hip Replacement
Morteza Meftah, MD, New York, NY
Amar S. Ranawat, MD, New York, NY
Chitranjan S. Ranawat, MD, New York, NY

This is an easy, accurate, and reproducible novel method for functional cup positioning, adjusting for femoral anteversion and pelvis tilt and obliquity, using weight-bearing radiographs.

Poster No. P030
Comparison of Femoral Nerve Block with and without Combined Sciatic Nerve Block after Total Hip Arthroplasty
Shoji Nishio, MD, Nishinomiya, Japan
Shigeo Fukunishi, MD, Nishinomiya, Japan
Tomokazu Fukui, MD, Osaka, Japan
Yuki Fujihara, Nishinomiya, Japan
Shohei Okahisa, MD, Hyogo, Japan
Shinichi Yoshiya, MD, Nishinomiya, Hyogo, Japan

Comparison of continuous femoral nerve block with and without combined sciatic nerve block after total hip arthroplasty.

Poster No. P031
Clinical and Process Outcomes of Same Day Total Joint Arthroplasty
Jeffrey G. Mokris, MD, Charlotte, NC
Monica C. Mowry, MSN, RN, Matthews, NC
Michael Odell, RN, Charlotte, NC
Grace Mathis, PA-C, Charlotte, NC

The purpose of this study is to evaluate the clinical and process improvement outcomes of a retrospective, consecutive series of outpatient total knee arthroplasty performed by a single surgeon.

Poster No. P032
Cementless Total Hip Arthroplasty has Higher Incidence and Severity of Thigh Pain than Surface Replacement
Ryan Nunley, MD, Saint Louis, MO
Peter J. Brooks, MD, Cleveland, OH
John C. Clohisy, MD, Saint Louis, MO
Staci Johnson, M.Ed, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO

Patients with SRA and THA are equally likely to have groin pain. Young, active patients with THA have significantly more anterior thigh pain with a surprising number having severe anterior thigh pain.

Poster No. P033
Serial Bone Remodeling around DCPD Coated Metaphyseal-loading Cementless Short Stems in Elderly Patients
Kwang J. Oh, MD, Seoul, Republic of Korea
Kyung-Jae Lee, MD, Daegu, South Korea
Amit Mishra, Mumbai, India

Serial assessment of bone remodeling pattern with dicalcium phosphate dihydrate (DCPD) coated metaphyseal-loading short stems, has not, to our knowledge, been described previously.

Poster No. P034
RSA Analysis of Early Migration of a Short vs. Standard Length Metaphyseal Cementless Stem: A Prospective RCT
Richard W. McCalden, MD, London, ON, Canada
Doug Naudie, MD, FRCSC, London, ON, Canada
Abigail E. Thompson, BScN, London, ON, Canada
Lyndsay Somerville, PhD, London, ON, Canada

RSA demonstrated similar micro-motion between a new short femoral stem and standard length femoral stem design. The introduction of this new shorter stem design can now be supported with RSA data.

Poster No. P035
◆Is Diaphyseal Stem Fixation Necessary for Primary Total Hip Arthroplasty in Patient with Osteoporotic Class C Bone?
Young-Hoo Kim, MD, Seoul, Republic of Korea
Jangwon Park, MD, Seoul, Republic of Korea
Jun S. Kim, MD, Seoul, Republic of Korea

After a minimum follow-up of 5 years of 200 patients with Class A, B, or C bone, a short, metaphyseal-fitting anatomic cementless femoral component was fixed rigidly in all patients.

Poster No. P036
Correlation Between Histopathology and Metal Ion Levels in Failed Metal-on-metal Hips
Alternate Paper: Adult Reconstruction Hip II: Metal-on-Metal Total Hip Arthroplasty
Aleksi Reito, MD, Tampere, Finland
Jorma Pajamäki, MD, PhD, Tampere, Finland
Timo J. Puolakka, MD, PhD, Tampere, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland

We describe the results regarding correlation of metal ion levels and histopahological findings in failed ASR hips.

Poster No. P037
Ten-Year Outcome of Serum Metal Ion Levels after Primary Total Hip Arthroplasty
Brett R. Levine, MD, Chicago, IL
Andrew R. Hsu, MD, Chicago, IL
Anastasia K. Skipor, Chicago, IL
Nadim Hallab, Chicago, IL
Wayne G. Paprosky, MD, Winfield, IL
Jorge O. Galante, MD, Chicago, IL
Joshua J. Jacobs, MD, Chicago, IL

Patients with well functioning primary metal-on-polyethylene total hip replacements had elevated serum metal ion levels up to 10 years after surgery.

Poster No. P038
Prevalence of Pseudotumors in Asymptomatic Patients with Modular Metal-on-Metal Total Hip Arthroplasties
Thomas K. Fehring, MD, Charlotte, NC
Susan M. Odum, Charlotte, NC
Walter B. Beaver, MD, Charlotte, NC
Bryan D. Springer, MD, Charlotte, NC

With a 24% pseudotumor rate in asymptomatic modular MoM patients symptoms are not sufficient to identify patients at risk for ALTR.

◆The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P039

Predisposing Factors for Pseudotumor Formation in Patients with Adverse Reaction to Metal Debris

Aleksi Reito, MD, Tampere, Finland
Jorma Pajamäki, MD, PhD, Tampere, Finland
Timo J. Puolakka, MD, PhD, Tampere, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland

In this study we analysed predisposing factors for pseudotumour formation in patients with adverse reaction to metal debris.

Poster No. P040

◆Magnetic Resonance Imaging is Predictive of Adverse Tissue Reaction in Failed Metal-on-metal Hip Arthroplasty

Alissa J. Burge, MD, New York, NY
Danyal Nawabi, MD, FRCS, New York, NY
Stephanie L. Gold, BA, New York, NY
Stephen Lyman, PhD, New York, NY
Douglas E. Padgett, MD, New York, NY
Matthew Koff, PhD, New York, NY
Hollis Potter, MD, New York, NY

In patients with failed metal-on-metal hip arthroplasty, MRI can be used to identify an adverse tissue reaction and predict the presence of soft tissue damage, helping to guide the need for revision.

Poster No. P041

The Role of Patient Activities in Edge Wear of Hip Resurfacing Arthroplasties

Lauren E. Karbach, BA, Houston, TX
Ashley Matthies, BSc, London, United Kingdom
Sabir Ismaily, Houston, TX
Jon Gold, BS, Houston, TX
Alister Hart, FRCS, London, United Kingdom
Philip C. Noble, PhD, Houston, TX

Edge loading occurs during sit to stand and stand to sit activities in virtually any cup orientation and is postulated as the missing factor explaining component wear.

Poster No. P042

The 'Contact Patch to Rim Distance' Can be Used to Predict Wear in Metal-on-Metal Hip Resurfacing

Ashley Matthies, BSc, London, United Kingdom
Alexander D. Suarez, Houston, TX
Johann Henckel, MD, London, United Kingdom
Lauren E. Karbach, BA, Houston, TX
Sabir Ismaily, Houston, TX
John Skinner, FRCS, London, United Kingdom
Philip C. Noble, PhD, Houston, TX
Alister Hart, FRCS, London, United Kingdom

Combining all contributing variables to calculate the 'contact patch to rim distance' dramatically improves prediction of component wear and blood metal ion levels in metal-on-metal hip arthroplasty.

Poster No. P043

High Rate of Complications Following Revision of Large Head Metal-on-Metal Total Hip Arthroplasty

Jacob Munro, MD, Auckland, New Zealand
Nelson V. Greidanus, MD, MPH, Vancouver, BC, Canada
Bassam A. Masri, MD, FRCSC, Vancouver, BC, Canada
Clive P. Duncan, MD, MSc, Vancouver, BC, Canada
Donald S. Garbuz, MD, MHSc, Vancouver, BC, Canada

We reviewed 32 hips with large head metal-on-metal arthroplasty. High rates of dislocation and re-revision were observed with lower than expected quality-of-life scores.

Poster No. P044

The Effect of Gender on Adverse Reactions to Metal Debris: Outcomes of 1,159 38mm Metal-on-Metal Hip Replacements

Toby Briant-Evans, FRCS, Winchester, United Kingdom
Mark D. Price, MD, Worcester, MA
Andrea R. Pearce, Basingstoke, United Kingdom
Richard Harker, MA, FRCS, Hampshire, United Kingdom
Kevin Conn, FRCS, Basingstoke, United Kingdom
John M. Britton, Hampshire, United Kingdom
Geoffrey Stranks, FRCS, FRCS, Tadley, United Kingdom

At medium term follow up, 1159 metal-on-metal hips with a single bearing size of 38mm showed a significantly increased incidence of metal reactions in women, independent of cup size and other factors.

Poster No. P045

Primary Cementless Total Hip Arthroplasty with Second Generation Metal-on-Metal Bearings

Richard Lass, MD, Vienna, Austria
Alexander Gruebl, MD, Vienna, Austria
Alexander Kolb, MD, Vienna, Austria
Bernd Kubista, MD, Vienna, Austria
Alexander Giurea, MD, Vienna, Austria
Stephan Domayer, Dedham, MA
Reinhard Windhager, MD, Vienna, Austria

Primary cementless total hip arthroplasty with second generation metal-on-metal bearings. Clinical, radiological and laboratory results after a minimum of seventeen years of follow-up .

Poster No. P046

Metal on Metal Hips Surveillance Program: Welsh Experience of 1,400 Hips from a High Volume Center

Ibrahim Malek, MD, Cardiff, United Kingdom
Amanda King, BSc(Hons), MBBCh, Cardiff, United Kingdom
Kathleen Lyons, MB, Cardiff, United Kingdom
Marcellino Maheson, MD, Cardiff, United Kingdom
Stephen A. Jones, MD, Vale Of Glamorgan, United Kingdom
Alun John, MD, Cardiff, United Kingdom

An effective designated MoM hips surveillance programme with rapid access to laboratory and radiology facilities was set up for early identification of patients with Adverse Reaction to Metal Debris.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P047

ASR Mid-term Results in a Single Center: Clinical, Hematological and Radiological Results at More Than Six Years

Filippo Randelli, MD, Milano, Italy
Lorenzo Banci, MD, Milan, Italy
Ornella Visentin, MD, Castano Primo, Italy
Alberto Aliprandi Sr, MD, Milan, Italy
Gianni Randelli, MD, Roma, Italy

Survivorship and mid-term results of a consecutive series of 155 hips treated with ASR implants.

Poster No. P048

The Results of Revision of Metal on Metal Hip Resurfacing

Rory J. Norris, MBChB, MRCS, Warwick, United Kingdom
John McArthur, MB
Nick A. Smith, MBBS, West Midlands, United Kingdom
Pedro Foguet, FRCS, Coventry, United Kingdom

When making a decision for revision surgery of metal on metal hip resurfacings, metal ions are not of any significant predictive or prognostic value.

Poster No. P049

The Relative Risk of Early Aseptic Revision for Surface Replacement Arthroplasty

Thomas C. Barber, MD, Oakland, CA
Alan L. Schepps, San Diego, CA
Guy Cafri, PhD, La Jolla, CA
Iqbal A. Anwar, MD, Pacific Palisades, CA
Liz Paxton, MA, San Diego, CA

The relative risk of early aseptic revision for the Birmingham Surface Replacement: A comparison to standard THR, metal on metal THR, and metal on metal THR utilizing the Birmingham cup.

Poster No. P050

Metal on Metal versus Polyethylene in Total Hip Arthroplasty: Ten-Year Results of a Randomized Clinical Trial

Joseph Assini, MD, London, ON, Canada
Steven J. MacDonald, MD, London, ON, Canada
Richard W. McCalden, MD, London, ON, Canada
Robert B. Bourne, MD, FACSC, London, ON, Canada

At minimum 10-year follow-up, metal on metal total hip articulations exhibited higher levels of cobalt and chromium ion levels than those seen in metal on polyethylene articulations.

Poster No. P051

Retrieved Metal on Metal Implants Provide Evidence for Hip Distraction During Swing Phase

Evan M. Carlson, MS, Hanover, NH
John H. Currier, MS, Hanover, NH
Barbara H. Currier, MChE, Hanover, NH
Dermott J. McHugh, BA, BS, Roslindale, MA
Michael B. Mayor, MD, Hanover, NH
John P. Collier, DE, Hanover, NH

Examination of MoM retrievals provides evidence that swing phase micro-separation occurs in vivo and causes damage to the articular surfaces.

Poster No. P052

High Incidence of Adverse Tissue Reaction and Elevation of Serum Cobalt in One Design of Modular Femoral Component

Carl T. Talmo, MD, Boston, MA
Steven D. Werner, DO, Glendale, AZ
Claire E. Robbins, PT, DPT, Franklin, MA
Mehran Aghazadeh, MD, Boston, MA
Sumon Nandi, MD, Boston, MA
James V. Bono, MD, Boston, MA
Daniel M. Ward, MD, Chestnut Hill, MA

A consecutive series of 112 THR with a single design of cementless titanium component with a modular cobalt-chrome neck demonstrated a significant incidence of adverse local tissue reaction (9.8%).

Poster No. P053

Are 36+ MM Diameter HXLPE Bearings at Risk of Increased Wear from Modular Taper Corrosion with Ceramic and CoCr Heads?

Steven M. Kurtz, PhD, Philadelphia, PA
Daniel MacDonald, Philadelphia, PA
Genymphas Higgs, Philadelphia, PA
Jeremy Gilbert, PhD, Syracuse, NY
Gregg R. Klein, MD, Paramus, NJ
Michael A. Mont, MD, Baltimore, MD
Javad Parvizi, MD, FRCS, Philadelphia, PA
Matthew J. Kraay, MD, Cleveland, OH
Clare M. Rimnac, PhD, Cleveland, OH

The purpose of this study was to characterize the prevalence and severity of fretting and corrosion at head-neck modular interfaces in retrieved conventional and HXLPE THA systems.

Poster No. P054

Modular Neck Femoral Components in Total Hip Arthroplasty: Outcome Assessment and Metal Ion Analysis

Jeffrey W. Devitt Jr, MD, Detroit, MI
Craig Silverton, DO, Detroit, MI
Ashraf Elbanna, MD, Fraser, MI

We assessed outcomes and metal ion levels 103 patients with the Profemur modular neck femoral component. We found frequent metal ion elevation and rates of revision surgery.

Poster No. P055

Are Large Heads an Unqualified Benefit for Metal-on-Metal Total Hip Replacement? Stability vs. "Trunnionosis" Wear

Jacob Elkins, M.S., Iowa City, IA
John J. Callaghan, MD, Iowa City, IA
Thomas D. Brown, PhD, Iowa City, IA

Although there were marginal additional improvements in construct stability, the propensity for trunnionosis-inducing wear increased substantially for head diameters greater than about 40mm.

✦The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P056
Fixation of Periprosthetic Femoral Fractures Using a New Generation Cable Plate System
Alternate Paper: Adult Reconstruction Hip III: Revision Total Hip Arthroplasty
Mathias Nagy, MD, Macclesfield, United Kingdom
Radha Raman Bohra, Warrington, United Kingdom
Geraint Williams, MBBS, Crewe, United Kingdom

Treatment of periprosthetic femoral fractures using a new generation cable plate system offers a safe method of fixation.

Poster No. P057
Modular Femoral Stem Failures: A Cause for Concern
Ritesh Shah, MD, Chicago, IL
Alexander C. Gordon, MD, Prospect Heights, IL
Wayne M. Goldstein, MD, Morton Grove, IL

With the characteristic failure pattern at the stem-sleeve modular interface, further biomechanics testing of this femoral stem needs to be performed and is a cause for concern.

Poster No. P058
Clinical and Radiographic Outcomes of Revision Hip Arthroplasty with a Modular Stem Design
Geoffrey H. Westrich, MD, New York, NY
Alyssa Yeager, New York, NY
Alejandro M. Gonzalez Della Valle, MD, New York, NY
Friedrich Boettner, MD, Larchmont, New York

In this large patient cohort who had revision THA with a modular stem, clinical and radiographic outcomes were excellent at minimum 2 year follow-up. The revision rate at latest follow-up was 3.6%.

Poster No. P059
Femoral Component Revision with Use of Impaction Bone-grafting and a Cemented Polished Stem
Martijn A.J. te Stroet, MD, Nijmegen, Netherlands
Nico Verdonschot, MSc, Nijmegen, Netherlands
Jean W.M. Gardeniers, MD, MX Nijmegen, Netherlands
Wim H. Rijnen, Nijmegen, Netherlands
B. Willem Schreurs, MD, Malden, Netherlands

The use of a cemented polished stem and impaction bone-grafting to restore bone stock quantity and quality in femoral revision arthroplasties with bone loss resulted in excellent survival at 17 years.

Poster No. P060
◆Fixation Strength of a Dual-Mobility Cup Cemented into a Well-Fixed Metal-Back During Revision THA
Julien Wegrzyn, MD, PhD, Lyon, France
Andrew Thoreson, MD
Olivier Guyen, MD, Lyon, France
Kai-Nan An, PhD, Rochester, MN
David G. Lewallen, MD, Rochester, MN

Although dual-mobility cups dramatically reduce hip instability risk during revision THA, no study to date evaluated the fixation strength of a dual-mobility cup cemented into a well-fixed metal-back.

Poster No. P061
◆The Use of a Dual Mobility Implant to Manage Unstable Total Hip Arthroplasty: 3.5 To 11.1 Year Follow Up
Olivier Guyen, MD, Lyon, France
Christophe J. Chevillotte, MD, Lyon, France
Julien Wegrzyn, MD, PhD, Lyon, France
Jean-Paul Carret, MD, Lyon, France
Jacques Bejui-Hugues, MD, Paris, France

The use of dual mobility implants to manage unstable total hip arthroplasty provided reliable restoration of stability at mid-to long-term follow-up.

Poster No. P062
Early Failure Patterns of a Modern Constrained Acetabular Liner Design
Diren Arsoy, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN
David G. Lewallen, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

The authors report a high premature failure rate of of a Modern Constraining Acetabular Liner.

Poster No. P063
Cementation of Cross-linked Polyethylene Liner into Well-fixed Acetabular Shells - A Mean Follow Up of Eight Years
Ta-I Wang Sr, MD, Taipei, Taiwan
Jung-Pan Wang Sr, MD, Taipei, Taiwan
Wei-Ming Chen, MD, Taipei, Taiwan
Po-Kuei Wu, MD, Taichung, Taiwan
Cheng-Fong Chen, MD, Taipei, Taiwan
Chao-Ching Chiang, MD, Taipei, Taiwan
Yu-ping Su, MD, Taipei City, Taiwan
Ching-Kuei Huang, MD, Taipei City, Taiwan
Tain-Hsiung H. Chen, MD, Taipei City, Taiwan

The results revealed that cementation of cross-linked PE liner into a well-fixed shell provided good midterm durability and satisfied clinical results.

Poster No. P064
Re-revision of Failed Revision Total Hip Arthroplasty Acetabular Cups
Youn-Soo Park, MD, Seoul, Republic of Korea
Young-Wan Moon, MD, Seoul, Republic of Korea
Seung-Jae Lim, MD, Seoul, Republic of Korea
Sang-Min Kim, MD, Seoul, Republic of Korea

Re-revision with contemporary uncemented cup or antiprotrusio cage for failed revision total hip arthroplasty acetabular cups shows encouraging outcomes for this technically challenging condition.

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Poster No. P065
Revision Total Hip Arthroplasty using an Alumina-on-Alumina Bearing Surface in Patients with Osteolysis
Jeong J. Yoo, MD, Seoul, Republic of Korea
Pil Whan Yoon, MD, Seoul, Republic of Korea
Young-Kyun Lee, MD, Seongnam-Si, Republic of Korea
Kyung-Hoi Koo, MD, Seongnam-Si, Republic of Korea
Kang Sup Yoon, MD, Seoul, Korea, Republic of Korea
Hee J. Kim, MD, Seoul, Korea, Republic of Korea

The alumina-on-alumina bearing surfaces used for revision THA in patients with osteolysis were found to produce encouraging clinical results and implant survival rates at a minimum of 7 years post-ope.

Poster No. P066
Acetabular Component Revision without Augments in Patients with Paprosky 3A Defects Yields Positive 2-Year Results
Ivan M. Tomek, MD, Lebanon, NH
Kristin Given, MS, Mahwah, NJ
Kirby Hitt, MD, Temple, TX
Fredrick F. Jaffe, MD, New York, NY

Acetabular reconstruction with a hemispherical porous titanium shell without porous metal augments shows positive short-term results in cases with Paprosky IIIa acetabular defects.

Poster No. P067
Revision Total Hip Arthroplasty in Patients with Metallosis Following Catastrophic Failure of Polyethylene Liner
Jeong J. Yoo, MD, Seoul, Republic of Korea
Pil Whan Yoon, MD, Seoul, Republic of Korea
Young-Kyun Lee, MD, Seongnam-Si, Republic of Korea
Kyung-Hoi Koo, MD, Seongnam-Si, Republic of Korea
Kang Sup Yoon, MD, Seoul, Republic of Korea
Hee Joong J. Kim, MD, Seoul, Republic of Korea

The survival rate of revision THA in patients with metallosis following a catastrophic failure of a PE liner was low.

Poster No. P068
Decrease in Dislocation Rates in Liner and Head Exchange when Head Size is Increased
Julian Costantini, MD, Curitiba, Brazil
Miguel E. Cabanela, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN

Increasing head size to the maximum head size allowable appears to be the safest treatment strategy to lower dislocation rate after isolated head and liner exchange.

Poster No. P069
Fixation, Survival and Dislocation of Jumbo Acetabular Components in Revision Hip Arthroplasty
Paul F. Lachiewicz, MD, Chapel Hill, NC
Elizabeth S. Soileau, RN, Chapel Hill, NC

Jumbo actabular components have a low rate of infection and loosening at 15 years. Dislocation (10%) is associated with smaller head sizes. Reoperation is associated with younger patient age.

Poster No. P070
Risk Factors for Early Revision of Total Hip Arthroplasty
Christopher J. Dy, MD, New York, NY
Kevin J. Bozic, MD, MBA, San Francisco, CA
Douglas E. Padgett, MD, New York, NY
Robert G. Marx, MD, New York, NY
Timothy M. Wright, PhD, New York, NY
Ting-Jung Pan, MPH, New York, NY
Huong Do, MA, New York, NY
Stephen Lyman, PhD, New York, NY

Patient and hospital risk factors for early revision total hip arthroplasty were identified using a population based approach.

Poster No. P071
Early Failure in Total Hip Arthroplasty: A Changing Paradigm
James S. Melvin III, MD, Charlotte, NC
Tharun Karthikeyan, MD, Lexington, KY
Robert Cope, Charlotte, NC
Thomas K. Fehring, MD, Charlotte, NC

Early failure of total hip arthroplasty remains problematic especially with the advent of metallosis failures.

Poster No. P072
Risk Factors for Early Revision Following Primary Total Hip Arthroplasty in Medicare Patients
Kevin J. Bozic, MD, MBA, San Francisco, CA
Edmund Lau, MS, Menlo Park, CA
Kevin Ong, Philadelphia, PA
Vanessa Chiu, MPH, San Francisco, CA
Steven M. Kurtz, PhD, Philadelphia, PA
Thomas P. Vail, MD, San Francisco, CA
Harry E. Rubash, MD, Boston, MA
Daniel J. Berry, MD, Rochester, MN

Depression, rheumatologic disease, psychoses, renal disease, urinary tract infection, and congestive heart failure were associated with an increased risk of early revision in Medicare THA patients.

Poster No. P073
Mid-Term Results of Periprosthetic Femur Fractures Treated with Modular Fluted, Tapered Stems
Alternate Paper: Adult Reconstruction Hip IV: Revision THA/ Tapers
Matthew P. Abdel, MD, New York, NY
David G. Lewallen, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN

Modular fluted, tapered stems utilized for treatment of Vancouver B2 or B3 periprosthetic femoral fractures provided 100% union and 98% stem osteointegration in this large series.

Poster No. P074
Alternate Paper: Adult Reconstruction Hip V: Infection/Other
Articulating Antibiotic Spacers for Septic Total Hip and Knee Arthroplasty; Longevity, Function and Economics
Scott Stanat, MD, Old Lyme, CT
Steven T. Lyons, MD, Tampa, FL

Metal-on-polyethylene articulating antibiotic cement spacers effectively clear joint sepsis and provide a good functional outcome if retained as a definitive procedure.

Posters

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P075

The Risk of Infection Following Intra-articular Injection Prior to Total Hip Arthroplasty

Chris Sambaziotis, MD, Brookline, MA
Mehran Aghazadeh, MD, Boston, MA
Addison G. Wilson Jr, MD, Portsmouth, VA
Claire E. Robbins, PT, DPT, Franklin, MA
Hussein Darwiche, MD, Dearborn, MI
James V. Bono, MD, Boston, MA
David A. Mattingly, MD, Chestnut Hill, MA

A retrospective study to examine the relation of timing and frequency of preoperative intra-articular steroid injections with infection rate following total hip arthroplasty (THA).

Poster No. P076

The Utility of Synovial C-Reactive Protein as Marker for Periprosthetic Joint Infection

Matthew Tetreault, BA, Pittsburgh, PA
Nathan Wetters, MD, Chicago, IL
Mario Moric, MS, Chicago, IL
Christopher E. Gross, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL

Measurement of CRP in synovial fluid rather than serum using assay equipment currently available at our hospital does not appear to offer a distinct advantage in detection of periprosthetic infection.

Poster No. P077

The Influence of Surgical Hoods and Togas on Airborne Particle Concentration at the Surgical Site

McGovern D. Paul, MBBS, Billericay, United Kingdom
Mark Albrecht, Minneapolis, MN
Sameer Khan, MD, MRCS, Gateshead, United Kingdom
Scott Muller, MBBS MD, Northumberland, United Kingdom
Mike R. Reed, MBBS MD, Northumberland, United Kingdom

This experimental study found a significant reuction in surgeon-originated airborne contaminants when the surgeon wore the all-in-one 'toga', compared to both the hood/gown ensemble and gowns alone.

Poster No. P078

Results of a Protocol of Screening for Clostridium difficile after Hip and Knee Arthroplasty

Anthony T. Tokarski, BS, Philadelphia, PA
Joseph Karam, MD, Philadelphia, PA
Benjamin Zmistowski, BS, Philadelphia, PA
Carl A. Deirmengian, MD, Wynnewood, PA
Gregory K. Deirmengian, MD, Broomall, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Given the potential severity of C. Diff and its high incidence in patients with postoperative diarrhea, we recommend testing all such patients to allow for immediate diagnosis and treatment.

Poster No. P079

Low Re-Infection Rate After Two-Stage Reimplant With Tapered, Modular Stems: Minimum Five-Year Follow Up

Kevin I. Perry, MD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Daniel J. Berry, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

Mid-term results of 2-stage reimplantation using a tapered fluted stem show favorable rates of reinfection and excellent improvements in clinical outcomes despite exhibiting high rates of reoperation.

Poster No. P080

Two-stage Revision Retaining of Well-fixed Cementless Stem in the Treatment of Infected Hip Arthroplasty

Jae-Hwi Nho, Dongnam-Gu, Cheonan, Republic of Korea
Kyung H. Koo, MD, Seoul, Republic of Korea
Young-Kyun Lee, MD, Seongnam-Si, Republic of Korea
You-Sung Suh, Yongsan-Gu, Seoul, Republic of Korea
Yong-chan Ha, Prof, Seoul, Republic of Korea

two stage revision hip arthroplasty with retaining well fixed cementless stem appears to have a role in the treatment with an infected hip replacement.

Poster No. P081

Alternate Paper: Adult Reconstruction Hip VI: Bearings in Total Hip Arthroplasty/Non-Arthroplasty

Acetabular Retroversion and Femoroactebular Impingement: The Importance of Acetabular Retroversion Index

Bahar Adeli, BA, Philadelphia, PA

Acetabular Retroversion and Femoroactebular Impingement: The Importance of Acetabular Retroversion Index.

Poster No. P082

◆Alumina-on-Highly Cross-linked Polyethylene for THAs in Pts. < 30 Years of Age: Minimum 10 Years Follow Up

Young-Hoo Kim, MD, Seoul, Republic of Korea
Jangwon Park, MD, Seoul, Republic of Korea

After a minimum 10 years follow-up of 100 patients, anatomical metaphyseal-fitting cementless THA with alumina-on-highly cross-linked PE provided stable fixation without osteolysis.

Poster No. P083

11-Year Outcome of Highly Cross Linked Polyethylene Bearing Surfaces in Primary Conventional Total Hip Replacement

Stephen Graves, MD, Adelaide, Australia
Richard De Steiger, MD, Richmond, Australia
David Davidson, MD, Adelaide, Australia
Kara Cashman, BSc (HONS), Adelaide, Australia
Yen-Liang Liu, Adelaide, Australia
Elizabeth C. Griffith, BA, Adelaide, Australia
Philip Ryan, FAFPHM, Adelaide, Australia

This study shows that cross linked has a signifcantly lower rate of revision compared to standard polyethylene and this is not affected by the type or size of femoral head used.

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Poster No. P084

◆Clinical Results of PMPC-grafted Cross-linked Polyethylene Liner in Primary Total Hip Arthroplasty

Toru Moro, MD, Tokyo, Japan
Yoshio Takatori, MD, Tokyo, Japan
Hiromi Oda, Saitama, Japan
Shuhei Morimoto, MD, Tokyo, Japan
Takashige Umeyama, MD, Tokyo, Japan
Morihide Kamogawa, MD, Tokyo, Japan
Masayuki Kyomoto, PhD, Tokyo, Japan
Hiroshi Kawaguchi, MD, Tokyo, Japan
Kozo Nakamura, MD, Saitama, Japan

Results of a prospective cohort study clearly demonstrate clinical safety and wear-resistance of PMPC-grafted cross-linked polyethylene acetabular liner of the artificial hip joint.

Poster No. P085

A New Strategy to Extend the Functional Life of Crosslinked Polyethylenes through Vitamin E-Grafting

Alicia Rufner, MSc, Warsaw, IN
Melinda Peiserich, BS, Warsaw, IN
Ming Guo, PhD, Warsaw, IN
Diego A. Orozco, MS, Warsaw, IN
Oludele Popoola, Warsaw, IN
Andrew A. Freiberg, MD, Boston, MA

Oxidative protection against lipids, strength retention and low wear is achieved via permanent grafting of Vitamin E, suggesting a polyethylene that can survive beyond the second decade.

Poster No. P086

A Novel Method for Assessment of Polyethylene Liner Wear in Radiopaque Tantalum Acetabular Components

Anders Troelsen, MD, PhD, Koege, Denmark
Dov Goldvasser, MSc, Boston, MA
Meridith E. Greene, Boston, MA
Charles R. Bragdon, PhD, Boston, MA
David C. Ayers, MD, Worcester, MA
Henrik Malchau, MD, Boston, MA

The use of tantalum acetabular shells is increasing. It is important to have a method for measuring polyethylene wear when a radio-dense acetabular shell is used.

Poster No. P087

Pulmonary Embolism was More Frequent in Cemented Total Hip Arthroplasty than Cementless THA and TKA

Koh Shimizu, MD, Chiba, Japan
Sara Shimizu, MD, Chiba, Japan

The average decrease ratio of pulmonary circulation was 16% in cemented THA, much higher than 7% in cementless THA, 6% in cemented TKA, and 7% in cementless TKA.

Poster No. P088

Prolonged Surgical Time as a Predictor of Readmission after Total Hip and Knee Arthroplasty

Tyler R. Wanke, BS, Chicago, IL
Geoffrey Marecek, MD, Chicago, IL
James M. Saucedo, MD, Chicago, IL
Jungwha Lee, PhD, MPH, Chicago, IL
S. David Stulberg, MD, Chicago, IL
Lalit Puri, MD, Glenview, IL

THA and TKA surgeries were reviewed; patients readmitted within 30,90 days had longer surgical times and a surgical time greater than or equal to 2 hours was an independent predictor of readmission.

Poster No. P089

Outcomes and Complications of Total Hip Arthroplasty in the Super-Obese: A Retrospective Analysis

Raghav Rajgopal, MD, London, ON, Canada
Robin Martin, MD, Geneva, Switzerland
James Howard, MD, London, ON, Canada
Doug Naudie, MD, FRCSC, London, ON, Canada
Richard W. McCalden, MD, London, ON, Canada
James P. McAuley, MD, London, ON, Canada
Steven J. MacDonald, MD, London, ON, Canada
Robert B. Bourne, MD, FACSC, London, ON, Canada

Super-obese patients had similar satisfaction outcomes as class I obesity and normal weight patients but had increased length of hospital stay, complication, re-admission and re-operation rate.

Poster No. P090

◆Economic Impact of Tranexamic Acid in Healthy Patients Undergoing Primary Total Hip and Knee Arthroplasty

Alternate Paper: Adult Reconstruction Hip VII: Metabolic Issues in Total Hip Arthroplasty / Complications in Total Hip Arthroplasty

Blake P. Gillette, MD, Rochester, MN
Lori J. Desimone, PA-C, Rochester, MN
Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Christopher Duncan, MD, Rochester, MN
Hugh M. Smith, MD, PhD, Rochester, MN
Robert T. Trousdale, MD, Rochester, MN
Mark W. Pagnano, MD, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

In healthy patients undergoing primary hip and knee arthroplasty, direct hospital costs with or without tranexamic acid perioperatively were compared.

Poster No. P091

Cost-analysis of the Use of Tranexamic Acid to Prevent Blood Transfusion in Hip and Knee Arthroplasty Surgery

James D. Slover, MD, New York, NY
Joseph A. Bosco III, MD, New York, NY

The decision analysis model demonstrates that the use of tranexamic acid to reduce blood transfusion needs with hip and knee arthroplasty may be cost saving, but not in all circumstances.

◆The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P092

Topical Tranexamic Acid Reduces Blood Loss and Transfusion Rates in Total Hip Arthroplasty

Brian R. Hamlin, MD, Pittsburgh, PA
Gerhardt Konig, MD, Pittsburgh, PA
Jonathan Waters, MD, Pittsburgh, PA

The topical application of the antifibrinolytic tranexamic acid significantly decreased the blood loss and transfusion requirements in patients undergoing primary total hip arthroplasty.

Poster No. P093

The Effect of Topical Application of Tranexamic Acid in Total Hip Arthroplasty through the Direct Anterior Approach

Colette E. Van Elst, Bonheiden, Belgium
Jens Vanbiervliet, Kortrijk, Belgium
Jean-Pierre Simon, MD, Pellenberg, Belgium
Kristoff Corten, MD, Pellenberg, Belgium

Topical application of 3g tranexamic acid for 2 hours prior to opening of the suction drain following a total hip replacement significantly decreased the post-operative blood loss by 30%.

Poster No. P094

Selective Chemoprophylaxis for Venous Thromboembolism Following Total Hip Arthroplasty

Yohei Yukizawa, MD, PhD, Yokohama, Japan
Yutaka Inaba, MD, Yokohama, Japan
Naomi Kobayashi, MD, Yokohama, Japan
Hyonmin Choe, MD, Yokohama, Japan
Hiroyuki Ike, MD, Yokohama Kanagawa, Japan
So Kubota, Yokohama, Japan
Tomoyuki Saito, MD, Yokohama, Japan

The plasma levels of SF and PAI-1 on the day after THA may be useful to see whether patients undergoing THA need postoperative chemoprophylaxis.

Poster No. P095

Fondaparinux Compared with Enoxaparin for the Prevention of Venous Thrombosis in Total Hip Arthroplasty

Taku Yoshida, MD, Osaka-city,Osaka, Japan
Hiroyoshi Iwaki, MD, Osaka, Japan
Mitsuhiko Ikebuchi, MD, Abeno-ku Osaka, Japan
Yukihide Minoda, MD, Osaka, Japan
Fumiaki Inori, MD, Osaka, Japan
Jyunichi Sayanagi, MD, Osaka City, Japan
Junichi Sayanagi, MD, Osaka City, Japan
Hiroaki Nakamura, MD, Osaka, Japan

We compared fondaparinux with enoxaparin for prevention of DVT and PE using enhanced multi-ditector row CT postoperatively.

Poster No. P096

Is Requiring Hemoglobin A1c Control a Significant Barrier to Total Joint Arthroplasty?

Nicholas J. Giori, MD, Palo Alto, CA
Alexander H. Harris, PhD, MS

In diabetic candidates for joint arthroplasty, HbA1c of 7% is achievable for 94% of surgical candidates. 8.0% is an achievable goal for 98%.

Poster No. P097

The Levels of Mineralization, Carbonate Accumulation and Bone Remodeling in Osteoarthritic Subchondral Bone

Barian Mohidin, London, United Kingdom
Panagiotis Gikas, MBBS, Stanmore, Middlesex, United Kingdom
Jemma G. Kerns, PhD, Stanmore, United Kingdom
Helen L. Birch, PhD, Stanmore, United Kingdom
Jonathan Miles, FRCS, Stanmore, United Kingdom
Tim Briggs, FRCS, Middlesex, United Kingdom
Allen E. Goodship, PhD, Stanmore Middlesex, United Kingdom

The levels of mineralisation and bone remodelling decrease distally in osteoarthritic subchondral bone. Raman spectroscopy accurately detects differences between osteoarthritic specimens and controls.

Poster No. P098

The Uptake in ^{18}F-fluoride Positron Emission Tomography can Predict the Progression of Osteoarthritis

Naomi Kobayashi, MD, Yokohama, Japan
Yutaka Inaba, MD, Yokohama, Japan
Yohei Yukizawa, MD, PhD, Yokohama, Japan
Hiroyuki Ike, MD, Yokohama Kanagawa, Japan
Kubota So, Yokohama, Japan
Yurika Ata, Yokohama City, Japan
Tomoyuki Saito, MD, Yokohama, Japan

We demonstrated that the uptake in 18F-fluoride PET can predict the progression of osteoarthritis of the hip. Relative risk for OA progression was 11.6 in case with certain uptake of fluoride PET.

Poster No. P099

Surgical Anatomy of the Medial Femoral Circumflex Artery Terminal Branches: Arterial Supply to the Femoral Head

Lionel E. Lazaro, MD, New York, NY
Craig Klinger, BS, New York, NY
Peter K. Sculco, MD, New York, NY
Nadine Pardee, BS, New York, NY
Edwin P. Su, MD, New York, NY
Bryan T. Kelly, MD, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

Posterior femoral capsular attachment and the inferior capsule should be preserved as well as the medial and lateral Retinaculum of Weitbrecht in order to preserve the terminal branches of the MFCA.

Poster No. P100

The Current Treatment of Osteonecrosis of the Femoral Head in the U.S.: A 16-year Analysis of the NIS Sample

Aaron J. Johnson, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD
Audrey K. Tsao, MD, Litchfield Park, AZ
Lynne C. Jones, PhD, Baltimore, MD

The goal of the present study was to determine trends in the types and numbers of procedures performed for secondary osteonecrosis from 1992 through 2008 in the United States.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P101

Long-term Results of Conventional Varus Half-wedge Osteotomy for Osteonecrosis of the Femoral Head

Hiroshi Ito, MD, Asahikawa, Japan
Hiromasa Tanino, MD, Asahikawa, Japan
Yasuhiro Yamanaka, MD, Asahikawa, Japan
Daisuke Takahashi, MD, Sapporo, Japan
Takeo Matuno, MD, Asahikawa, Japan

Conventional varus osteotomy provides favorable results at long-term follow-up for hips with less than two-thirds of postoperative medial necrotic location.

Poster No. P102

Non-enzymatic Glycation in the Hip: Cancellous Bone of Osteoporotic and Osteoarthritic Patients

Michael Flaherty, MD, Shrewsbury, MA
Michael T. Mulligan, MD, Slingerlands, NY
Richard Uhl, MD, Albany, New York
Deepak Vashishth, Troy, New York
Ondrej Nikel, BS, MS, Troy, New York

Cancellous bone from patients with a femoral neck fracture had elevated levels of advanced glycation end-products (AGEs) and lower post-yield toughness than did bone from osteoarthritic patients.

Poster No. P103

Barbed versus Traditional Sutures: Closure Time, Cost and Wound Related Outcomes in Total Joint Arthroplasty

Elizabeth G. Matzkin, MD, Boston, MA
Eric L. Smith, MD, Boston, MA
Pinak Y. Shukla, MD, Boston, MA
Steven Disegna, MS, BS, Brookline, MA

In this combination prospective/retrospective study, barbed sutures decreased time to wound closure and decreased the overall cost of THA and TKA, but generated more serious wound complications.

Poster No. P104

Impact of the Economic Downturn on TJR Demand in the US: Updated Projections for TJR Utilization through 2020

Steven M. Kurtz, PhD, Philadelphia, PA
Kevin Ong, Philadelphia, PA
Edmund Lau, MS, Menlo Park, CA
Heather Watson, PhD, Menlo Park, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA

We asked whether the time period of the Great Recession (2008-2009) was associated with a drop in TJR utilization, and assessed the impact of a hypothetical plateau in the rate for joint arthroplasty on demand in the coming decade.

Poster No. P105

Total Hip Arthroplasty and Total Knee Arthroplasty Outcomes are Inferior Under State Mandated Healthcare

Viktor Hansen, MD, Boston, MA
Eric D. Schiffman, MD, Columbus, OH
Hany Bedair, MD, Newton, MA
Meridith E. Greene, Boston, MA
Christopher J. Barr, BS, Boston, MA

Patients insured through state sponsored plans under mandated health care have inferior clinical outcomes following THA and TKA.

Poster No. P106

The Effect of Obesity on Direct Medical Costs in Total Hip Arthroplasty

Hilal Maradit-Kremers, MD, MSc, Rochester, MN
Sue L. Visscher, PhD, Rochester, MN
Walter K. Kremers, PhD, Rochester, MN
James Naessens, MPH, Rochester, MN
David G. Lewallen, MD, Rochester, MN

BMI and costs in THA.

Poster No. P107

Medical Device Regulation: Can the FDA Approval Process Predict Long-term Survivorship of THA and TKA Implants

Shaun E. Chandran, MD, Pls Vrds Pnsl, CA
Hany Bedair, MD, Newton, MA

The current FDA approval process through 510k or PMA approval processes may not be able to adequately identify the small changes in implant design that significantly affect orthopaedic implant performance.

Poster No. P108

Effect of Recalls, Lawsuits and Direct to Consumer Marketing on Patient's Perception of Total Joint Arthroplasty

Robert Moore, Matthews, NC
Christopher W. Olcott, MD, Chapel Hill, NC
Daniel J. Del Gaizo, MD, Chapel Hill, NC

The aim of this study was to examine the impact, implant recalls, class action lawsuits, and direct to consumer marketing have had on total joint arthroplasty patients.

Poster No. P109

National Trends of Blood Transfusion in Patients Undergoing Total Joint Arthroplasty

Mitchell Maltenfort, PhD, Philadelphia, PA
Mohammad R. Rasouli, MD, Philadelphia, PA
Matthew Austin, MD, Philadelphia, PA
James J. Purtill, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

There is high rate of allogenic blood transfusion following TJA that might be explained by an increasing number of patients with multiple comorbidities such as anemia and cardiovascular disorders.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P110
Deployments to Iraq and Afghanistan in Army Service Members after Total Hip Arthoplasty
Anton Y. Jorgensen, MD, El Paso, TX
Mark Hsiao, MD, El Paso, TX
Philip J. Belmont Jr, MD, El Paso, TX

The outcomes of total hip arthroplasty in Army service members are reviewed, rates of deployment after arthroplasty are analyzed.

Adult Reconstruction Knee

Poster No. P111
Arthroscopic Lysis of Adhesions after TKA: Overall Results and Gravity Flexion as a Prognostic Sign
Fotios P. Tjoumakaris, MD, Ocean View, NJ
Matthew D. Pepe, MD, Linwood, NJ
Bradford S. Tucker, MD, Ocean City, NJ
Zachary D. Post, MD, Egg Harbor Township, NJ
Fabio Orozco, MD, Egg Habor Township, NJ
Alvin C. Ong, MD, Linwood, NJ

Using a systematic approach to lysis of adhesions after TKA, one can expect good results with minimal complications.

Poster No. P112
Topical Tranexamic Acid Reduces Blood Loss and Transfusion Rates in Total Knee Arthroplasty
Brian R. Hamlin, MD, Pittsburgh, PA
Gerhardt Konig, MD, Pittsburgh, PA
Jonathan Waters, MD, Pittsburgh, PA

The topical application of the antifibrinolytic tranexamic acid significantly decreased the blood loss and transfusion requirements in patients undergoing primary total knee arthroplasty.

Poster No. P113
Pulmonary Embolism in a Community Arthroplasty Registry with VTE Prophylaxis Utilizing ACCP Guidelines
Peter B. Hanson, MD, La Mesa, CA
Mary W. Elington, RN, El Cajon, CA
Astrid Letouzic, RN, El Cajon, CA
Kay E. O'Brien, RN, BS, Poway, CA

Analysis of a TJA registry evaluating 5 years of VTE risks, a total of 27 PE's occurred in 6564 patients (0.41%). Factors that increased the risks included female gender, BMI >/= 32, and TKA (v. THA).

Poster No. P114
Contributions of Femoral, Tibial and Patellar Malposition to Patellar Maltracking in Total Knee Arthroplasty
Gwo-Chin Lee, MD, Philadelphia, PA
Jonathan P. Garino, MD, Villanova, PA
Raymond H. Kim, MD, Denver, CO
Nathan Lenz, MS, Cordova, TN

At low flexion angles, femoral component rotation has the greatest impact on patellar tracking. In high flexion, femoral valgus/varus and patella position have the greatest impact on tracking.

Poster No. P115
Use of Knee Immobilizers for Primary Fall Prevention after Femoral Nerve Blockade in Total Knee Arthroplasty
Wendy Novicoff, PhD, Charlottesville, VA
Matthew C. Kinney, MD, San Diego, CA
Laura Schapiro, BA, Cincinnati, OH
James A. Browne, MD, Charlottesville, VA
Thomas E. Brown, MD, Charlottesville, VA
Quanjun Cui, MD, Charlottesville, VA

We find that the use of knee immobilizers during the recovery period after TKA significantly decreased the incidence of falls.

Poster No. P116
Prospective Comparison of Mid-term Results Between High Flexion and Standard Designs in Cruciate Retaining TKA
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Republic of Korea
Ji-Hyeon Yim, Jeonnam, Republic of Korea
Jae-Young Moon, MD, Hwasun-Gun, Republic of Korea
Kyung Soon Park, MD, Jeonnam, Republic of Korea
Taek R. Yoon, MD, PhD, Jeonnam, Republic of Korea

With a minimum of 5-year follow-up, the high flexion CR design was found to have no advantages over the standard CR design regarding clinical outcomes, radiolucent line or loosening of components.

Poster No. P117
Historical Analysis of Reasons for Retrieval of Short Duration Total Knee Arthroplasties (TKA)
Evan M. Carlson, MS, Hanover, NH
Douglas Van Citters, PhD, Hanover, NH
Meagan E. Tibbo, Atlanta, GA
Michael B. Mayor, MD, Hanover, NH
Rayna Levine, BA, Hanover, NH
Steven D. Reinitz, BA, Hanover, NH
John P. Collier, DE, Hanover, NH

Reasons for retrieval of TKA have changed over time. Polyethylene is no longer a primary cause of failure, and has been replaced by loosening, infection, and dislocation.

Poster No. P118
Peri-prosthetic Bone Mineral Density after Bilateral Total Knee Arthroplasty Under Oral Alendronate Therapy
Alternate Paper: Adult Reconstruction Knee I: Basic Science
Yukihide Minoda, MD, Osaka, Japan
Kenka Ra, MD, Osaka, Japan
Hiroyoshi Iwaki, MD, Osaka, Japan
Mitsuhiko Ikebuchi, MD, Osaka, Japan
Shigekazu Mizokawa, MD, PhD, Osaka, Japan
Taku Yoshida, MD, Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan

We compared the postoperative BMD between a mobile-bearing TKA in one knee and a fixed-bearing TKA in other knee under oral alendronate therapy. There was no statistical difference in post operative B.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P119

Can MRI-based and CT-based Patient Specific Instruments Deliver their Proposed Advantages?

Jerry Chen, MBBS, Singapore, Singapore
Siang Shen Leon Foo, MD, Singapore, Singapore
Alexander Yap, Singapore, Singapore
Andy Yew, PhD
Darren Tay, MBBS, FRCS, Singapore, Singapore
Shi-lu Chia, MBBS, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore
Pak Lin Chin, FRCSEd, Singapore, Singapore

Patient Specific Instruments surgery reduces the duration of surgery but increases the number of outliers for both femoral and tibia implants placement.

Poster No. P120

Patient Specific Instrumentation versus Computer Navigated, Adjustable Cutting Blocks in Total Knee Arthroplasty

Denis Nam, MD, New York, NY
Patrick Maher, MS, BA, New York, NY
Brian Rebolledo, MD, New York, NY
Alexander S. McLawhorn, MD, MBA, New York, NY
Andrew D. Pearle, MD, Rye, New York

Magnetic resonance imaging based, patient specific instrumentation does not provide the same degree of alignment accuracy as imageless computer navigation in total knee arthroplasty.

Poster No. P121

The Length of Quadriceps Incision Affect Recovery of Isokinetic Quadriceps Strength after Total Knee Arthroplasty

Chaturong Pornrattanamaneewong, MD, Nonthaburi, Thailand
Rapeepati Narkbunnam, MD, Bangkok, Thailand
Keerati Chareancholvanich, Bangkok, Thailand

This study demonstrated that more than 4 cm of quadriceps incision caused the delayed recovery time of isokinetic quadriceps strength after minimally invasive total knee arthroplasty.

Poster No. P122

The Effects of Asymmetric Patellar Resurfacing and Overstuffing on the Extensor Mechanism in TKA

Gwo-Chin Lee, MD, Philadelphia, PA
Jonathan P. Garino, MD, Villanova, PA
Nathan Lenz, MS, Cordova, TN

While small errors in patellar resurfacing may not result in patellar instability, they result in increased soft tissue tensions that could explain residual anterior knee pain following TKA.

Poster No. P123

Abnormal Axial Rotation Patterns Contributes to Reduced Weight-bearing Flexion

Alternate Paper: Adult Reconstruction Knee II: Non-Arthroplasty Approach

Richard D. Komistek, PhD, Knoxville, TN
Douglas A. Dennis, MD, Denver, CO
Adrija Sharma, Knoxville, TN
Bradley A. Meccia, BS, Knoxville, TN
Mohamed Mahfouz, PhD, Knoxville, TN
Matthew Anderle, Parker, Colorado

This study revealed that achieving a normal axial rotation pattern is essential to a patient having a TKA experiencing greater weight-bearing flexion.

Poster No. P124

90-Day Readmission Rate for Total Knee Arthroplasty

William W. Schairer, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA
Kevin J. Bozic, MD, MBA, San Francisco, CA

This study assessed all planned and unplanned hospital readmissions following total knee arthroplasty (TKA) procedures, and identified risk factors associated with unplanned hospital readmission.

Poster No. P125

Uncemented vs. Cemented Stems in Two-Stage Revision for Infected Total Knee Arthroplasty

Paul K. Edwards, MD, Little Rock, AR
Brett Perricelli, MD, Pittsburgh, PA
William G. Hamilton, MD, Alexandria, VA
Thomas K. Fehring, MD, Charlotte, NC
Susan M. Odum, Charlotte, NC
Anne C. Dennos, BS, Charlotte, NC
Walter B. Beaver, MD, Charlotte, NC

Cemented and uncemented stems provide acceptable results, 91.58% and 89.52% respectively, in revision total knee arthroplasty two-stage reimplantations for infection.

Poster No. P126

10-Year Prospective Matched-Pair Wear Analysis of Rotating Platform and Fixed-Bearing Designs

Morteza Meftah, MD, New York, NY
Hollis Potter, MD, New York, NY
Amar S. Ranawat, MD, New York, NY
Chitranjan S. Ranawat, MD, New York, NY

Prospective matched-pair MRI shows that reactive synovitis was significantly less in rotating platform. More osteolysis was noted in FB-MB but did not reach statistical significance.

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Poster No. P127

Medial Gastrocnemius Flap for Soft Tissue Defects After Knee Arthroplasty: Outcomes and Risk Factors for Failure

Sameer J. Lodha, MD, Chapel Hill, NC
Debdut Biswas, MD, Chicago, IL
Matthew Tetreault, BA, Pittsburgh, PA
Scott M. Sporer, MD, Wheaton, IL
Craig J. Della Valle, MD, Chicago, IL
Robert W. Wysocki Jr, MD, Chicago, IL

The requirement of a gastrocnemius flap for treatment of PJI was associated with a high risk of failure.

Poster No. P128

Significant Decrease in Length of Stay & Significant Increase in Cost for TKA in the United States

Thomas Myers, MD, Fort Wayne, Indiana
Jesse Schold, PhD, Cleveland, OH
Edward Soltesz, MD, MPH, Cleveland, OH
Wael K. Barsoum, MD, Bay Village, OH

A significant decrease in LOS and a significant increase in cost accompanied the increase in the volume of TKAs being performed in the United States.

Poster No. P129

Dental Clearance Prior to Elective Arthroplasty: Needed for Everyone?

Gregory K. Deirmengian, MD, Broomall, PA
Anthony T. Tokarski, BS, Philadelphia, PA
Alexander J. Lampley, BS, Bryn Mawr, PA
Shailee S. Shah, BS, Philadelphia, PA
William J. Hozack, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

Our questionnaire can identify patients with active dental disease and those who require dental procedures. These will require dental evaluation prior to elective arthroplasty.

Poster No. P130

Cost Comparison of Total vs. Unicompartmental Knee Arthroplasty

Sheila Shankar, MS, Chicago, IL
Matthew Tetreault, BA, Pittsburgh, PA
Briana Jegier, PhD, Chicago, IL
Gunnar B. Andersson, MD, Chicago, IL
Craig J. Della Valle, MD, Chicago, IL

UKA provides a cost-effective alternative to TKA that is both less expensive and utilizes fewer healthcare resources in appropriately selected patients.

Poster No. P131

Young Total Knee Arthroplasty Patients: Are They Really Active?

James A. Keeney, MD, St Louis, MO
Ryan Nunley, MD, Saint Louis, MO
Rick W. Wright, MD, Saint Louis, MO
Robert L. Barrack, MD, Saint Louis, MO
John C. Clohisy, MD, Saint Louis, MO

Retrospective analysis of 480 consecutive total knee arthroplasties performed for patients less than 55 years of age. The majority of younger patients are obese and less active than characterized.

Poster No. P132

Risk Factors, Outcomes and Timing of Manipulation Under Anesthesia After Total Knee Arthroplasty

Erik Newman, Durham, NC
Thomas A. Herschmiller, MD, Durham, NC
David E. Attarian, MD, Durham, NC
Thomas P. Vail, MD, San Francisco, CA
Michael P. Bolognesi, MD, Durham, NC
Samuel S. Wellman, MD, Durham, NC

TKA patients undergoing MUAs were younger, more likely to smoke, and more likely to have had prior knee surgery. Early, but not late, MUA patients achieved final flexion equal to matched controls.

Poster No. P133

Mid-term Survival Following Primary Hinged TKR is Good Irrespective of the Indication for Surgery

Paul Baker, MB, ChB, Newcastle Upon Tyne, United Kingdom
Rebecca J. Critchley, MBBS, Newcastle Upon Tyne, United Kingdom
Simon Jameson, Middlesbrough, United Kingdom
Andrew C. Gray, Newcastle-upon-Tyne, United Kingdom
Paul J. Gregg, Cleveland, United Kingdom
David Deehan, MD FRCS, England, United Kingdom

Implant survival and functional improvements after primary hinge knee replacement are comparable to those seen following conventional unconstrained knee replacement designs.

Poster No. P134

Effect of Alignment on Polyethylene Wear in Unicompartment Knee Arthroplasty

Alternate Paper: Adult Reconstruction Knee III: Unicompartmental Knee Arthroplasty

Clint B. Blackwood, MD, Saint Helena, CA
Laryssa Korduba-Rodriguez, Mahwah, NJ
Aaron Essner, MS, Mahwah, NJ
Thomas M. Coon, MD, Saint Helena, CA

No significant difference in wear of UHMWPE in neutral and mal-aligned conditions.

Poster No. P135

Patient Phenotype Allows for Prediction of Patient Reported Satisfaction Following Total Knee Replacement

Paul Baker, MB, ChB, Newcastle Upon Tyne, United Kingdom
Steve Rushton, Newcastle Upon Tyne, United Kingdom
Simon Jameson, Middlesbrough, United Kingdom
Mike R. Reed, MBBS MD, Northumberland, United Kingdom
Paul J. Gregg, Cleveland, United Kingdom
David Deehan, MD FRCS, England, United Kingdom

The expected levels of patient satisfaction flowing total knee replacement can be reliably predicted based on pre-operative demographic and general health data.

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Poster No. P136

Thirty-day Postoperative Morbidity and Mortality After Primary Total Knee Arthroplasty: A Study of 15,517 Patients

Philip J. Belmont Jr, MD, El Paso, TX
Gens P. Goodman, DO, El Paso, TX
Andrew J. Schoenfeld, MD, Canutillo, TX

Increased age, body mass index, albumin < 3.5 g/dL, ASA classification >2 and operative times >137 minutes were risk factors for postoperative complications after primary total knee arthroplasty.

Poster No. P137

Cost Effectiveness of One Stage and Two Stage Revision for Infected Total Knee Arthroplasty

Alternate Paper: Adult Reconstruction Knee VI: Revision Total Knee Arthroplasty

Kevin W. Dwyer, MD, Lebanon, NH
Margaret. R. Grove, MS, Hanover, NH
Anna Tosteson, ScD, Lebanon, NH
Karl Koenig, MD, Hanover, NH

A cost-effectiveness analysis comparing one stage and two stage revision for infected total knee arthroplasty. One stage total knee revision for infected total knee is more cost-effective.

Poster No. P138

Impact of Blood Transfusion on Acute Wound Infection Following Total Knee and Hip Arthroplasty

Erik Newman, Durham, NC
Tyler S. Watters, MD, Durham, NC
Jason M. Jennings, MD, Durham, NC
Samuel S. Wellman, MD, Durham, NC
David E. Attarian, MD, Durham, NC
Stuart Grant, MD, Durham, NC
Cynthia Green, PhD, Durham, NC
Thomas P. Vail, MD, San Francisco, CA
Michael P. Bolognesi, MD, Durham, NC

Allogeneic exposure was not found to be a significant predictor of reoperation for suspected infection after adjusting for total number of units transfused and high ASA score.

Poster No. P139

ß-catenin: A Marker with High Specifity for Arthrofibrosis after Total Knee Arthroplasty

Daniel Kendoff, MD, Hamburg, Germany
Mustafa Citak, MD, Bochum, Germany
C Dierkes, MD, Trier, Germany
Carsten Theiss, Bochum, Germany
Thorsten Gehrke, MD, Hamburg, Germany
Veit Krenn, Trier, Germany

A histopathologic diagnosis of a arthrofibrosis after TKA can be defined as fibrotic synovial tissue with an increased cellularity of ß-catenin staining fibroblasts.

Poster No. P140

Identifying Ideal Tibia Component Rotation in Knee Replacement Referenced by Femoral Trochlea Groove

Sam Hakki, MD, Saint Petersburg, FL
Leo A. Whiteside, MD, Saint Louis, MO

Femoral trochlea groove (FTG) accurately identifies position of ideal tibia component rotation (ITCR) in Total Knee Arthroplasty(TKA) allowing maximum tibia rotation and knee range of motion (ROM).

Poster No. P141

Total Knee Arthroplasty for Severe Haemophilic Arthropathy: Long-Term Experience in Japan

Nobunori Takahashi, MD, PhD, Nagoya, Japan
Toshihisa Kojima, MD, PhD, Nagoya, Japan
Koji Funahashi, MD, PhD, Nagoya, Japan
Daizo Kato, MD, Nagoya, Japan
Hiroyuki Matsubara, MD, Nagoya, Japan
Yosuke Hattori, MD, Nagoya, Japan
Masahiro Hanabayashi, MD, Nagoya, Japan
Naoki Ishiguro, MD, Nagoya, Japan

The late infection rate was obviously higher than that in osteoarthritis population, although TKA was an effective method to gain better function in patients with haemophilic arthropathy of knee.

Poster No. P142

Total Joint Arthroplasty Can be Safe in the Super Morbidly Obese

Alternate Paper: Adult Reconstruction Knee VII: Complications

Ronald Huang, MD, Philadelphia, PA
Sarah M. Callinan, Blenheim, NJ
Michael J. Bercik, MD, Philadelphia, PA
Zachary D. Post, MD, Egg Harbor Township, NJ
Fabio Orozco, MD, Egg Hbr Twp, NJ
Alvin C. Ong, MD, Linwood, NJ

TJA in the super morbidly obese can be safe in otherwise healthy patients. However, extra effort may be necessary to prevent pulmonary complications and minimize blood loss.

Poster No. P143

Outcome of Total Knee Arthroplasty following Patellectomy

Reina Yao, MD, London, ON, Canada
Matt C. Lyons, MD, Mosman, Australia
James Howard, MD, London, ON, Canada
Doug Naudie, MD, FRCSC, London, ON, Canada
Richard W. McCalden, MD, London, ON, Canada
Steven J. MacDonald, MD, London, ON, Canada
James P. McAuley, MD, London, ON, Canada

For the patellectomised patient with tibiofemoral arthrosis, TKA can provide marked improvements in pain and function.

Poster No. P144

Posters

Single Stage Versus Staggered Bilateral Total Knee Replacements in a Single Hospitalization
Chandrasekar Chikkamuniyappa, MS, DNB, Bangalore, India

A comparative study to evaluate 191 patients who underwent 382 bilateral total knee replacements. Staggering in Bilateral Knee Replacements may reduce overall complication rate in older and obese patients.

Poster No. P145
Thromboembolism Prophylaxis: Is Very Low Fixed Dose Warfarin an Equivalent Postoperative Regime?
Murray Bern, MD, Boston, MA
Diane Wheaton, MPH, BS, Boston, MA
Daniel M. Ward, MD, Chestnut Hill, MA
Damon Spitz, MD, Boston, MA
David A. Mattingly, MD, Chestnut Hill, MA
Donald T. Reilly, MD, Brookline, MA
James V. Bono, MD, Boston, MA
Carl T. Talmo, MD, Boston, MA
Dorothy M. Adcock, MD, Englewood, Colorado

A prospective randomized study to examine three thromboembolic disease (TED) prophylaxis regimes following elective hip and knee arthroplasty surgery at one institution.

Poster No. P146
◆Is the Function of Kinematically-Aligned TKA Better Than Mechanically-Aligned TKA? A Randomized Control Trial
Harold G. Dossett, MD, Scottsdale, AZ
Nicolette Estrada, Salt Lake City, UT
George J. Swartz, MD, Phoenix, AZ
George W. LeFevre, MD, San Diego, CA

Kinematically aligned TKA provided better function, better flexion, similar limb and knee alignment, and an oblique joint line that was more anatomic than mechanically aligned TKA.

Poster No. P147
Survival Rate of Implant and Mode of Failure After Revision Total Knee Arthroplasty Using Modular Prosthesis
Dae K. Bae, MD, Seoul, Republic of Korea
Sang Jun Song, Seoul, Republic of Korea
Kyoung Ho Yoon, MD, Seoul, Republic of Korea
Dong Beom Heo, MD, Seoul, Republic of Korea
Dae Hyun Tak, MD, Seoul, Republic of Korea

This study analyzed the survival rate of implants and mode of failure after revision TKA. The 10-year survival rates were 86.3%. Infection and loosening were the most common two modes of failure.

Poster No. P148
The Dramatic Increase in Knee Replacement Utilization is not Primarily Attributable to Increases in Young Patients
Joseph Bernstein, MD, Haverford, PA
Peter Derman, MD, New York, NY

Increased utilization of knee replacements among patients 65+ remains the single largest source of growth. Forecasting models must consider whether manpower supply will be adequate to meet demand.

Poster No. P149
Postoperative Tibial Alignment was Improved by Considering Ankle Rotation in Total Knee Arthroplasty
Hideki Mizuuchi, MD, Fukuoka, Japan
Darryl D. D'Lima, MD, La Jolla, CA
Ken Okazaki, MD, Fukuoka, Japan
Yasutaka Tashiro, MD, PhD, Fukuoka, Japan
Yukihide Iwamoto, MD, Fukuoka, Japan
Shuichi Matsuda, MD, Kyoto, Japan

From our clinical results and computer simulation, the distal end of extramedullary guide should be aligned with the proximal tibial anteroposterior axis to avoid tibial malalignment in TKA.

Poster No. P150
6-Year Review on Efficacy of Preoperative Vena Cava Filters in Arthroplasty Patients at Risk for Pulmonary Embolism
Michael K. Merz, MD, Chicago, IL
Frank C. Bohnenkamp, MD, Addison, IL
Jeffrey M. Goldstein, MD, Chicago, IL
Jill Branson, RN, Wauconda, IL
Wayne M. Goldstein, MD, Morton Grove, IL

32 patients at risk for pulmonary embolus (PE) received an inferior vena cava filter before knee or hip arthroplasty. Treatment was safe and efficacious in the prevention of PE postoperatively.

Poster No. P151
Does the Severity of Varus Deformity Influence Postoperative Alignment in Conventional and Computer-assisted TKA?
Dae K. Bae, MD, Seoul, Republic of Korea
Sang Jun Song, Seoul, Republic of Korea
Kyoung Ho Yoon, MD, Seoul, Republic of Korea
Dong Beom Heo, MD, Seoul, Republic of Korea
Dae Hyun Tak, MD, Seoul, Republic of Korea

The severity of preoperative varus deformity influences postoperative alignment both in conventional and computer-assisted total knee arthroplasty (CAS-TKA).

Poster No. P152
Perioperative Risk Analysis: Regression Model Based on 5,314 Patients from a Single Institution
Courtland G. Lewis, MD, Farmington, CT
Ifeoma A. Inneh, Hartford, CT
Deborah Smith III, Hartford, CT
John Grady-Benson, MD, Farmington, CT
Steven F. Schutzer, MD, Farmington, CT

Using a multivariate demographic/co-morbidity regression analysis on 5,314 arthroplasty patients, we predict risk of perioperative readmission and complications in this cohort from a single center.

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Poster No. P153

Treatment Failure Among Infected Periprosthetic Patients at a Highly Specialized Revision TKA Referral Practice

Ran Schwarzkopf, MD, Irvine, CA
Daniel J. Oh
Elizabeth A. Wright, PhD, Boston, MA
Jeffrey N. Katz, MD, Brookline, MA
Daniel M. Estok II, MD, Boston, MA

Patients inoculated by staphylococcus organism, and that have undergone multiple procedures prior to the two-stage revision may have a lower rate of a successful outcome.

Poster No. P154

Variability in the Distal Femoral Mechanical-Anatomic Angle in Patients Undergoing Total Knee Arthroplasty

Denis Nam, MD, New York, NY
Patrick Maher, MS, BA, New York, NY
Alex Robles, New York, NY
Alexander S. McLawhorn, MD, MBA, New York, NY
David J. Mayman, MD, New York, NY

The distal femoral mechanical-anatomical angle is highly variable in patients undergoing TKA. Therefore, use of a fixed angle, intramedullary distal femoral resection guide may lead to malalignment.

Poster No. P155

Racial Differences in Functional Outcomes in Asian Patients Undergoing Knee Arthroplasty

Siow Wei Ming, MD, Singapore, Singapore
Pak Lin Chin, FRCSEd, Singapore, Singapore
Shi-lu Chia, MBBS, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

There are significant differences in demographics, health related quality of life and functional outcome scores in Chinese, Malay and Indian patients who have undergone a knee arthroplastic procedure.

Poster No. P156

A Cost-Minimization Analysis of Knee Arthroplasty Using Data from Two National Registries

Alternate Paper: Adult Reconstruction Knee IV: Total Knee Arthroplasty

Barry Andrews, MB ChB, London, United Kingdom
Charles Willis-Owen, FRCS (Ortho), MA, London, United Kingdom
Adeel Aqil, MBChB, MRCS Ed, Middlesex, London, United Kingdom
Justin P. Cobb, MD, London, United Kingdom

Decision tree analysis of registry data, including a comprehensive breakdown of revision subtypes, has shown that UKA costs less than TKA by $1270 despite the higher revision rate and equivalent revise.

Poster No. P157

Accuracy of Patient-specific Cutting Guide in Total Knee Arthroplasty

Keerati Chareancholvanich, Bangkok, Thailand
Rapeepat Narkbunnam, MD, Bangkok, Thailand
Chaturong Pornrattanamaneewong, MD, Nonthaburi, Thailand

The patient-specific cutting guides demonstrated subtle advantages over conventional instrumentation in terms of reducing the femoral component outliers, shortening bone-cutting and operative time.

Poster No. P158

The Effect of Periarticular Injection: Randomized, Controlled Comparison of Various Cocktail Regimens

Alternate Paper: Adult Reconstruction Knee V: Primary Total Knee Arthroplasty

Tae Woo Kim, MD, Seoul, Republic of Korea
Sahnghoon Lee, MD, Seoul, Republic of Korea
Joon Kyu Lee, MD, Seoul, Republic of Korea
Se H. Im, MD, Seoul, Republic of Korea
Sang J. Park, MD, Seoul, Republic of Korea
Sang C. Seong, MD, Seoul, Republic of Korea
Myung C. Lee, MD, Seoul, Republic of Korea

Periarticular injection composed of ropivacaine, ketorolac and morphine showed better pain management after TKA. Additional steroid reduced inflammation and improved functional recovery.

Poster No. P159

The Knee that Birthed MIS: A Comparison Study between All-Polyethylene and Fixed-Bearing Metal-Backed UKA

John W. Barrington, MD, Plano, TX
Roger H. Emerson Jr, MD, Dallas, TX

At mean 11 year follow-up, the AP UKA demonstrated 78% survivorship. The MB UKA demonstrated 98% survivorship. The dominant mode of failure was subsidence of the all-poly tibial component.

Poster No. P160

Clinical Necessity for Total Knee Arthroplasty

John B. Meding, MD, Moorseville, IN
Kenneth Davis, MS, Moorseville, IN
Merrill A. Ritter, MD, Indianapolis, IN
Michael E. Berend, MD, Moorseville, IN
E. Michael M. Keating, MD, Moorseville, IN
Phillip M. Faris, MD, Moorseville, IN
Robert A. Malinzak, MD, Moorseville, IN

If we continue to perform surgery at the present rate of arthroplasty, surgeons will either require increased paramedical assistance in followup, or limit the number of cases they do.

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Poster No. P161

Mortality Following Simultaneous Bilateral Total Knee Arthroplasty with and without Computer Assisted Surgery

Stephen Graves, MD, Adelaide, Australia
Richard De Steiger, MD, Richmond, Australia
David Davidson, MD, Adelaide, Australia
Kara Cashman, BSc (HONS), Adelaide, Australia
Yen-Liang Liu, Adelaide, Australia
Elizabeth C. Griffith, BA, Adelaide, Australia
Philip Ryan, FAFPHM, Adelaide, Australia

Patients receiving simultaneous bilateral TKA have better longevity than those patients having a unilateral TKA but are at increased risk of early death. CAS does not affect mortality risk.

Poster No. P162

Preservation of the PCL is not Recommended in Highly Conforming Mobile Bearing Total Knee Arthroplasty

Tae Woo Kim, MD, Seoul, Republic of Korea
Sahnghoon Lee, MD, Seoul, Republic of Korea
Joon Kyu Lee, MD, Seoul, Republic of Korea
Se H. Im, MD, Seoul, Republic of Korea
Sang J. Park, MD, Seoul, Republic of Korea
Sang C. Seong, MD, Seoul, Republic of Korea
Myung C. Lee, MD, Seoul, Republic of Korea

PCL preservation in highly conforming mobile TKA is not recommended as it showed the significant deviation in kinematics as well as unpredictable complications.

Poster No. P163

Total Knee Arthroplasty in Patients with Excessive External Tibial Torsion > 45° and Patella Instability

Michael Drexler, MD, Toronto, ON, Canada
Tim Dwyer, MBBS, Toronto, ON, Canada
Meir T. Marmor, MD, San Francisco, CA
Nikolaus Reischl, MD, Graz, Austria
Fahad Attar, FRCS, Toronto, ON, Canada
John C. Cameron, MD, Toronto, ON, Canada

Patients presenting with advanced knee osteoarthritis (OA), excessive external tibial torsion (EETT) and chronic patella subluxation pose a significant surgical challenge.

Poster No. P164

Relationship Between Vascular Endothelial Growth Factor and Radiographic Severity in Primary Knee Osteoarthritis

Sittisak Honsawek, MD, PhD, Bangkok, Thailand
Aree Tanavalee, MD, Bangkok, Thailand
Pongsak Yuktanandana, MD, Bangkok, Thailand
Srihatach G. Ngarmukos, MD, Bangkok, Thailand
Saran Tantavisut, Bangkok, Thailand
Thanathep Tanpowpong, Bangkok, Thailand

VEGF in both plasma and synovial fluid were positively correlated with the severity and play a role in pathophysiology of knee OA.

Poster No. P165

Long-Leg Radiographs are Unnecessary for Follow Up of Total Knee Replacements

David F. Dalury, MD, Baltimore, MD
Kim K. Tucker, MD, Tucson, AZ
Mary Jo Adams, BSN, Towson, MD

Our hypothesis is that using standard 14 x 17 inch standing radiographs allows for similar accuracy when compared to the traditionally used long-leg films in measuring TKR alignment.

Poster No. P166

Does Total Knee Replacement Lead to an Increase in Lateral Retinacular Strain with Flexion?

Salim K. Durrani, MD, Houston, TX
Sabir Ismaily, Houston, TX
Dan A. Daylamani, San Antonio, TX
Jon Gold, BS, Houston, TX
James W. Pritchett, MD, Seattle, WA
Richard E. Moore, MD, Boise, ID
Philip C. Noble, PhD, Houston, TX

TKA generates higher retinacular strains than the intact knee during flexion, with the greatest increases in strain being observed in the distal and posterior regions.

Poster No. P167

Efficacy, Timing and Clinical Outcomes of Manipulations Under Anesthesia Versus a Comparison Cohort

Michael A. Mont, MD, Baltimore, MD
Kimona Issa, MD, Santa Clarita, CA
Aaron J. Johnson, MD, Baltimore, MD
Mark A. Kester, PhD, Mahwah, NJ
Qais Naziri, MD, Brooklyn, NY
Harpal S. Khanuja, MD, Cockeysville, MD
Ronald E. Delanois, MD, Baltimore, MD

A low threshold for performing manipulation under anesthesia can improve range-of-motion and achieve outcomes comparable to patients who do not develop knee stiffness.

Poster No. P168

Is Midterm Follow Up Surveillance of Total Knee Arthroplasty Patients Necessary?

James A. Keeney, MD, St Louis, MO
Robert L. Barrack, MD, Saint Louis, MO
Brad Ellison, MD, Midlothian, VA
John C. Clohisy, MD, Saint Louis, MO

Interventions resulting from routine midterm follow-up visits for TKA surveillance are extremely uncommon in asymptomatic patients.

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Poster No. P169
Comparison of Infection, Revision and Surgical Interventions Between Unicondylar and Total Knee Arthroplasty
Kevin Ong, Philadelphia, PA
Heather Watson, PhD, Menlo Park, CA
Michael T. Manley, PhD, Franklin Lakes, NJ
Steven M. Kurtz, PhD, Philadelphia, PA

Our study suggests mixed outcomes in the UKA cohort compared with the primary TKA cohort, after adjusting for differences in patient demographics.

Poster No. P170
Pulmonary Findings in Asymptomatic Postoperative Total Joint Arthroplasty Patients
Jonathan Vigdorchik, MD, New York, NY
Denis Lincoln, Southfield, MI
David C. Markel, MD, Southfield, MI

We examined asymptomatic patients with multi-detector CT scan to establish the baseline pulmonary findings after TJA. All asymptomatic patients had negative CT scans.

Poster No. P171
Pulse Lavage is Inadequate at Removal of Biofilm from the Cobalt Chrome Surfaces in Total Knee Arthroplasty
Kenneth Urish, MD, PhD, Hershey, PA
Melissa Bent, MD, Hummelstown, PA
Hani Haider, PhD, Omaha, NE
David W. Craft, PhD, Hershey, PA
Charles M. Davis III, MD, Hershey, PA

The ability of irrigation to remove biofilm from arthroplasty components was quantified.

Poster No. P172
Tranexamic Acid in Total Knee Arthroplasty Improves Clinical and Functional Outcomes
William C. Schroer, MD, Saint Louis, MO
Paul Diesfeld, PA-C, Saint Louis, MO
Angela LeMarr, RN, Saint Louis, MO
Rachel R. Ingrassia, RN, O Fallon, MO
Diane Morton, MS, Saint Louis, MO
Mary E. Reedy, RN, Saint Louis, MO

Tranexamic acid use after TKA improved outcomes by reducing blood loss, drop in Hgb, autologous blood transfusion, use of reinfusion drains, wound concerns, additional surgery, and prolonged therapy.

Poster No. P173
Single Stage "Two in One" Revsion for Infected Knee Replacement: A Report of the First 19 Cases
Richard W. Parkinson, FRCS, Merseyside, United Kingdom

2 stage revision for infected TKA is the gold standard. We report a method of single stage revision with good outcomes in 19 patients.

Poster No. P174
Patella Kinematics in Total Knee Arthroplasty with Femoral Malrotation In Vitro
Thomas J. Heyse, MD, Marburg, Germany
Bilal El-Zayat, MD, Marburg, Germany
Yan Chevalier, PhD, Munich, Germany
Ronny De Corte, Leuven, Belgium
Bernardo Innocenti, PhD, Bruxelles, Belgium
Susanne Fuchs-Winkelmann, MD, Marburg, Germany
Luc Labey, Leuven, Belgium

Patellar kinematics but not contact pressure was affected by femoral component malrotation. Associated anterior knee pain may result more from soft tissue tension.

Poster No. P175
Hospital Length of Stay after Primary Total Knee Arthroplasty: Data from the NIS
Youssef El Bitar, MD, Willowbrook, IL
Kenneth Illingworth, MD, Springfield, IL
Steven L. Scaife, MS, Springfield, IL
Khaled J. Saleh, MD, MSc, Springfield, IL

It is important to recognize all factors that affect hospital length of stay to maximize the use of medical resources, optimize hospital length of stay and ultimately increase the care of our patients.

Poster No. P176
The Effect of Fixation on Functional Outcome and Survival of a Cruciate Retaining Total Knee Replacement Up to 17 Years
Jerome Davidson, MD, Kent, United Kingdom
Nemandra A. Sandiford, MRCS, Kent, United Kingdom
Shilpa Jha, MBBS, London, United Kingdom
Kim Miles
Debra J. East, St Leonards On Sea, United Kingdom
Hugh Apthorp, FRCS, Battle, United Kingdom
Richard Goddard, MD, East Sussex, United Kingdom
Adrian Butler-Manuel, FRCS, St Leonards On Sea, United Kingdom

This prospective randomised control study comparing fixation type in total knee arthroplasty shows better survival of cemented than HAC designs. However there is no difference in functional outcome.

Poster No. P177
Systematic Review of Static and Articulating Spacers for Infected Total Knee Arthroplasty Revision
Jonathan R. Dattilo, BS, Baltimore, MD
Christopher R. Costa, MD, Dallas, TX
Qais Naziri, MD, Brooklyn, NY
Aaron J. Johnson, MD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

Articulating spacers demonstrated increased range of motion compared to static spacers, but should be used cautiously in complex cases of infection due to elevated complication and revision rates.

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Poster No. P178

Center and Surgeon Volume Influence Revision Rate Following Unicompartmental Knee Replacement

Paul Baker, MB, ChB, Newcastle Upon Tyne, United Kingdom
Simon Jameson, Middlesbrough, United Kingdom
Rebecca J. Critchley, MBBS, Newcastle Upon Tyne, United Kingdom
Mike R. Reed, MBBS MD, Northumberland, United Kingdom
Paul J. Gregg, Cleveland, United Kingdom
David Deehan, MD FRCS, England, United Kingdom

Specialist, high volume centers and surgeons produce superior results after unicompartmental knee replacement when compared to their low volume counterparts.

Poster No. P179

Is Adapted Measured Resection Superior Over Gap-balancing in Determining Femoral Component Rotation In TKA?

Thomas Luyckx, MD, Bertem, Belgium
Tom Peeters, MD, Berchem, Belgium
Hilde Vandenneucker, MD, Pellenberg-Lubbeek, Belgium
Jan MK M. Victor, MD, Gent, Belgium
Johan Bellemans, MD, Langdorp, Belgium

This study reports on the prospective comparison of an new 'adapted' measured resection technique vs gap balancing in determining femoral component rotation in TKA.

Poster No. P180

Outcomes Following Total Knee Revision with Trabecular Metal Cones

Ronald Huang, MD, Philadelphia, PA
Gus Barrazueta, BA, MS, Tampa, FL
Fabio Orozco, MD, Egg HarborTownship, NJ
Zachary D. Post, MD, Egg Harbor Township, NJ
Alvin C. Ong, MD, Linwood, NJ
Javad Parvizi, MD, FRCS, Philadelphia, PA

With moderate to severe bone loss, trabecular metal cones provide reliable fixation at short term follow-up.

Poster No. P181

◆Preliminary Data on Use of Tranexamic Acid in High Risk Patients Undergoing Primary Total Hip and Knee Arthroplasty

Daniel Whiting, MD, Rochester, MN
Blake P. Gillette, MD, Rochester, MN
Christopher Duncan, MD, Rochester, MN
Hugh M. Smith, MD, PhD, Rochester, MN
Lori J. Desimone, PA-C, Rochester, MN
Rafael J. Sierra, MD, Rochester, MN

The thromboembolic complications in high risk patients undergoing primary total hip and knee arthroplasty with tranexamic acid warrants further study.

Poster No. P182

Outcomes of Total Knee Arthroplasty after Fresh Osteochondral Allograft Transplantation

Amy K. Steinhoff, MD, San Diego, CA
William Bugbee, MD, La Jolla, CA

TKA after OCA does not present a technical challenge in the operating room, however, patients reported lower outcomes postoperatively compared to standard routine TKA patients.

Poster No. P183

Low Urine Output During the First 24 Hours After Total Knee Arthroplasty

Yutthana Khanasuk, MD, Bangkok, Thailand
Aree Tanavalee, MD, Bangkok, Thailand
Sarit Hongvilai, Bangkok, Thailand
Srihatach G. Ngarmukos, MD, Bangkok, Thailand
Saran Tantavisut, Bangkok, Thailand
Yongsak Wangroongsub, MD, Bangkok, Thailand
Sittisak Honsawek, MD, PhD, Bangkok, Thailand

Low urine output during the first 24 hours after TKA related to limited volume of intraoperative IV fluid which was significantly less than that of calculated volume.

Poster No. P184

Total Knee Arthroplasty in Patients with Juvenile Idiopathic Arthritis: A Multi Center Study

Thomas J. Heyse, MD, Marburg, Germany
Michael D. Ries, MD, San Francisco, CA
Johan Bellemans, MD, Langdorp, Belgium
Stuart B. Goodman, MD, Redwood City, CA
Richard D. Scott, MD, Boston, MA
Timothy M. Wright, PhD, New York, NY
Joseph D. Lipman, MS, New York, NY
Ran Schwarzkopf, MD, Irvine, CA
Mark P. Figgie, MD, New York, NY

Survivorship of TKA in a large cohort of JIA patients was lower than in patients with osteoarthritis and their functional outcomes were poorer. Further work must be done to improve durability.

Poster No. P185

Patellofemoral Arthroplasty - Patient Profile and Early Outcomes

Ashley A. Nord, MD, Grand Rapids, MI
Julie Agel, Seattle, WA
Elizabeth A. Arendt, MD, Minneapolis, MN

PFA is a valid surgical option for patients with isolated end-stage PF arthritis.

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Poster No. P186

Mid Term Outcomes and Survivorship of Unicondylar Knee Arthroplasty in Patients with Severe Deformity

Chusheng Seng, MBBS, MRCS, Singapore, Singapore
Derek Cy Ho, MBBS, Singapore, Singapore
Pak Lin Chin, FRCSEd, Singapore, Singapore
Shi-lu Chia, MBBS, Singapore, Singapore
Hwei Chi Chong, Singapore, Singapore
Ngai-Nung Lo, MD, Singapore, Singapore
Seng-Jin Yeo, FRCS, Singapore, Singapore

Unicondylar Knee Arthroplasty in patients with severe deformity had good clinical outcomes at a minimum of 2 years with 100% survivorship at 5 years.

Poster No. P187

Pre-admission Cutaneous Chlorhexidine Preparation Reduces Surgical Site Infections in Total Knee Arthroplasty

Aaron J. Johnson, MD, Baltimore, MD
Bhaveen Kapadia, MD, Baltimore, MD
Jacqueline A. Daley, MLT, Baltimore, MD
Christine B. Molina, Fontana, CA
Qais Naziri, MD, Brooklyn, NY
Michael A. Mont, MD, Baltimore, MD

This study suggests that the use of a pre-admission cutaneous chlorhexidine preparation protocol is an effective method to prevent periprosthetic infections in total knee arthroplasty patients.

Poster No. P188

Use of the Gender-Specific Femoral Component in Men: An Experience in 328 Male Primary Total Knee Arthroplasties

Alexander P. Sah, MD, Fremont, CA
John T. Dearborn, MD, Fremont, CA

In men, gender-specific components provide less component overhang and similar patellar tracking compared to standard designs, but outcomes are not improved based on objective measurements.

Poster No. P189

Evaluation of Tibial Component Coverage in Total Knee Arthroplasty

Mohamed Mahfouz, PhD, Knoxville, TN
Giles R. Scuderi, MD, New York, NY
Emam Abdel Fatah, Knoxville, TN
Lyndsay N. Bowers, MS, Knoxville, TN

This study evaluated the coverage and placement of the tibial component of seven contemporary knee systems using the same placement and sizing techniques for all implants across multiple populations.

Poster No. P190

In-Vivo Alignment Comparing Conventional to Patient Specific Instrumentation in Total Knee Arthroplasty

William P. Barrett, MD, Renton, WA
David F. Dalury, MD, Baltimore, MD
Daniel P. Hoeffel, MD, Woodbury, MN
J. Bohannon Mason, MD, Charlotte, NC
Steven M. Wetzner, MD, Boston, MA
James Lesko, PhD, Warsaw, IN
Jeffrey A. Murphy, MS, Warsaw, IN
Sam Himden, BA, Warsaw, IN

This computed tomography based patient specific instrumentation system, when compared to conventional instruments, indicated comparable absolute mechanical axis alignment after total knee arthroplasty.

Poster No. P191

Does Patient Attitude Towards Knee Pain Affect the Outcome of Total Knee Arthroplasty?

Alexandra K. Callan, MD, Nashville, TN
Adam Brekke, San Antonio, TX
Gregory W. Stocks, MD, Houston, TX
Kenneth B. Mathis, MD, Houston, TX
Philip C. Noble, PhD, Houston, TX

Patients with confidence in their ability to control pain report less frequent knee pain, use less medication and met more of their expectations for knee function.

Poster No. P192

Insufficiency Fracture (Unique Periprosthetic Fracture After Total Knee Arthroplasty)

Samih Tarabichi, MD, Dubai, United Arab Emirates
Mohamed M. Elfekky Sr, MSc, FRCS, MD, Sharja, United Arab Emirates

All classifications of periprosthetic fractures after TKA fail to cover this type of fracture. The purpose of this study is to introduce a unique type of insufficiency fracture in the lateral femoral condyle.

Poster No. P193

Total Knee Arthroplasty May Improve Mental Health Scores in Patients With Poor General Health

Knute C. Buehler, MD, Bend, OR
Kristin Given, MS, Mahwah, NJ
Marybeth Naughton, Garnerville, NY

Stratifying patients by preoperative SF-General Health may be a good way to determine which patients may, despite additional health issues, experience the most emotional relief following TKA.

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Poster No. P194

Effect of Bearing Design in Failed Unicompartmental Knee Arthroplasty on the Revision Procedure

Kevin J. Bloom, BA, South Euclid, OH
Rishi R. Gupta, MD, St Helena, CA
Joseph W. Caravella, BA, Bay Village, OH
Alison K. Klika, MS, Cleveland, OH
Yousef Shishani, MD, Cleveland, OH
Wael K. Barsoum, MD, Bay Village, OH

Patients with failed mobile-bearing unicompartmental knee arthroplasty (UKA) required more tibial augments during revision procedures than patients with failed fixed-bearing UKA (p=0.008).

Poster No. P195

Total Knee Arthroplasty in Osteonecrosis: Mid-term Results with a New Implant Design

Qais Naziri, MD, Brooklyn, NY
Vijay J. Rasquinha, MD, New Hyde Park, NY
Aditya V. Maheshwari, MD, Brooklyn, NY
Kimona Issa, MD, Santa Clarita, CA
Lynne C. Jones, PhD, Baltimore, MD
Michael A. Mont, MD, Baltimore, MD

The purpose of this study was to assess the clinical and radiographic outcomes of total knee arthroplasties in all patients with osteonecrosis.

Poster No. P196

Outcomes of Manipulation Under Anesthesia Stratified by Pre-Manipulation Range-of-Motion after Primary TKA

Kimona Issa, MD, Santa Clarita, CA
Bhaveen Kapadia, MD, Baltimore, MD
Aaron J. Johnson, MD, Baltimore, MD
Mark A. Kester, PhD, Mahwah, NJ
Swetha Dhanireddy, Naperville, IL
Ronald E. Delanois, MD, Baltimore, MD
Harpal S. Khanuja, MD, Cockeysville, MD
Michael A. Mont, MD, Baltimore, MD

The authors believe orthopaedic surgeons should inform their patients regarding their potential to improve in flexion arc based on their pre-manipulation range-of-motion.

Poster No. P197

Comparison of In Vivo Wear Particles Between Sequentially Annealed HXLPE and Conventional PE in TKA

Yukihide Minoda, MD, Osaka, Japan
Kanako Hata, BS, Osaka, Japan
Hiroyoshi Iwaki, MD, Osaka, Japan
Mitsuhiko Ikebuchi, MD, Osaka, Japan
Taku Yoshida, MD, Osaka, Japan
Shigekazu Mizokawa, MD, PhD, Osaka, Japan
Hiroaki Nakamura, MD, Osaka, Japan

We compared the characteristics of in vivo wear particles between sequentially annealed highly cross linked and conventional polyethylene in TKA. There was no statistical difference between two groups.

Poster No. P198

The Role of Surgical Dressings in Total Knee Arthroplasty: A Randomized Clinical Trial

Bryan D. Springer, MD, Charlotte, NC
Walter B. Beaver, MD, Charlotte, NC
William L. Griffin, MD, Charlotte, NC
J. Bohannon Mason, MD, Charlotte, NC
Anne C. Dennos, BS, Charlotte, NC
Susan M. Odum, Charlotte, NC

An occlusive antimicrobial surgical dressing showed significant reduction in wound complications, number of dressing changes/exposure and patient satisfaction compared to standard gauze dressing.

Poster No. P199

The Outcome of Total Knee Arthroplasty in Patients Aged 80 Years and Older: A Study of 479 Patients

Bo-Hyun Hwang, MD, Seoul, Republic of Korea
Chang Hyun Nam, MD, PhD, Yangcheon-G, Republic of Korea
Kwang Am Jung, MD, Seoul, Republic of Korea
Su-Chan Lee, MD, Seoul, Republic of Korea

With greater awareness of careful patient selection and the patient's comorbidities in order to reduce perioperative complications, primary TKA can provide safety and reliability for the octogenarian.

Poster No. P200

Rotational Mismatch Between Femoral and Tibial Components after TKA for Varus Osteoarthritis of the Knee

Takashi Tsujimoto, MD, Sakai City, Japan
Kazumasa Yamamura, MD, Sakai City Osaka, Japan
Tessyu Ikawa, MD, Sakai, Japan
Kim Mitsunari, MD, Takarazuka City, Japan
Yoshinori Kadoya, MD, Sakai, Japan

Certain amount of rotational mismatch is inevitable even when both the femoral and tibial component were rotationally aligned to the widely-used reference lines.

Poster No. P201

Fewer and Older Patients with Rheumatoid Arthritis Need Total Knee Replacement

Eerik T. Skytta, MD, PhD, Tampere, Finland
Pirjo Honkanen, MD, Ylojarvo, Finland
Antti Eskelinen, MD, PhD, Tampere, Finland
Heini Huhtala, MSc, University of Tampere, Finland
Ville M. Remes, MD, Helsinki, Finland

Despite the increasing resources, the need for TKR in rheumatoid arthritis is decreasing and replacements are performed at an older age indicating improving long-term outcome in RA.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P202

The Effect of Femoral Component Design on the Incidence of Patellar Crepitus Following Total Knee Arthroplasty

Raymond H. Kim, MD, Denver, CO
Douglas A. Dennis, MD, Denver, CO
Derek R. Johnson, MD, Parker, CO
Michael R. Cahill, MS, Highlands Ranch, CO

Design of the trochlear region of the femoral component affects the incidence and severity of patellofemoral crepitus following total knee arthroplasty.

Poster No. P203

Patient Specific Instrumentation Does Not Shorten Surgical Time: A Prospective, Randomized Trial

William G. Hamilton, MD, Alexandria, VA
Nancy L. Parks, Alexandria, VA
Arjun Saxena, MD, Langhorne, PA

Custom instruments did not shorten surgical time or improve alignment compared with traditional instruments in this prospective, randomized trial. Fewer surgical trays were needed for custom cases.

Poster No. P204

Risk Factors for Early Revision Following Primary Total Knee Arthroplasty in Medicare Patients

Kevin J. Bozic, MD, MBA, San Francisco, CA
Edmund Lau, MS, Menlo Park, CA
Kevin Ong, Philadelphia, PA
Vanessa Chiu, MPH, San Francisco, CA
Steven M. Kurtz, PhD, Philadelphia, PA
Thomas P. Vail, MD, San Francisco, CA
Harry E. Rubash, MD, Boston, MA
Daniel J. Berry, MD, Rochester, MN

Chronic pulmonary disease, depression, alcohol abuse, drug abuse, renal disease, hemiplegia/paraplegia, and obesity were associated with an increased risk of early revision in Medicare TKA patients.

Poster No. P205

Preoperative Pain Location is a Poor Predictor of Outcome after Unicompartmental Knee Arthroplasty

Alexander D. Liddle, MBBS, Headington, Oxon, United Kingdom
Hemant G. Pandit, FRCS, Oxford, United Kingdom
Cathy Jenkins, MA, Oxford, United Kingdom
Andrew J. Price, FRCS, Oxford, United Kingdom
Christopher A. Dodd, FRCS, Oxford, United Kingdom
Harinderjit Gill, PhD, Oxford/Oxon, United Kingdom
David W. Murray, MD, Oxford, United Kingdom

A study of 406 knees demonstrating that pre-operative location of pain (medial, anterior, lateral) has no bearing on outcome after UKA.

Foot and Ankle

Poster No. P206

Return to Duty of Special Operations Personnel after Limb Salvage for High Energy Lower Extremity Trauma

Jeanne C. Patzkowski, MD, San Antonio, TX
Johnny Owens, San Antonio, TX
Ryan Blanck, Fort Sam Houston, TX
Joseph R. Hsu, MD, San Antonio, TX

Return to military duty following high energy lower extremity trauma is challenging. A novel bracing and rehabilitation program helped thirteen of fourteen special operations personnel return to duty.

Poster No. P207

The Most Common Patient Safety Problems in Orthopaedic Surgery of the Foot and Ankle

Joshua Hunter, MD, Rochester, NY
Joshua Olsen, MD, Rochester, NY
Christopher W. DiGiovanni, MD, Providence, RI
Jeffrey Anglen, MD, FACS, Indianapolis, IN
Judith F. Baumhauer, MD, MPH, Rochester, NY

Patient safety requires an accurate picture of complications after individual procedures. Analysis of the ABOS database is a valuable tool to enhance practice performance and improve preventive care.

Poster No. P208

Use of a Mobile Phone for Radiographic Assessment of Ankle Injuries: A Randomized Agreement Study

Joshua N. Tennant, MD, Iowa City, IA
Viswanathan Shankar, Bronx, NY
Dirschl R. Douglas, MD, Chapel Hill, NC

This randomized study shows excellent intraobserver and equivalent interobserver reliability for clinical decision making for ankle fracture images viewed on a mobile device and a computer monitor.

Poster No. P209

Abnormal Findings in Magnetic Resonance Imaging of Asymptomatic Ankles

Eric W. Lloyd, MD, New York, NY
Michael Zlatkin, MD, Weston, FL
Timothy G. Sanders, MD, Keswick, VA
David C. Landy, MPH, Miami, FL
Steven D. Steinlauf, MD, Weston, FL
Christopher Wong, MD, Miami, FL

As the utilization of ankle Magnetic Resonance Imaging (MRI) increases, we need to know that image interpretations may identify abnormalities that are asymptomatic, and not true pathology.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P210
The Tripod Index Part 1: New Radiographic Parameter Assessing Foot Alignment
Marut Arunakul, MD, Iowa City, IA
Phinit Phisitkul, MD, Iowa City, IA
Jessica Goetz, PhD, Iowa City, IA
John E. Femino, MD, Iowa City, IA
Annunziato Amendola, MD, Iowa City, IA

The Tripod Index was demonstrated to be a valid and reliable radiographic measurement to quantify the magnitude of complex foot deformities when evaluating flatfoot and cavovarus foot.

Poster No. P211
Current Trends in Prophylactic Antibiotic Use Following Elective Outpatient Foot and Ankle Surgery
David Ruta, MD, Ann Arbor, MI
Todd A. Irwin, MD, Mount Clemens, MI
Anish R. Kadakia, MD, Glenview, IL

Prophylactic antibiotic use after elective outpatient foot and ankle surgery is common among AOFAS members, with survey results suggesting that use does not decrease rates of postoperative infection.

Poster No. P212
Operative vs. Non-operative Treatment of Acute Achilles Tendon Rupture: A Meta-analysis
Hongmou Zhao, MD, Xi'An, China
Yu Guangrong, Prof, Shanghai, China
Yunfeng Yang, MD, Shanghai, China
Jiaqian Zhou, Shanghai, China

The purpose of this meta-analysis was to identify and summarize the randomized controlled trials comparing the operative and non-operative lines of treatment of acute Achilles tendon ruptures.

Poster No. P213
Visualization of the Talar Dome by Anterior versus Posterior Ankle Arthroscopy: A Cadaver Study
Alexej Barg, MD, Liestal, Switzerland
Florian Nickisch, MD, Salt Lake Cty, UT
Timothy C. Beals, MD, Salt Lake City, UT
Kent N. Bachus, PhD, Salt Lake City, UT
Annunziato Amendola, MD, Iowa City, IA
Charles L. Saltzman, MD, Salt Lake City, UT

Visualization of the talar dome by anterior and posterior ankle arthroscopy using two different distraction methods was assessed in this cadaver study.

Poster No. P214
Biomechanical Strength of Fixation of the Anterior Talofibular Ligament with Suture versus Suture Anchor
Norman Waldrop III, MD, Mountain Brook, AL
Kyle Jansson, Vail, CO
Coen A. Wijdicks, PhD, Vail, CO
Robert F. LaPrade, MD, PhD, Vail, CO
Thomas O. Clanton, MD, Vail, CO

Suture anchor and the suture repair of the ATFL provide similar strength and stiffness. Unfortunately, these methods provide less than half the strength and stiffness of the native ATFL.

Poster No. P215
Arthroscopic ACI in Talar Osteochondral Lesions: 7 Year Results and T2-mapping Capability in Outcome Prediction
Sandro Giannini, MD, Bologna, Italy
Milva Battaglia, MD, Bologna, Italy
Roberto Buda, Bologna, Italy
Alberto Ruffilli, MD, Bologna, Italy
Alessandro Parma, MD, Bologna, Italy
Bulzamini Maria Chiara, Bologna, Italy
Giovanna Desando, PhD, Bologna, Italy
Francesca Vannini, MD, Bologna, Italy

Clinical and qualitative results of a series of patients who underwent ACI of the talus at 7 years follow-up.

Poster No. P216
Swiss Multi-Center Achilles Tendon Rupture Trial: Calf Muscle Volume at 7.5 Years Follow Up
Alternate Paper: Foot and Ankle III: Sports: The World of Ligament, Tendons, and Tali
Claudio Rosso, MD, MSc, Binningen, Switzerland
Patrick Vavken, MD, Boston, MA
Caroline Polzer, Dornach, Switzerland
Ueli Studler, Basel, Switzerland
Lukas Weisskopf, MD, Pratteln, Switzerland
Andreas Marc A. Mueller, MD, Basel, Switzerland
Victor Valderrabano, MD, Basel, Switzerland

SMART: Swiss Multi-Center Achilles Tendon Rupture Trial - Clinical and Radiological Outcomes at 7.5 Years and greater Follow-Up: Muscles and Tendons Partially Recover.

Poster No. P217
Pain Dominates Foot and Ankle Scoring Outcomes
Paul Tornetta III, MD, Boston, MA
Rabah Qadir, MD, Metairie, LA
Roy W. Sanders, MD, Tampa, FL

Pain accounts for the vast majority of variation in the scores of hindfoot injuries.

Poster No. P218
Does Modified Footwear Improve Gait after Ankle Arthrodesis?
Daniel A. Jones, MD, Saint Louis, MO
Berton R. Moed, MD, Saint Louis, MO
David Karges, DO, Saint Louis, MO

An investigation to determine if the rocker bottom sole modification to shoes can improve the mechanical gait in patients who have underwent an ankle arthrodesis.

Poster No. P219
The Treatment of Ankle Stiffness Using a Static Progressive Stretch Orthosis
Mark J. McElroy, BS, MS, Baltimore, MD
Bradley M. Lamm, DPM, Luthvle Timonimonium, MD
Michael A. Mont, MD, Baltimore, MD

This study demonstrates that using a static progressive stretch orthosis may be a useful therapeutic modality for helping patients improve their gait and mobility following ankle stiffness.

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Poster No. P220

Anatomic Variations of the Flexor Hallucis Longus and Flexor Digitorum Longus Cross-links in the Chiasma Plantare

Christian Plaass, MD, Hanover, Germany
Ghassan Abuharbid, Hannover, Germany
Hazibullah Waizy, Hannover, Germany
Leif Claassen, Hannover, Germany
Matthias Ochs, MD, Hannover, Germany
Christina M. Stukenborg-Colsman, MD, PhD, Hannover, Germany
Andreas Schmiedl, Hannover, Germany

This anatomical study shows, that the flexor hallucis longus has in >95% of the specimens interconnections to the flexor digitorum loungs. This is relevant for tendon harvesting and transfer.

Poster No. P221

Lateral Dorsal Cutaneous Branch of the Sural Nerve: Importance of the Surgical Approach to Jones Fracture Fixation

Alternate Paper: Foot and Ankle IV: Working Our Way Down: Forefoot and Midfoot

Ashraf Fansa, New York, NY
Niall A. Smyth, MD, New York, NY
Christopher D. Murawski, New York, NY
John G. Kennedy, MD, New York, NY

We describe the lateral dorsal cutaneous branch of the sural nerve and its relation to the surgical approach for proximal fifth metatarsal fixation in ten fresh frozen cadaveric specimens.

Poster No. P222

Ankle Instability in Young Adult Population and Association to Gender, Body Mass Index and Body Height

Hershkovich Oded, MD, Kefar - Haoranim, Israel
Shay A. Tenenbaum, MD, Herzliya, Israel

Prevalence of CAI in the young adult general population is higher in males than in females. CAI is associated to increased body mass index and body height throughout all instability severity grades.

Poster No. P223

Bilateral Differences in Gait Mechanics Following Total Ankle Replacement: A Two-Year Longitudinal Study

Alternate Paper: Foot and Ankle II: Ankle Arthritis: Arthroplasty, Osteotomy, and Arthrodesis

Robin M. Queen, PhD, Durham, NC
Robert J. Butler, DPT, PhD, PT, Durham, NC
Samuel B. Adams Jr, MD, Durham, NC
James K. DeOrio, MD, Durham, NC
Mark E. Easley, MD, Durham, NC
James A. Nunley II, MD, Durham, NC

This study examines differences across time (pre-op, 1yr, 2yr post-op) and between the surgical and non-surgical sides with respect to gait mechanics, patient reported function and functional ability.

Poster No. P224

Hindfoot Arthroscopy: A Systematic Surgical Approach for Identifying Anatomy and Hindfoot Pathology

Niall A. Smyth, MD, New York, NY
Christopher D. Murawski, New York, NY
David S. Levine, MD, Bedford, NY
John G. Kennedy, MD, New York, NY

We describe a systematic surgical approach for performing hindfoot arthroscopy as well as the clinical results of a case series of 22 patients utilizing this approach.

Poster No. P225

dGEMRIC of Cartilage After AMIC - Aided Reconstruction of Osteochondral Lesions of the Talus

Alternate Paper: Foot and Ankle I: In the Beginning: Basic Science, Trauma, and Diabetes

Martin Wiewiorski, MD, Hedingen, Switzerland
Matthias Miska, MD, 4031, Switzerland
Martin Kretzschmar, MD
Ueli Studler, Basel, Switzerland
Oliver Bieri, PhD, Basel, Switzerland
Victor Valderrabano, MD, Basel, Switzerland

Cartilage quality after AMIC repair of osteochondral lesions of the talus is comparable to other established cartilage repair techniques.

Hand and Wrist

Poster No. P226

Development and Implementation of a Computer Based Hand Outcomes Registry in a Busy Hand Clinic

Alternate Paper: Hand and Wrist III: Nerve, Imaging, and Outcomes Evaluation

Marci D. Jones, MD, Shrewsbury, MA
Patricia Franklin, MD, MBA, MPH, Worcester, MA
Thomas F. Breen, MD, Shrewsbury, MA
Edward R. Calkins, Westborough, MA
John Shufflebarger, MD
Janel E. Milner, BS, Worcester, MA
David C. Ayers, MD, Worcester, MA

Patient reported symptom data is important for clinical management and outcomes research. We demonstrated proof of concept and feasibility of a Hand Clinic Patient Registry in an ambulatory setting.

Poster No. P227

Premenopausal Women with Distal Radius Fractures have Deteriorated Bony Architecture Compared to Controls

Alternate Paper: Hand and Wrist II: Wrist

Tamara D. Rozental, MD, Boston, MA
Laura N. Deschamps, BA, Boston, MA
Alexander Taylor, BA, Boston, MA
Brandon E. Earp, MD, Boston, MA
David Zurakowski, PhD, Boston, MA
Charles S. Day, MD, MBA, Boston, MA
Mary L. Bouxsein, PhD, Boston, MA

Premenopausal women with distal radius fractures exhibit deteriorated trabecular bone microarchitecture compared to non-fracture controls of similar age and race.

Posters

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Poster No. P228
Uncultured Adipose-Derived Regenerative Cells Promote Peripheral Nerve Regeneration at an Early Stage
Seigo Suganuma, MD, Kanazawa, Japan
Kaoru Tada, MD, Kanazawa, Japan
Katsuhiro Hayashi, MD, Nagoya, Japan
Naotoshi Sugimoto, PhD
Akihiko Takeuchi, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

ADRCs promote peripheral nerve regeneration at an early stage. The mechanism does not involve differentiation of ADRCs into Schwann cells but involves secretion of humoral factors.

Poster No. P229
Ultrasound as a First Line Test in the Diagnosis of Carpal Tunnel Syndrome: A Cost-effectiveness Analysis
John R. Fowler, MD, Gibsonia, PA
Mitchell Maltenfort, PhD, Philadelphia, PA
Asif M. Ilyas, MD, Wayne, PA

The AAOS recommends confirmatory testing prior to carpal tunnel surgery. The cost-benefit analysis of EMG versus Ultrasound is performed.

Poster No. P230
Extremity Flap Coverage and Identified Trends Over the Last Decade of War Reconstruction Experience
Scott M. Tintle, MD, Fairfax, VA
Reed Heckert, MD, Bethesda, MD
Jennifer Sabino, MD, Rockville, MD
Mark Fleming, DO, Clarksburg, MD
Ian L. Valerio, MD, MS, MBA, Bethesda, MD

This study will outline the current standards of care the blast-injured patient and the newly identified trends in the numbers and types of flap coverage and limb salvage procedures that have emerged.

Poster No. P231
Analyzing Trapezial Trabecular Microstructure using Flat-panel Volume Computed Tomography
Michael Pouliot, MD, Portola Valley, CA
Amy L. Ladd, MD, Palo Alto, CA
Cameron Barr, MD, Stanford, CA
Rebecca Fahrig, MD, Palo Alto, CA
Robert Cheng, MS, Stanford, CA
Jang-Hwan Choi, Stanford, CA

Flat-panel volume CT is an imaging modality with the capacity for in vivo analysis of trabecular microstructure of the trapezium, with potential utility in understanding and treating CMC arthritis.

Poster No. P232
A Comparison of Two Pyrolytic Carbon Hemiarthoplasty Implants in the Treatment of Trapezial-metacarpal Arthritis
Mark A. Vitale, MD, Brooklyn, NY
Marco Rizzo, MD, Rochester, MN
Steven L. Moran, MD, Rochester, MN

This study compares two different pyrolytic cabon hemiarthroplasty implants in the treatment of trapezial-metacarpal arthritis, with empahsis on motion, strength, complication and revision rates.

Poster No. P233
Intra-Osseous Lunate Cysts: An Incidental Finding or a Surgical Indication?
Brian Henry H. Mahon, BS, Charlottesville, VA
John H. Mahon, MD, South Bend, Indiana

The incidence of lunate cysts in a patient population complaining of wrist pain is equivalent to that in a control group. The presence of a lunate cyst should be considered an incidental finding.

Poster No. P234
American Association of Hand Surgery Complications and Outcomes of Hook-of-Hamate Excision
Jeremy Molligan, MD, Newark, DE
Sidney M. Jacoby, MD, Philadelphia, PA
Abdo Bachoura, MD, Philadelphia, PA
Randall W. Culp, MD, King Of Prussia, PA
A. Lee Osterman, MD, Villanova, PA

Hook-of-Hamate excision is a safe and effective treatment for fracture or non-union of the hamulus. Complications are minimal and patients are expected to return to near complete activity.

Poster No. P235
Association of Ulnar Variance with Lunate Morphology; A Postmortem Specimen Study of 630 Human Cadaveric Wrists
Navkirat Bajwa, Medical Student, Garfield Heights, OH
Nicholas U. Ahn, MD, Shaker Heights, OH

There is significant association between negative ulnar variance and type 1 lunate shape.

Poster No. P236
New Technique for Anatomic Reconstruction of the Scapholunate Ligament with SwiveLock Anchor Fixation
Timothy V. McGrath, MD, Amherst, NY
Nikola Zivaljevic, MD, Buffalo, NY

This new technique for anatomic reconstruction of the dorsal band of the SL-ligament may provide secure enough bone tunnel fixation and obviate the need for prolonged pin fixation and immobilization.

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Poster No. P237
Tenotomy of the Central Extensor Tendon for Extrinsic Tightness of the Hand: Surgical Technique
Christopher Stevens, MD, Alachua, FL
Paul C. Dell, MD, Gainesville, FL

A novel surgical treatment for patients with extrinsic tightness of the hand is to uncouple the intrinsic and extrinsic extensor mechanisms with a central extensor tenotomy.

Poster No. P238
Is There a Relationship Between Radiographic Parameters and a Good Functional Outcome in Distal Radius Fractures?
Alternate Paper: Hand and Wrist I: Hand and Tendon
Dario Perugia, MD, Roma, Italy
Matteo Guzzini, MD, Rome, Italy
Carolina Civitenga, MD, Rome, Italy
Marco Guidi, MD, Capena, Italy
Giuliano Esposito, MD, Roma, Italy
Andrea Ferretti, MD, Rome, Italy

Variations of normal radiographic parameters range, except ulnar variance and volar tilt, don't influence the final functional outcome in distal radius fractures.

Poster No. P239
"Wrist Rhythm" During Wrist Joint Motion Evaluated by Dynamic Radiography
Kaoru Tada, MD, Kanazawa, Japan
Hiroki Kawashima, MS, Kanazawa, Japan
Seigo Suganuma, MD, Kanazawa, Japan
Takeshi Segawa, Kanazawa, Ishikawa, Japan
Shigeru Sanada, PhD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

We evaluated the ratio of motion of radiolunate (RL) and capitolunate (CL) joints during wrist joint motion. In volar flexion, the ratio of the RL and CL motions was approximately 1:4, and in dorsal flexion 2:1.

Poster No. P240
Osteochondral Autograft Transplantation for Articular Defects in the Hand and Wrist
Paul Sibley, DO, Harleysville, PA
Randall W. Culp, MD, King Of Prussia, PA
Sidney M. Jacoby, MD, Philadelphia, PA
Peter F. DeLuca, MD, Philadelphia, PA
Abdo Bachoura, MD, Philadelphia, PA

The osteochondral autograft transfer system (OATS) is an acceptable procedure for focal articular defects in the hand and wrist of high demand patients.

Pediatrics

Poster No. P241
Normal Parameters of Skeletally Immature Knees: Developmental Changes on Magnetic Resonance Imaging
Mary Bathen
Tracey Bastrom, MA, San Diego, CA
Eric W. Edmonds, MD, San Diego, CA

A MRI study of normal development finding that the patella height is not normal until age 10; and that, the MPFL insertion is below the physis until age 7 when it inserts at or above the physis.

Poster No. P242
Can Patients Expect to Have the Same Activity Level following a Periacetabular Osteotomy?
Henry B. Ellis Jr, MD, Dallas, TX
Adriana De La Rocha, MS, Dallas, TX
Philip L. Wilson, MD, Plano, TX
David A. Podeszwa, MD, Dallas, TX
Daniel J. Sucato, MD, Dallas, TX

A Ganz periacetabular osteotomy for hip dysplasia can be performed with improved symptoms and a majority of patients returning to the same or improved level of activity.

Poster No. P243
◆Is There a Significant Increase in Thoracic Height after Growing Rod Surgery for Early Onset Scoliosis?
Behrooz A. Akbarnia, MD, La Jolla, CA
Nima Kabirian, MD, San Diego, CA
Jeff Pawelek, La Jolla, CA
Daniel Zhang, BS, Rockville, MD
Gregory Redding, MD, Seattle, WA
John B. Emans, MD, Boston, MA
Suken A. Shah, MD, Wilmington, DE
Charles E. Johnston II, MD, Dallas, TX

Growing rod surgery has been shown to significantly increase thoracic height. The majority of patients reached an adequate thoracic height based on their age after a minimum of three lengthenings.

Poster No. P244
Assessment of Rib Hump Deformity Correction in Adolescent Idiopathic Scoliosis with or without Costoplasty
Alternate Paper: Pediatrics III: Spine
Marios Lykissas, MD, Cincinnati, OH
Alvin H. Crawford, MD, Cincinnati, OH
Vivek Sharma, MD, Hays, Kansas

Costoplasty combined with pedicle screws and vertebral derotation may significantly improve rib hump deformity as measured with the rib index and the double rib contour sign.

Poster No. P245
Thromboembolic Complications in Children with Spinal Fusion Surgery
Amit Jain, MD, Baltimore, MD
Paul D. Sponseller, MD, Baltimore, MD

The incidence of developing thromboembolic complications after pediatric spinal fusion surgery is about 0.19%.

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Poster No. P246
Short Leg Casting for Isolated Fractures of the Pediatric Tibial Shaft
Drew Brown IV, MD, Honolulu, HI
Nicholas Scarcella, MD, Honolulu, HI
Byron H. Izuka, MD, Aiea, HI

We found that short leg casting is a safe and effective option that resulted in universal bony healing without any fracture displacement during treatment.

Poster No. P247
Health Disparities in Patients Undergoing Treatment for Idiopathic Clubfoot
Alternate Paper: Pediatrics IV: Foot-Lower Extremity-Miscellaneous
Rachel Y. Goldstein, MD, Los Angeles, CA
Suezie Kim, MD, San Clemente, CA
Debra A. Sala, PT, New York, NY
Wallace B. Lehman, MD, New York, NY
Alice Chu, MD, Livingston, NJ

Patients with public insurance have poorer clubfoot severity scores than those with private insurance after treatment of idiopathic clubfoot by the Ponsetti method.

Poster No. P248
The Etiology of Childhood Limp Presenting to an Urban Pediatric Hospital Emergency Department
Alternate Paper: Pediatrics I: Hip-Lower Extremity
John R. Fowler, MD, Gibsonia, PA
Chris Williamson, MD, Wyndmoor, PA
Matthew Kleiner, MD, Philadelphia, PA
Christopher Klifto, MD, New York, NY
Giacomo Cappelleti, MD, Brooklyn, NY
Martin J. Herman, MD, Philadelphia, PA

The child who presents with a limp or inability to bear weight is a diagnostic dilemma for the evaluating physician often requiring a costly diagnostic work-up.

Poster No. P249
◆What is the Effect of Growing Rod Lengthening on the Sagittal Profile and Pelvic Parameters in Early Onset Scoliosis?
Suken A. Shah, MD, Wilmington, DE
Ali F. Karatas, MD, Wilmington, DE
Arjun Dhawale, MD, South Miami, FL
Ozgur Dede, MD, Pittsburgh, PA
Laurens Holmes, PhD, Wilmington, DE
Petya Yorgova, MS, Wilmington, DE
Geraldine Neiss, PhD, Wilmington, DE
Gregory M. Mundis, MD, San Diego, CA
Jeff Pawelek, La Jolla, CA

Serial lengthening of growing rods resulted in a decrease in thoracic kyphosis, increase in lumbar lordosis and improved sagittal without an appreciable incidence of PJK.

Poster No. P250
Use of Incisional Wound-vac Following Major Hip Surgery in Pediatric Patients with High Body Mass Index
Krishnamoorthy Venkatadass, MBBS, MS, San Diego, CA
Bernd Bittersohl, MD, Duesseldorf, Germany
Eric D. Fornari, MD, New York, NY
Harish S. Hosalkar, MD, San Diego, CA

The use of incisional wound-vac in obese pediatric patients after major hip surgery resulted in a significantly lower risk of infection and a lower incidence of abnormal hypertrophic scar formation.

Poster No. P251
The Trend of Pediatric Sports and Recreational Injuries in the U.S. in the Last Decade
Alternate Paper: Pediatrics II: Trauma-Infection-Miscellaneous
Shital Parikh, MD, Cincinnati, OH

A query of the National Electronic Injury Surveillance System was conducted to examine the incidence rate of injuries related to the top 8 injury-causing sports according to the CDC.

Poster No. P252
Increased Tibial Torsion and its Implications on the Patellofemoral Joint
Gustavo Valenzuela, MD, Taylor, MI
Neil Patel, MD, Taylor, MI
Rakesh Ramakrishnan, MD, Taylor, MI
Richard Valenzuela, MD, Plymouth, MI
Robert A. Teitge, MD, Dearborn, MI

Abnormal tibial torsion is a very important factor in the development of patellofemoral dysfunction.

Poster No. P253
Acetabular Morphology in Slipped Capital Femoral Epiphysis: A Computed Tomography Study
Shafagh Monazzam, MD, San Diego, CA
Venkatadass Krishnamoorthy, MBBS, MS, San Diego, CA
Bernd Bittersohl, MD, Duesseldorf, Germany
James D. Bomar, San Diego, CA
Harish S. Hosalkar, MD, San Diego, CA

This study demonstrated superior acetabular retroversion in SCFE affected hip and overall increase in lateral center-edge angle in both hips in patients with SCFE.

Poster No. P254
Stretched Sarcomeres May Contribute to Contracture in Cerebral Palsy
Margie Mathewson, MS, San Diego, CA
Samuel R. Ward, PhD, La Jolla, CA
Henry G. Chambers, MD, San Diego, CA
Richard L. Lieber, PhD, La Jolla, CA

In muscle fibers of similar length, serial sarcomere number in cerebral palsy was nearly half that of typically developing fibers, suggesting that CP contractures may be related to deforming forces.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P255
Narrowing of the Regenerate as a Sign of Impending Fracture after Distraction Osteogenesis
Kacey Perkins Tift, MD, Fountain Valley, CA
Robert H. Cho, MD, Los Angeles, CA
Anna V. Cuomo, MD, Los Angeles, CA
Colin F. Moseley, MD, Los Angeles, CA

Fracture risk after distraction osteogenesis is significantly higher if the regenerate width is less than 80% of the adjacent bone--weight bearing precautions should be observed after device removal.

Poster No. P256
Imaging Overestimates Screw Tip-Subchondral Distance in Slipped Capital Femoral Epiphysis Fixation
Michael J. Heffernan, MD, Worcester, MA
Benjamin M. Snyder, MD, Worcester, MA
Hanbing Zhou, MD, Worcester, MA
Errol S. Mortimer, MD, Worcester, MA

CT provided a more accurate measurement of screw tip to subchondral bone distance compared to fluoroscopy, however both studies overestimated the true anatomic distance in this cadaveric SCFE model.

Poster No. P257
Plastic Surgery-Assisted Management of Spinal Surgical Site Infection Reduces Risk of Implant Removal by 45%
Karen S. Myung, MD, Indianapolis, IN
Kent Yamaguchi, Los Angeles, CA
Jeffrey A. Hammoudeh, DDS, MD, Los Angeles, CA
Vernon T. Tolo, MD, Los Angeles, CA
David L. Skaggs, MD, Los Angeles, CA

Retrospective, single-center study showing spinal implants can be retained in delayed and acute spinal surgical site infection and a new management protocol almost doubles implant retention rate.

Poster No. P258
Management of Sternoclavicular Dislocations and Medial Clavicular Fractures in Adolescents
Michal L. Taylor, MD, Highlands Ranch, CO
Patrick Carry, Aurora, CO
Courtney A. Holland, MD, El Paso, TX
Frances Tepolt, Greenwood Village, CO
Nancy H. Miller, MD, Aurora, CO

Among adolescents, sternoclavicular joint injuries are more frequently displaced in a posterior than anterior direction and are more likely to be a medial clavicular physeal fracture than a true stern.

Poster No. P259
Operative Idiopathic Early Onset Scoliosis (IEOS) and AIS Curves Have Different Characteristics
Mark J. McElroy, BS, MS, Baltimore, MD
Paul D. Sponseller, MD, Baltimore, MD
Sara K. Fuhrhop, BS, Baltimore, MD
Peter O. Newton, MD, San Diego, CA
Michelle Marks, NMD, Tucson, AZ
James O. Sanders, MD, Rochester, NY
Behrooz Akbarnia, La Jolla, CA

Curve characteristics were compared in patients with IEOS and AIS. They differed in kyphosis, stable vertebra, and primary curve parameters. With a modified Lenke system, curve distribution differed.

Poster No. P260
Physeal Gene Expression and Structure from Different Anatomic Regions in Two Species
Steven A. Widmer, MD, Wadsworth, OH
Robin Jacquet, Akron, OH
Mark Shasti, BS, Akron, OH
William J. Landis, Akron, OH
Mark J. Adamczyk, MD, Akron, OH
Melanie Morscher, Akron, OH
Richard Steiner, PhD, Akron, OH
Dennis S. Weiner, MD, Akron, OH

No significant gene expression differences (aggrecan, type II collagen) were found in physes from 3 different anatomic regions in 2 species, supporting the use of these physes as equivalent controls.

Practice Management and Rehabilitation

Poster No. P261
Optimizing Orthopaedic Surgical Start Times - Using Lean Manufacturing Principles to Create Value
Naven Duggal, MD, Boston, MA
Elena G. Canacari, RN, Boston, MA
Ross W. Simon, BA, Boston, MA

Optimizing orthopaedic surgical times using Lean manufacturing principles has been shown to not only improve overall operating room efficiency but also minimize delays and improve patient safety.

Poster No. P262
Changes of the Incidence of Falls in Patients with Rheumatoid Arthritis after Orthopaedic Lower Limb Surgery
Kengo Harigane, MD, Yokohama, Japan
Yuichi Mochida, MD, Zushi, Kanagawa, Japan
Katsushi Ishii, MD
Naoto Mitsugi, MD, Yokohama, Japan
Tomoyuki Saito, MD, Yokohama, Japan

The rate of falls was decreased in 30% of the patients after surgery. The history of lower limb surgery was negative risk factor.

Posters

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Poster No. P263

Effectiveness of the WHO Surgical Safety Checklist in High-risk Patients in a High Income Country

Alternate Paper: Practice Management/ Rehabilitation III: Education

Anne Lubbeke-Wolff, MD, DSc, Geneva , Switzerland
Pierre J. Hoffmeyer, MD, Geneve, Switzerland
Bernhard Walder, MD, Geneva, Switzerland

Reduced reoperations for SSI were observed after checklist implementation; however, its use did not reduce unplanned return to OR, unplanned admission to ICU and 30-day mortality in high risk patients.

Poster No. P264

Compliance with AAOS Clinical Practice Guidelines: An Analysis of ASSH Members

Alternate Paper: Practice Management/Rehabiliation II: Risk Management and Health Care Policy

Jonas L. Matzon, MD, Philadelphia, PA
Michael Maloney, BA, Philadelphia, PA
Pedro K. Beredjiklian, MD, Philadelphia, PA

ASSH members are not universally adhering to the AAOS clinical practice guidelines involving upper extremity conditions.

Poster No. P265

PedsQL Correlates to PODCI in Pediatric Orthopaedic Outpatient Clinic

Alternate Paper: Practice Management/Rehabilitation I: Quality Improvement

Susan T. Mahan, MD, Boston, MA
Leslie A. Kalish, ScD, Boston, MA
Patricia L. Connell, MPH, Boston, MA
Marie Harris, MPH, Boston, MA
Zainab Abdul-Rahim, BA, Worcester, MA
Peter M. Waters, MD, Boston, MA

In the pediatric orthopedic outpatient clinic we found the PedsQL correlated to the PODCI in patients with fractures and brachial plexus palsy.

Poster No. P266

Constant Score and Simple Shoulder Test Correlate with Meeting of Expectations in Shoulder Surgery

Joan Miquel, Barcelona, Spain
Sara Martinez-Martos, Barcelona, Spain
Fernando Santana Perez SR, MD, Barcelona, Spain
Lluis Puig, Barcelona, Spain
Carlos Torrens, MD, Castelldefels, Spain

The improvement of Constant Score and Simple Shoulder Test can be used to reflect patient satisfaction and meeting of preoperative expectations in patients undergoing shoulder surgery.

Poster No. P267

Diagnostic and Triage Concordance Between an Advanced Practice Physiotherapist and Orthopedic Surgeons

Panagiota Toliopoulos, BS, Montreal, QC, Canada
Francois Desmeules, PT, PhD, Montreal, QC, Canada
Julio C. Fernandes, MD, Montreal, QC, Canada
Marc Lacelle, Laval, QC, Canada
Manon Leroux, Pierrefonds, QC, Canada
Steven Girard, MSc, PT, Montreal, QC, Canada
Jean Sébastien Roy, PhD, PT, Quebec, QC, Canada
Linda June J. Woodhouse, PT, PhD, Edmonton, AB, Canada

Orthopedic surgeons and advanced practice physiotherapists have similar diagnostic and triage capabilities; a new model where these two professionals work together to reduce waiting times is feasible.

Poster No. P268

Personal Protection Helmet Systems - The Surgical Greenhouse Effect

Simon Chambers, MBBS, Newcastle, United Kingdom
Daniel J. Dowen, MBBS, Newcastle Upon Tyne, United Kingdom
Andrew McHutchon, MB, ChB, North Shields, United Kingdom
Derek J. Kramer, MD, Morpeth, United Kingdom

Personal protection helmet systems can lead to rebreathing of carbon dioxide by the surgeon. Inspired carbon dioxide levels can exceed workplace safety limits.

Poster No. P269

Bundled Payments in TJA: Targeting Opportunities for Quality Improvement and Cost Reduction

Kevin J. Bozic, MD, MBA, San Francisco, CA
Lorrayne Ward, MBA, San Francisco, CA
Thomas P. Vail, MD, San Francisco, CA
Mervyn Maze, MB, ChB, San Francisco, CA

Episode of care payments for TJA procedures vary widely depending on the type of procedure (e.g., primary vs. revision), patient comorbidities, discharge disposition, and readmission rates.

Poster No. P270

Implant Problems and Recalls in Devices Approved Through the 510K Process: Analysis of the Online FDA Database

Stephen Y. Liu, MD, Philadelphia, PA
Jason Hsu, MD, Philadelphia, PA
Tristan Wibbey, Philadelphia, PA
Gwo-Chin Lee, MD, Philadelphia, PA

substantial number of recalls of implantable orthopedic devices in the FDA 510K database are related to manufacturing flaws resulting in inferior packaging, instrumentation, trials or devices.

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Poster No. P271
Business and Practice Management Knowledge Deficiencies in Graduating Orthopaedic Residents
Doyle J. Miller, MD, Memphis, TN
Thomas W. Throckmorton, MD, Germantown, TN
Frederick M. Azar, MD, Memphis, TN
James H. Beaty, MD, Memphis, TN
S. Terry Canale, MD, Germantown, TN
David R. Richardson, MD, Memphis, TN

Orthopaedic surgeons report a large deficit in business and practice management knowledge at the time of residency completion.

Poster No. P272
Changes of Body Balance before and after Total Knee Arthroplasty in Patients with Bilateral Knee Osteoarthritis
Yoshinori Ishii, MD, Gyoda Saitama, Japan
Hideo Noguchi, MD, Gyoda-Shi, Japan
Mitsuhiro Takeda, MD, Gyoda, Saitama, Japan
Junko Sato, PhD, Gyoda, Saitama, Japan

This study evaluated the changes of body balance using a gravicorder before and after TKA in bilateral knee osteoarthritis patients and clarified the difference of recovery of balance between uni- and

Poster No. P273
The Economic Conundrum of Private Practice Orthopaedic Surgery
Alberto D. Cuellar, MD, Houston, TX

The deteriorating financial trend of the orthopaedic group may be leveling off primarily due to the effects of ancillary services; however, net income from professional services continues to decline.

Poster No. P274
Paperwork and Patient Care: A Nationwide Survey of Orthopedic Surgeons
Melissa A. Christino, MD, Providence, RI
Andrew P. Matson, BA, Coventry, RI
Steven E. Reinert, MSc, Providence, RI
Christopher W. DiGiovanni, MD, Providence, RI
Paul Fadale, MD, Providence, RI

In a survey of Orthopedic Surgeons, documentation requirements were reported as excessive with perceived negative effects on patient care, surgeon well-being, time for teaching, and resident education.

Poster No. P275
◆Internet-based Outpatient Telerehabilitation for Patients Following Total Hip Arthroplasty - A Case Control Study
Wojciech Glinkowski, MD, PhD, Warszawa, Poland
Karolina Krawczak, PT, Warszawa, Poland
Dominika Cabaj, Warsaw, Poland
Katarzyna Walesiak, Warszawa, Poland
Anna Czyzewska, MPH, Warsaw, Poland
Andrzej Gorecki, PhD, Warszawa, Poland

Thirty nine patients who have had a total hip replacement received an Internet-based telerehabilitation program of physical therapy. The results confirmed effectiveness of telerehabilitation.

Poster No. P276
Physiotherapist Support in Fracture Clinics - An Effective Solution for Better Service?
Karthik S. Sivasankaran, MBBS, MRCS, Sheffield, United Kingdom
Kim Atkinson, Hull, United Kingdom
Nagarajan Muthukumar, FRCS, East Yorkshire, United Kingdom

Introduction: Considerable strain is felt among the fracture clinic staff due to increasing patient referrals. With limited number of specialist doctors, physiotherapists can play an important role in managing soft tissue injuries.

Poster No. P277
Race, Insurance Status and Ethnicity are Predictors of Morbidity and Mortality Following Spine Trauma
Andrew J. Schoenfeld, MD, Canutillo, TX
Aaron A. See, DO, El Paso, TX
Philip J. Belmont Jr, MD, El Paso, TX
Christopher M. Bono, MD, Boston, MA

This is the first study to postulate predictors of morbidity and mortality after spinal trauma in a national model. Race/ethnicity and insurance status appear to exert adverse influence on outcomes.

Poster No. P278
Making the 22 Modifier Work: A Matter of Education?
Patrick F. Bergin, MD, Madison, MS
Christopher J. Kneip, MD, Flowood, MS
Christine W. Pierce, MD, Jackson, MS
Steven T. Hendrix, MD, Jackson, MS
Scott E. Porter, MD, Greenville, SC
Matthew L. Graves, MD, Jackson, MS
George V. Russell Jr, MD, Jackson, MS

Using the 22 modifier in morbidly obese acetabular fractures resulted in increased reimbursement when combined with an effort to educate our largest insurer on the increased time and effort needed.

Poster No. P279
Factors Influencing Patient Willingness to Pay for New Technologies in Hip and Knee Implants
Ran Schwarzkopf, MD, Irvine, CA
Fabio M. Sagebin, BS, New York, NY
Raj Karia, MPH, New York, NY
Karl Koenig, MD, Hanover, NH
Joseph A. Bosco III, MD, New York, NY
James D. Slover, MD, New York, NY

The study demonstrated that patients, regardless of their socio-economic status, are not satisfied with standard of care implants when newer technologies are available, and they may be willing to share.

Posters

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Poster No. P280
Correlation between High- and Low-sensitivity C-Reactive Protein after Total Joint Arthroplasty
Atul F. Kamath, MD, Rochester, MN
Michael T. Milone, Philadelphia, PA
Craig L. Israelite, MD, Philadelphia, PA

Although Hs-CRP is likely an equivalent marker to Ls-CRP in the assessment of infection after total joint arthroplasty, the additional cost and influence of co-morbidities must be further defined.

Poster No. P281
An Economic Analysis of a Sustainable Approach to Orthopedic Trauma Care Education in Developing Countries
Lucas C. Carlson, BA, Cockeysville, MD
Gerard Slobogean, MD, MPH, Toronto, ON, Canada
Andrew N. Pollak, MD, Baltimore, MD

Economic analysis of an orthopedic surgery training program developed for Haiti suggests it to be a highly cost-effective intervention to strengthen orthopedic care in low and middle income settings.

Poster No. P282
Revision Hip Replacement in 55 Years of Age and Younger
Sujith Konan, MRCS, London, United Kingdom
Fares S. Haddad, FRCS, London, United Kingdom

Revision of hip arthroplasty in patients below 55 years is associated with improvement in function and patient satisfaction

Poster No. P283
Medical Provider Impressions of Surgeon Reimbursement for Common Orthopedic Procedures
Kristina Linnea Welton, MD, Ann Arbor, MI
M. Mustafa Gomberawalla, MD, Ann Arbor, MI
Gregory Graziano, MD, Ann Arbor, MI
Rakesh Patel, MD, Ann Arbor, MI

Knowledge is lacking among medical providers regarding orthopedic surgeon reimbursement and global billing periods. Despite over-estimating payment, most felt orthopedists are properly compensated.

Poster No. P284
The AAOS Political Action Committee: How Do We Compare to the Trial Lawyers?
Michael W. Aversano, MD, East Northport, NY
Roshan P. Shah, MD, JD, Philadelphia, PA
John M. Froelich, MD, Denver, CO
Stuart L. Weinstein, MD, Iowa City, IA
Samir Mehta, MD, Philadelphia, PA

The AAOS Political Action Committee is stronger in some aspects and weaker in others, when compared to the trial lawyer PAC. The AAOS PAC membership is smaller but gets a larger donation per member.

Poster No. P285
The Value of Using the Risk Assessment and Prediction Tool in Planning Care after Total Hip and Knee Arthroplasty
Viktor Hansen, MD, Boston, MA
Marc A. Bragdon, Boston, MA
Pamela Tobichuk, Boston, MA
Lauren M. Lebrun, MPH, Boston, MA
Robert Dorman, Boston, MA
Janet Dorrwachter, MSN, ANP, Boston, MA
Charles R. Bragdon, PhD, Boston, MA
Henrik Malchau, MD, Boston, MA
Andrew A. Freiberg, MD, Boston, MA

3,973 THA and TKA patients with RAPT Scores were analyzed to assess validity of the score, and correlation to LOS.

Shoulder and Elbow

Poster No. P286
Cost Analysis of Hemiarthroplasty versus Reverse Shoulder Arthroplasty for Fractures in the Elderly
Jason Solomon, MD, Cleveland Heights, OH
Benjamin Szerlip, DO, Lyndhurst, OH
Stephanie Muh, MD, Birmingham, MI
John Paul Wanner, BS, Wauwatosa, WI
John H. Wilber, MD, Cleveland, OH
Brian N. Victoroff, MD, Cleveland, OH
Reuben Gobezie, MD, Cleveland, OH
Robert J. Gillespie, MD, Shaker Heights, OH

Reverse total shoulder arthroplasty restores function to the same level as hemiarthroplasty for complex 3 or 4-part proximal humerus fractures despite an increase in cost to the patient and hospital.

Poster No. P287
Strength Recovery and Repair Integrity after Arthroscopic Repair for Full-thickness Subscapularis Tendon Tear
Nobuaki Kawai, MD, Funabashi, Japan
Hiroyuki Sugaya, MD, Chiba, Japan
Norimasa Takahashi, MD, Funabashi, Japan
Tanaka Motoki, Funabashi, Japan
Wataru Iwamoto, MD, Tokyo, Japan
Soichiro Kitayama, Funabashi, Japan

Strength recovery and repair integrity after arthroscopic standard footprint reconstruction for full-thickness subscapularis tendon tears was investigated and their relationship was analyzed.

Poster No. P288
Risk Factors for Infection After Rotator Cuff Repair: A Case Controlled Study
Byung J. Lee, MD, Providence, RI
Patrick Kane, MD, Providence, RI
Bryan G. Vopat, MD, Providence, RI
Stacey E. Gallacher, MD, Providence, RI
Sherilyn DeStefano, Evanston, IL
Andrew Green, MD, Providence, RI

The results of this case control study suggest that open or mini open surgical technique, worker's compensation insurance claim, and male gender are risk factors for infection after rotator cuff repair.

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Poster No. P289

◆Biomechanical Characterization of an All-Polyethylene Pegged Bone In-Growth Glenoid: Is Cementation Necessary?

James E. Moravek Jr, MD, Palos Hills, IL
Brett P. Wiater, MD, Birmingham, MI
Michael Kurdziel, MS, Royal Oak, MI
Kevin Baker, PhD, Royal Oak, MI
J. Michael Wiater, MD, Beverly Hills, MI

Cemented fixation of an in-growth all-polyethylene glenoid component provides greater initial fixation compared to press-fit glenoids in a biomechanical model.

Poster No. P290

Evaluation of Suture Slippage with Knotless Suture Anchors in Rotator Cuff Repair

Alternate Paper: Shoulder and Elbow II: Rotator Cuff II

David Paller, MS, Providence, RI
Anthony Avery, MD, Mc Lean, VA
Bryan G. Vopat, MD, Providence, RI
Sarath C. Koruprolu, MS, Providence, RI
Paul Fadale, MD, Providence, RI

Knotless suture anchors using an internal ratcheting locking mechanism reported significantly less suture slippage compared to anchors using an interference fit locking technique in a dynamic model.

Poster No. P291

Glenoid Far Cortex Perforation by Most Inferior Anchor in Arthroscopic Bankart Repair; A Cadaveric Study

Alternate Paper: Shoulder and Elbow V: Instability, Fractures, and Shoulder Stiffness

Tae Kang Lim, MD, Gunpo, Republic of Korea
Kyoung-Hwan Koh, MD, Seoul, Republic of Korea
Min Soo Shon, MD, Seoul, Republic of Korea
Young Eun Park, Seoul, Republic of Korea
Jae-Chul Yoo, MD, Seoul, Republic of Korea

The most inferior anchor in arthroscopic Bankart repair with standard technique has a high risk of perforating the inferior far cortex of the glenoid neck

Poster No. P292

◆Effect of Head Shape on Joint Kinematics and Translation with a Conforming and Non-Conforming Glenoid Component

Bong-Jae Jun, MS, Cleveland, OH
Joseph P. Iannotti, MD, PhD, Cleveland, OH
Ryan Quigley, BS, Long Beach, CA
Sang-Jin Shin, MD, Seoul, Korea, Republic of
Michelle H. McGarry, MD, Long Beach, CA
Thay Q. Lee, PhD, Long Beach, CA

The use of the non-spherical head with a conforming glenoid component could allow the natural translation motion with improved stability and may further decrease the risk of rim loading.

Poster No. P293

Effect of Adipose-derived Stem Cell for Improvement of Fatty Degeneration and Rotator Cuff Healing in Rabbit Model

Oh Joo Han, MD, Seongnam, Republic of Korea
Seok Won Chung, MD, Seongnam, Republic of Korea
Sae Hoon Kim, MD, Seoul, Republic of Korea
Jong Pil Yoon, MD, Daegu, Republic of Korea
Hye Yeon Choi, Seongnam-Si, Republic of Korea
Jun Ha Choi, MD, Seongnam-Si, Republic of Korea
Nam Yun Chung, Seongnam-Si, Republic of Korea

The local administration of adipose-derived stem cells might have the possibility to improve tendon healing and decrease muscle atrophy and fatty degeneration after cuff repair.

Poster No. P294

Infected Total Elbow Arthroplasty: Outcomes of a Staged Surgical Protocol for Component Retention

Alternate Paper: Shoulder and Elbow VI: Elbow Disorders

Philipp N. Streubel, MD, Rochester, MN
Juan P. Simone, MD, Buenos Aires, Argentina
Bernard F. Morrey, MD, San Antonio, TX
Joaquin Sanchez-Sotelo, MD, Rochester, MN

A staged protocol in the management of infected linked total elbow arthroplasties can be successful in retaining stable implants in approximately 80% of the cases.

Poster No. P295

The Four-year Cost and Clinical Outcomes of Reverse Shoulder Arthroplasty for Treatment of Rotator Cuff Deficiency

Nazeem Virani, MD, MPH, Tampa, FL
Christopher Williams, Temple Terrace, FL
Rachel Clark, BA, Tampa, FL
John Polikandriotis, Tampa, FL
Katheryne Downes, MPH, Tampa, FL
Mark A. Frankle, MD, Temple Terrace, FL

After 4-years follow-up, treatment with Reverse Shoulder Arthroplasty allowed greater than 5-fold pain reduction and almost double functional improvement with a small risk of harm at a cost of $24,661

Poster No. P296

Persistent Bicipital Groove Pain After Tenotomy: Is a Retained Long Head Tendon the Source of Pain?

Michael Knesek, MD, Ann Arbor, MI
Elizabeth R. Sibilsky Enselman, MEd, ATC, Ann Arbor, MI
Robert Coale, MD, Rocky River, OH
Yoav Morag, MD, Ann Arbor, MI
Joshua Dines, MD, Great Neck, NY
Bruce S. Miller, MD, MS, Ann Arbor, MI
Christopher L. Mendias, PhD, ATC, Ann Arbor, MI
Asheesh Bedi, MD, Ann Arbor, MI

The long head of the biceps tendon is a well-known cause of pain within the shoulder; the location of the tendon stump within the groove is a possible cause of persistent pain following tenotomy.

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Poster No. P297
Multiple and Prolonged Cultures During Shoulder and Elbow Revision Arthroplasty: Impact on Antibiotic Treatment
Alexander DeHaan, MD, Portland, OR
Zachary Domont, MD, Portland, OR
Michael Kuhne, MD, Portland, OR
Adam Mirarchi, MD, Lake Oswego, OR
Penelope Barnes, MBBS, PhD, Portland, OR
Robert M. Orfaly, MD, Portland, OR

5 or more biopsies held for 10 day incubation altered antibiotic management in 27% of shoulder and elbow revision arthroplasty cases, while predicting joint sterility 93% of the time.

Poster No. P298
Corrective Osteotomy with Anterior Transposition of Ulnar Nerve for Cubitus Valgus with Tardy Ulnar Nerve Palsy
Yun-Rak Choi, MD, PhD, Seoul, Republic of Korea
Hojung Kang, Seoul, Republic of Korea
Il-Hyun Koh, Gyenggi-Do, Republic of Korea
Yong-Min Chun, MD, Seoul, Republic of Korea

We investigated the clinical and radiologic results after the combined surgery in adult patients with traumatic cubitus valgus deformity and tardy ulnar nerve palsy.

Poster No. P299
Target Range of Motion at Three Months after Rotator Cuff Repair and Its Effect on the Final Outcome
Hisahiro Tonotsuka, MD, Hadano City, Kanagawa, Japan
Hiroyuki Sugaya, MD, Chiba, Japan
Norimasa Takahashi, MD, Funabashi, Japan
Nobuaki Kawai, MD, Funabashi, Japan
Keishi Marumo, MD, Tokyo, Japan

ROM at 3 months after arthroscopic rotator cuff repair significantly affects final shoulder function. We set minimum acceptable forward flexion and external rotation at 3 months as the target ROM.

Poster No. P300
Durability of Partial Humeral Head Resurfacing
Alternate Paper: Shoulder and Elbow IV: Shoulder Arthritis and Anatomic Shoulder Arthroplasty
Ruth A. Delaney, MD, Boston, MA
Michael T. Freehill, MD, Winston-Salem, NC
Laurence D. Higgins, MD, Boston, MA
Jon JP Warner, MD, Boston, MA

Although statistically significant improvements were found in some patients at latest follow-up after partial resurfacing 25.6% had failed and either required revision or a revision had been performed.

Poster No. P301
Heterotopic Ossification in Open Periarticular Combat-related Elbow Fractures
Kevin Wilson, MD, Bethesda, MD
Jonathan F. Dickens, MD, Bethesda, MD
Scott M. Tintle, MD, Fairfax, VA
Reed Heckert, MD, Bethesda, MD
John J. Keeling, MD, Chevy Chase, MD
Romney C. Andersen, MD, Stafford, VA
Benjamin K. Potter, MD, Bethesda, MD

High rates of heterotopic ossification present in combat related elbow fractures despite prophylaxis.

Poster No. P302
Radial Head Instability Following Malalignment of the Proximal Ulna: A Biomechanical Study
Emilie Sandman, MD, Outremont, QC, Canada
Fanny Canet, Montreal, QC, Canada
Yvan Petit, PhD, Montreal, QC, Canada
George Y. Laflamme, MD, Montreal, QC, Canada
George S. Athwal, MD, London, ON, Canada
Dominique Rouleau, MD, Montreal, QC, Canada

This study demonstrates the importance of anatomic reconstruction of the proximal ulna for each individual's unique proximal ulna dorsal angulation, since malalignment leads to radial head instability.

Poster No. P303
Biomechanical Comparison of the Trapezius Transfer and Latissimus Transfer for Irreparable Massive Cuff Tears
Reza Omid, MD, Los Angeles, CA
Nathanael D. Heckmann, Long Beach, CA
Lawrence C. Wang, Orange, CA
Michelle H. McGarry, MD, Long Beach, CA
C. Thomas Vangsness Jr, MD, Los Angeles, CA
Thay Q. Lee, PhD, Long Beach, CA

Trapezius transfer for massive cuff tear restores native glenohumeral forces better than the latissimus transfer by recruiting an exogenous force across the glenohumeral joint.

Poster No. P304
Influence of Preoperative Musculotendinous Junction Position on Rotator Cuff Healing
Robert Z. Tashjian, MD, Salt Lake City, UT
Man Hung, PhD, Salt Lake City, UT
Robert T. Burks, MD, Salt Lake City, UT
Patrick Greis, MD, Salt Lake City, UT

Preoperative rotator cuff musculotendinous junction position is predictive of postoperative cuff healing.

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Poster No. P305

Low Transcondylar Fractures of the Distal Humerus: Results of Open Reduction and Internal Fixation

Juan P. Simone, MD, Buenos Aires, Argentina
Philipp N. Streubel, MD, Rochester, MN
Bernard F. Morrey, MD, San Antonio, TX
Joaquin Sanchez-Sotelo, MD, Rochester, MN

The results of our study indicate that internal fixation of low transcondylar fractures of the distal humerus is associated with a high union rate and satisfactory clinical results.

Poster No. P306

Scapular and Clavicular Kinematics in the Acromioclavicular Joint Injury Model: A Whole Cadaver Study

Satoshi Oki, Tokyo, Japan
Noboru Matsumura, MD, Tokyo, Japan
Wataru Iwamoto, MD, Tokyo, Japan
Hiroyasu Ikegami, MD, PhD, Tokyo, Japan
Toshiyasu Nakamura, MD, Tokyo, Japan
Yoshimori Kiriyama, PhD, Tokyo, Japan
Yoshiaki Toyama, Tokyo, Japan
Takeo Nagura, MD, Tokyo, Japan

We revealed that disruption of the acromioclavicular and coracoclavicular ligaments affected kinematics of the shoulder girdle in the whole cadaver models.

Poster No. P307

Response and Results of Patients with Symptomatic Chronic Massive Rotator Cuff Tears to Non-Operative Management

Gordon I. Groh, MD, Asheville, NC
Griffin M. Groh, Fairview, NC

Non-operative management of symptomatic massive rotator cuff tears yielded patient satisfaction in 52% of the study group. Further study is indicated to delineate variables which afford success.

Poster No. P308

◆Does Reverse Shoulder Need a Stem? Two to Seven Years Follow Up with Stemless Reversed Shoulder Prosthesis

Ofer Levy, MD, Henley-On-Thames, United Kingdom
Ehud Atoun, MD, Kochav Michael, Israel
Ali Narvani, MB BS, London, United Kingdom
Ruben Abraham, MD, FRCS, Reading, United Kingdom
Nir Hous, MD
Tirtza Even, MD, Reading, United Kingdom
Jai Relwani, MD, West Malling, Kent, United Kingdom
Stephen A. Copeland, FRCS, Reading, United Kingdom
Giuseppe Sforza, MD, Reading, United Kingdom

2-7 years excellent mid-term results with a different reversed prosthesis: A stemless prosthesis with metaphyseal fixation. It seem that there is no need for a stem in reverse shoulder replacement.

Poster No. P309

Four-part Fracture Dislocations of the Proximal Humerus in Young Adults: Results of Fixation

Mohamed Omar A. Soliman, Prof., Cairo, Egypt
Wael Koptan, MD, Cairo, Egypt
Yasser H. El Miligui, MD, FRCS, Cairo, Egypt
Mohammad M. El-Sharkawi, MD, Assiut, Egypt

In 39 patients younger than 40 years of age with four- part fracture dislocations treated with open reduction and fixation, anatomical reduction and rigid fixation can lead to satisfactory results.

Poster No. P310

◆Hyaluronic Acid Accelerates Tendon-to-bone Healing at the Repaired Site in Rabbits

Yasuhiro Mitsui, Kurume, Japan
Masafumi Gotoh, MD, PhD, Kurume, Japan
Hideaki Shibata, MD, Fukuoka, Japan
Tomonoshin Kanazawa, MD, PhD, Kurume, Japan
Hidehiro Nakamura, MD, Kurume Fukuoka, Japan
Takahiro Okawa, Dr, Fukuoka, Japan
Fujio Higuchi, MD, Kurume Fukuoka, Japan

From biomechanical and histological points of view, hyaluronic acid injection significantly accelerated the tendon-to-bone healing after rotator cuff repair, compared to saline injection as controls.

Poster No. P311

Semiconstrained Total Elbow Arthroplasty for Acute Distal Humerus Fractures: A Minimum 5-Year Follow-Up Study

Philipp N. Streubel, MD, Rochester, MN
Juan P. Simone, MD, Buenos Aires, Argentina
Bernard F. Morrey, MD, San Antonio, TX
Joaquin Sanchez-Sotelo, MD, Rochester, MN

Twelve percent of implants that are stable at 5 years after surgery required revision due to mechanical failure. A high mortality rate can be expected in this patient setting.

Poster No. P312

Does Anteroinferior Fixation of Midshaft Clavicle Fractures have Lower Rates of Hardware Removal or Complications?

Peter A. Cole, MD, Saint Paul, MN
Clifford B. Jones, MD, FACS, Grand Rapids, MI
Aaron Jacobson, DC, Saint Paul, MN
Alex Gilde, BS, Grand Rapids, MI
Jerald Westberg, BA, Minneapolis, MN
Andrew H. Schmidt, MD, Minneapolis, MN

This study was to compares hardware removal rates and complications with plates positioned superiorly to those positioned anteroinferiorly. Various plate sizes and types were also compared.

◆The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P313
Short-Term Reoperations and Complications Following Operative Management of Proximal Humerus Fractures
Frank Petrigliano, MD, Santa Monica, CA
Nikita Bezrukov, MD, Santa Monica, CA
Seth C. Gamradt, MD, Los Angeles, CA
David Zingmond, MD, PhD, Los Angeles, CA
Nelson F. SooHoo, MD, Los Angeles, CA

Our research presents analysis of risk factors for short-term re-operations and complications following proximal humerus fractures in a large population database.

Poster No. P314
Long-Term Complications and Reoperations Following Operative Management of Proximal Humerus Fractures
Frank Petrigliano, MD, Santa Monica, CA
Nikita Bezrukov, MD, Santa Monica, CA
Seth C. Gamradt, MD, Los Angeles, CA
David Zingmond, MD, PhD, Los Angeles, CA
Nelson F. SooHoo, MD, Los Angeles, CA

Our research presents analysis of long-term re-operations and complications following surgical fixation of proximal humerus fractures

Poster No. P315
The Long-term Outcome of Distal Humeral Fractures Treated by Elbow Hemiarthroplasty
Geoff Smith, MBChB, MRCS, Bristol, United Kingdom
Jeffery S. Hughes, MBBS, FRACS, Chatswood, Australia

Distal humeral hemiarthroplasty for unreconstructable distal humeral fractures yields good long term outcomes

Poster No. P316
Reconstruction of the Coronoid Process Using the Tip of the Ipsilateral Olecranon
Bashar Alolabi, MD, Westlake, OH
Alia Gray, MSc, Belleville, ON, Canada
Louis Ferreira, MSc, London, ON, Canada
George S. Athwal, MD, London, ON, Canada
James A. Johnson, PhD, London, ON, Canada
Graham J. King, MD, London, ON, Canada

Reconstruction of the coronoid using the tip of the ipsilateral olecranon is an effective method for restoring stability and kinematics to an elbow with a 40% coronoid deficiency.

Poster No. P317
Assessment of the Relationship Between Humeral Head Alignment and Glenoid Retroversion in Shoulder Osteoarthritis
Vani J. Sabesan, MD, Kalamazoo, MI
Mark C. Callanan, MA, Grand Rapids, MI
Ari Youderian, MD, Deerfield, IL
Joseph P. Iannotti, MD, PhD, Cleveland, OH

The two measures of humeral head alignment in relation to the plane of the scapula and to the glenoid plane appear to be different and independent from one another in cases of shoulder osteoarthritis.

Poster No. P318
Platelet Rich Plasma Injection as an Alternative Treatment for Rotator Cuff Tendinitis of Shoulder
Aamir H. Shaikh, MSc, MRCSEd, Dublin, Ireland
Turlough O'Donnell, MD, Dublin, Ireland

PRP is an effective pain controlling agent in patients with rotator cuff tendinitis along with improving functional parameters and CONSTANT shoulder scores, when chosen for right patients.

Poster No. P319
Use of Serum and Synovial Fluid IL-6 Levels in Diagnosis of Prosthetic Joint Infections of the Shoulder
Salvatore J. Frangiamore, MD, MS, Cleveland, OH
Matthew Grosso, BS, Roslyn, New York
Eric T. Ricchetti, MD, Cleveland, OH
Meng Xu, Cleveland, OH
Geraldine Hall, Cleveland, OH
Marion Tuohy, MT(ASCP), Cleveland, OH
Thomas W. Bauer, MD, PhD, Cleveland, OH
Joseph P. Iannotti, MD, PhD, Cleveland, OH

Synovial fluid IL-6 levels were found to be significantly higher in the infected group compared to the non infected individuals who underwent revision total shoulder surgery.

Poster No. P320
Alternate Paper: Shoulder and Elbow I: Rotator Cuff I
A Prospective, Randomized Study of Ultrasling vs. Abduction Pillow Following Arthroscopic Rotator Cuff Repair
Allen A. Deutsch, MD, Bellaire, TX
Noah Jaffee, MD, Houston, TX

The use of an abduction pillow following arthroscopic cuff repair reduced the incidence of early postoperative stiffness. Final ROM, function, pain and cuff integrity were not significantly effected.

Poster No. P321
Prevalence of Labral Tears in the Elderly
Nick D. Pappas, MD, Greenville, SC
Donald H. Lee, MD, Nashville, TN

The prevalence of SLAP tears in the elderly is very low. However, there are a significant number of normal anatomic labral variants (e.g. sublabral foramina, Buford complexes), which can resemble SLA

Poster No. P322
Operative versus Non-operative Treatment of Acute Dislocations of the Acromio-clavicular Joint
Michael D. McKee, MD, Toronto, ON, Canada
Stephane Pelet, MD, PhD, QC, Canada
Jean Lamontagne, MD, Saint-ferreol-les-Neiges, QC, Canada
Luc Bedard, MD, Quebec, QC, Canada
Emil H. Schemitsch, MD, Toronto, ON, Canada
Jeremy Hall, MD, FRCS, Toronto, ON, Canada
Milena Vicente, RN, Toronto, ON, Canada

Operative versus Non-operative Treatment of Acute Dislocations of the Acromio-clavicular Joint: Results of a Multi-centre Randomized, Prospective Clinical Trial.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P323
Restoring Anatomic Position of the Greater Tubercle and Glenohumeral Range of Motion in Reverse Shoulder Prosthesis
Andres F. Cabezas, BS, Tampa, FL
Brandon G. Santoni, PhD, Tampa, FL
Sergio Gutierrez, PhD, Tampa, FL
Mark A. Frankle, MD, Temple Terrace, FL

Using virtual models we determined if appropriate prosthetic selection and surgical technique can restore the greater tuberosity's anatomic position and the possible range of motion of each construct.

Poster No. P324
The Four-year Cost and Clinical Outcomes of Total Shoulder Arthroplasty for the Treatment of Glenohumeral Arthritis
Nazeem Virani, MD, MPH, Tampa, FL
Christopher Williams, Temple Terrace, FL
Rachel Clark, BA, Tampa, FL
John Polikandriotis, Tampa, FL
Katheryne Downes, MPH, Tampa, FL
Mark A. Frankle, MD, Temple Terrace, FL

After 4-years follow-up, treatment with Total Shoulder Arthroplasty allowed greater than 5-fold pain reduction and almost double functional improvement with a small risk of harm at a cost of $17,587.

Poster No. P325
Thirty and Ninety Day Reoperation Rates After Shoulder Arthroplasty
Philipp N. Streubel, MD, Rochester, MN
Juan P. Simone, MD, Buenos Aires, Argentina
John W. Sperling, MD, MBA, Rochester, MN
Robert H. Cofield, MD, Rochester, MN

Short term reoperation after shoulder arthroplasty is an infrequently occurring event. Wound complications and shoulder instability are the most frequent causes for reoperation.

Poster No. P326
Shoulder Stabilization for Traumatic Anterior Shoulder Instability: Contact Athletes Versus Noncontact Athletes
Nobuyuki Yamamoto, MD, Sendai, Japan
Eiji Itoi, MD, Sendai, Japan

Clinical outcomes of open or arthroscopic anterior shoulder stabilization in 100 athletes were analyzed and the results between contact and noncontact athletes were compared.

Poster No. P327
Outcome of the Modified Eden-Lange Tendon Transfer for Management of Symptomatic Trapezius Paralysis
Eric R. Wagner, MD, Rochester, MN
Bassem T. Elhassan, MD, Rochester, MN

The purpose of this study is to evaluate the outcome of multiple tendon transfers to the scapula for management of symptomatic trapezius paralysis.

Poster No. P328
Outcomes of Lesser Tuberosity Osteotomy vs. Subscapularis Tenotomy in Total Shoulder Arthroplasty
Taylor Buckley, MD, Rochester, NY
Richard J. Miller, MD, Webster, NY
Richard A. Lewis, MD, Pittsford, NY
Ilya Voloshin, MD, Rochester, NY

Lesser tuberosity osteotomy in shoulder arthroplasty trends better outcome compared to subscapularis tenotomy. Abnormal subscapularis tendon image on ultrasound is linked with poorer functional result.

Poster No. P329
Axial Migration of the Radius through a Full Arc of Elbow Flexion/Extension and Forearm Supination/Pronation
Grant W. Robicheaux, MD, Orange, CA
Ryan Quigley, BS, Long Beach, CA
Michelle H. McGarry, MD, Long Beach, CA
Thay Q. Lee, PhD, Long Beach, CA

Two radial migration patterns, distal and proximal, were observed with forearm supination. This should be appreciated clinically particularly in the setting of surgical correction of the ulna/radius.

Poster No. P330
Suprascapular Notch Injection as a Predictor for Suprascapular Nerve Decompression
Lewis L. Shi, MD, Chicago, IL
Michael T. Freehill, MD, Winston-Salem, NC
Eugene Ek, MBBS, PhD, New York, NY
Jeffrey D. Tompson, BA, Boston, MA
Laurence D. Higgins, MD, Boston, MA
Jon JP Warner, MD, Boston, MA

Fluoroscopic-guided suprascapular notch injection is an alternative method of detecting suprascapular neuropathy. It is highly predictive of the outcome from suprascapular nerve decompression.

Poster No. P331
Functional Outcome After Total Shoulder Arthroplasty in the Obese Patient Population
Xinning Li, MD, Lexington, MA
Phillip Williams, MD, New York, NY
Andromahi Trivellas, BS, Chadds Ford, PA
Joseph Nguyen, MPH, New York, NY
Edward V. Craig, MD, New York, NY
Russell F. Warren, MD, New York, NY
Lawrence Gulotta, MD, New York, NY

Shoulder arthroplasty were associated with significant improvements in ASES scores and decrease in pain. Obese and overweight patients had less overall physical function improvements after TSA.

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Poster No. P332
A Simple Method for Estimating Anterior Glenoid Bone Loss
Sang-Jin Shin, MD, Seoul
Bong-Jae Jun, MS, Cleveland, OH
Kyung-Chil Chung, MD, Irvine, CA
Michelle H. McGarry, MD, Long Beach, CA
Thay Q. Lee, PhD, Long Beach, CA

Percent of anterior glenoid bone loss can be estimated using the ratio of bone defect length and distance from posterior glenoid rim.

Poster No. P333
Traumatic Rotator Cuff Tears in Patients Under the Age of 25
Matthew F. Dilisio, MD, Stow, OH
Curtis R. Noel, MD, Copley, OH
Jeffrey S. Noble, MD, Akron, OH
Robert H. Bell, MD, Akron, OH

Even with advanced imaging, the diagnosis of a rotator cuff tear can often be missed in this patient population. Clinical outcomes can be excellent if appropriately diagnosed and treated.

Poster No. P334
Clinical Results Following Arthroscopic and Open Repair of Anterosuperior Rotator Cuff Tears
Christoph Bartl, MD, Ulm, Germany
Florian Gebhard, MD, Ulm, Germany
Michael Kramer, MD, Ulm, Germany

Open and arthroscopic repair of combined subscapularis and supraspinatus tears show comparable clinical and radiographic results at the short term follow up.

Poster No. P335
Comparison of External Rotation in the Upright and Supine Positions in Young, Healthy Shoulders
Christopher Stevens, MD, Alachua, FL
Thomas W. Wright, MD, Gainesville, FL

Significant differences exist in shoulder external rotation depending on the position of measurement (upright versus supine), hand dominance, and gender.

Poster No. P336
Can Surgeons Predict What Makes a Good Hemiarthroplasty for Fracture?
Pascal Boileau, MD, Nice, France
Matthias Winter, MD
Alec Cikes, MD, Lausanne, Switzerland
Hervé Quintard, MD, Nice, France
Michel Carles, Nice, France
Gilles Walch, MD, Lyon, France
Daniel G. Schwartz, MD, Chicago, IL

The risk factors associated with poor functional results and anatomical failures after HA for fractures are: patient's age (over 75 years), patient's gender (female) and use of a conventional stem.

Poster No. P337
The Relationship of Preoperative ASA Score to Complications Following Total Shoulder Arthroplasty
Christine C. Johnson, Towson, MD
Sonal Sodha, Potomac, MD
Juan Garzon-Muvdi, MD, Lutherville, MD
Steve A. Petersen, MD, Lutherville, MD
Edward G. McFarland, MD, Lutherville, MD

This study demonstrates that the ASA score is strongly associated with surgical, but not medical, complications following total shoulder arthroplasty and reverse total shoulder arthroplasty.

Poster No. P338
Factors Affecting Stability of Reverse Shoulder Arthroplasty
Allison Clouthier, MSc, Kingston, ON, Canada
Markus A. Hetzler, Stouffville, ON, Canada
Graham Fedorak, MD, Kingston, ON, Canada
Timothy Bryant, Kingston, ON, Canada
Kevin Deluzio, PhD, Kingston, ON, Canada
Ryan T. Bicknell, MD, Kingston, ON, Canada

Factors affecting stability of reverse shoulder arthroplasty were investigated in a kinematic shoulder simulator. Abduction, glenosphere eccentricity and socket depth affect stability.

Poster No. P339
Fractures of the Greater Tuberosity of the Humerus: A Study of Function, Muscular Atrophy and Fracture Morphology
Jennifer Mutch, MD, Montreal, QC, Canada
LuoJun Wang, Montreal, QC, Canada
G Yves Y. Laflamme, MD, Montreal, QC, Canada
Nicola Hagemeister, PhD, Montréal, Canada
Dominique Rouleau, MD, Montreal, QC, Canada

We describe three types of isolated greater tuberosity fractures of the proximal humerus. These types help predict functional outcome and rotator cuff pathology and may assist in surgical planning.

Poster No. P340
The Critical Shoulder Angle
Beat K. Moor, MD, Zurich, Switzerland
Samy Bouaicha, MD, Vancouver, BC, Canada
Dominique A. Rothenfluh, MD, PhD, Nottingham, United Kingdom
Atul Sukthankar, MD, Volketswil Zurich, Switzerland
Christian Gerber, MD, Zurich, Switzerland

The Critical Shoulder Angle: A New Radiological Tool in the Assessment of Patients with Degenerative Shoulder Pathologies.

Poster No. P341
Total Shoulder Arthroplasty in Young Adults with Primary Glenohumeral Arthritis: Minimum Five-Year Follow Up
Patrick J. Denard, MD, Medford, OR
Patric Raiss, MD, Heidelberg, Germany
Boris Sowa, Heidelberg, Germany
Gilles Walch, MD, Lyon, France

While the 5 year results of total shoulder arthroplasty in young adults are satisfactory, implant survival markedly decreases by 10 years postoperative.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P342
A Meta-Analysis of Joint Preservation versus Arthroplasty for Displaced Proximal Humerus Fractures
M. Mustafa Gomberawalla, MD, Ann Arbor, MI
Bruce S. Miller, MD, MS, Ann Arbor, MI
Robert Coale, MD, Rocky River, OH
Asheesh Bedi, MD, Ann Arbor, MI
Joel J. Gagnier, PhD, Ann Arbor, MI

Displaced proximal humerus fractures demonstrated improved Constant scores after joint preserving treatments. Patient age, fracture pattern, and rate of osteonecrosis contributed to the final outcome.

Poster No. P343
Identifying Outcomes of Humeral Windows and Longitudinal Splits in Patients with Revision Shoulder Arthroplasy
Shawn Sahota, Rochester, MN
John W. Sperling, MD, MBA, Rochester, MN
Robert H. Cofield, MD, Rochester, MN

Humeral windows and longitudinal splits can facilitate controlled removal of well-fixed humeral components with high rate of union and low rate of intraoperative or postoperative complications.

Poster No. P344
Complications and Revisions after Total Elbow Arthroplasty
Pierre Mansat, MD, PhD, Toulouse, France
Nicolas Bonnevialle, MD, Toulouse Cedex , France
Michel Rongieres, MD, Blagnac, France
Michel F. Mansat, MD, Toulouse Cedex, France
Paul Bonnevialle, MD, Toulouse, France

Total elbow arthroplasty stays a difficult procedure with sometimes a high rate of complications necessitating revision procedures.

Poster No. P345
Proximal Humeral Fractures Treated with Hemiarthroplasty: Does Tenodesis of the Long Head of Biceps Improve Results
Mohamed Omar A. Soliman, Prof., Cairo, Egypt
Wael Koptan, MD, Cairo, Egypt
Yasser H. El Miligui, MD, FRCS, Cairo, Egypt
Mohammad M. El-Sharkawi, MD, Assiut, Egypt

In a prospective randomised study of 37 patients with proximal humeral fractures treated with shoulder hemiarthroplasty, the LHB was a source of pain and its tenodesis can significantly improve results.

Spine

Poster No. P346
Modeling of Cost-Effectiveness of Adult Spinal Deformity Surgery at Five Years Follow Up
Brian J. McHugh, MD, Stamford, CT
Jamie S. Terran, BS, New York, NY
Charla R. Fischer, MD, New York, NY
Baron Lonner, MD, New York, NY
Steven D. Glassman, MD, Louisville, KY
Keith H. Bridwell, MD, Saint Louis, MO
Frank J. Schwab, MD, New York, NY
Virginie Lafage, PhD, New York, NY

Cost-effectiveness modeling for 5 years follow up was performed on 499 adult spinal deformity patients and the average cost/QALY was $179,002. Risk factors for cost-effectiveness were identified.

Poster No. P347
Thromboembolic Disease after Cervical Spine Surgery: A Review of 7,926 Surgical Procedures
Arjun Sebastian, MD, Rochester, MN
Ahmad Nassr, MD, Rochester, MN
Mark B. Dekutoski, MD, Rochester, MN
Paul M. Huddleston, MD, Rochester, MN
Michael J. Yaszemski, MD, PhD, Rochester, MN
Peter S. Rose, MD, Rochester, MN
Bradford L. Currier, MD, Rochester, MN

Retrospective study of 7926 patients who underwent cervical spine surgery to determine the incidence and risk factors of venous thromboembolism.

Poster No. P348
Midline T-saw Laminoplasty and Pedicle Screw Fixation for Cervical Myelopathy Associated with Cerebral Palsy
Satoru Demura, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Takashi Ota, MD, Kanazawa, Ishikawa, Japan
Kazuya Shinmura, MD, Ishikawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

We performed T-saw laminoplasty and posterior arthrodesis utilizing pedicle screws in patients with atetoid cerebral palsy. The procedure maintained strong internal fixation and improved neurological.

Poster No. P349
Tapping Insertional Torque Predicts Better Pedicle Screw Fixation and Optimal Screw Size Selection
Alternate Paper: Spine III: Deformity
Melvin D. Helgeson, MD, North Potomac, MD
Daniel Kang, MD, Bethesda, MD
Ronald A. Lehman, MD, Potomac, MD
Anton E. Dmitriev, Fort Belvoir, VA
Scott J. Luhmann, MD, Saint Louis, MO

Tapping IT directly correlates with pedicle screw IT, pedicle screw pullout strength, and optimal pedicle screw size, and may allow maximum fixation strength and pedicle "fit and fill".

Posters

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Poster No. P350

Causes of Postoperative Cerebrospinal Fluid Leakage Associated with Total En Bloc Spondylectomy

Noriaki Yokogawa, MD, Ishikawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Takashi Ota, MD, Kanazawa, Ishikawa, Japan
Kazuya Shinmura, MD, Ishikawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

The incidence of postoperative CSF leakage associated with TES was 26.0%. Among patients with a history of radiation therapy to the surgical site, the incidence was particularly high (47.1%).

Poster No. P351

Allogenic and Autogenous Bone Graft is Affected by Historical Donor Environmental Exposure

Caleb J. Behrend, MD, Rochester, NY
Lauren M. Ritter, Pittsford, New York
Robert J. Thorsness, MD, Rochester, NY
Paul T. Rubery Jr, MD, Honeoye Falls, NY
J Edward Puzas, PhD, Rochester, NY

Commercially available bone graft materials and autogenous bone graft composition is affected by historical environmental exposure of the donar to inorganic materials such as lead or cadmium.

Poster No. P352

Return to OR Affects Long Term Outcomes in Adult Spinal Deformity Patients Undergoing Long Fusions to the Sacrum

Michael Faloon, MD, Hoboken, NJ
David Essig, MD, Long Island City, NY
Woojin Cho, MD, PhD, New York, NY
Gbolabo O. Sokunbi, MD, Bethlehem, PA
Matthew E. Cunningham, MD, PhD, New York, NY
Bernard A. Rawlins, MD, New York, NY
Oheneba Boachie-Adjei, MD, New York, NY

Unplanned return to the OR following long fusions to the sacrum for adult spinal deformity had significant detrimental residual effects on pts' ODI & SRS-22 at 5 yr f/u.

Poster No. P353

Surface Characteristics of the Subaxial Cervical Vertebral Endplates

Shaobai Wang, PhD, Boston, MA
Yao Qi, MD, Boston, MA
Thomas D. Cha, MD, Boston, MA
Tsung-Yuan Tsai, PhD, Boston, MA
Jae Hyuk Shin, MD, Boston, MA
Guoan Li, PhD, Boston, MA
Kirkham B. Wood, MD, Boston, MA

The study quantified the thickness and curvature distribution of the cervical endplates. Thus 3D guidelines can be made regarding the amount of endplate removal during surgery.

Poster No. P354

In Vivo Biocompatibility of a Synthetic Resorbable Polymer Nanocomposite Bone Graft Substitute

Kevin Baker, PhD, Royal Oak, MI
Hussein A. Saad, MD, Royal Oak, MI
Tristan Maerz, MS, Royal Oak, MI
Phillip J. Shaheen, BS, MS, Troy, MI
Harry N. Herkowitz, MD, Royal Oak, MI
Rangaramanujam Kannan, PhD, Baltimore, MD

Polymer-clay nanocomposites synthesized by supercritical carbon dioxide processing are biocompatible and capable of supporting rhBMP-2-induced bone formation in vivo.

Poster No. P355

The Effect of Posterior Decompression on Segmental Range of Motion Following Cervical Disc Arthroplasty

Alternate Paper: Spine I: Cervical

Michael J. Brody, MD, Maywood, IL
Alpesh A. Patel, MD, Maywood, IL
Alexander J. Ghanayem, MD, Maywood, IL
Georgios Vastardis, Hinsdale, IL
Leonard Voronov, PhD, Hines, IL
Robert Havey, Hines, IL
Tejaswy Potluri, MS, Hines, IL
Gerard Carandang, Hines, IL
Avinash G. Patwardhan, PhD, Maywood, IL

Segmental range of motion (ROM) was quantified following cervical total disc arthroplasty and progressive posterior decompressions. Results demonstrated increased ROM with each decompression.

Poster No. P356

Sex and the Sacrum - An Analysis of the Effects of Long Fusion to the Sacrum on Sexual Function

Michael O. LaGrone, MD, Amarillo, TX
Amanda Coffman, PA-C, Amarillo, TX

We show there are significant limitations and modifications in sexual activity specifically related to long fusion to the sacrum compared to a control group with fusions ending short of sacrum.

Poster No. P357

Laminoplasty versus Laminectomy with Fusion for the Treatment of Spondylotic Cervical Myelopathy

Adam M. Caputo, MD, Durham, NC
Jordan F. Schaeffer, MD, Durham, NC
Todd M. Chapman, MD, MSc, Durham, NC
Gene M. Massey, MD, Myrtle Beach, SC
Keith W. Michael, MD, Durham, NC
Christopher R. Brown, MD, Durham, NC

Laminoplasty and laminectomy with fusion are the most commonly performed surgeries for cervical myelopathy. This study compares these techniques using a panel of clinical and radiographic measures.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P358

Low-Energy Extracorporeal Shock Wave Therapy Improves Motor Palsy after Spinal Cord Injury

Alternate Paper: Spine IV: Trauma/Tumor

Seiji Yamaya, MD, Sendai, Japan
Hiroshi Ozawa, MD, Sendai, Japan
Haruo Kanno, MD, Sendai, Japan
Akira Sekiguchi, Sendai, Japan
Eiji Itoi, MD, Sendai, Japan

The low-energy extracorporeal shock wave induced better recovery after spinal cord injury. The significant increases in mRNA expression of VEGF and BDNF were observed in acute phase.

Poster No. P359

Potential Risk of Adjacent Disc Degeneration After Lumbar Total Disc Replacement in Biomechanical Perspective

Wen-Chuan Chen, PhD, Taipei, Taiwan
Hsiang-Ho Chen, PhD, Taipei, Taiwan
Yu-Shu Lai, Taipei, Taiwan
Yang-Hwei Tsuang, MD, PhD, Taipei City, Taiwan
Cheng-kung Cheng, PhD, Taipei, Taiwan

Biomechanical evaluation by finite element method was performed to find out and explain the mechanism of potential risk to adjacent disc degeneration after lumbar total disc replacement.

Poster No. P360

Comparison of Image Quality and Radiation Exposure from C-arm Flouroscopes when Used for Imaging the Spine

Mark L. Prasarn, MD, Bellaire, TX
Ellen Coyne, MS, Fairport, New York
Michael J. Schreck, MD, Rochester, NY
Glenn R. Rechtine II, MD, Pinellas Park, FL

Upon comparison of commonly used C-arm machines, the GE OEC was ranked the best, produced the best quality images, and had the least amount of radiation.

Poster No. P361

Instability of Posterior Vertebral Wall Causes Canal Encroachment in the Elderly with Vertebral Pseudoarthrosis

Tetsuo Hayashi, MD, Fukuoka, Japan
Takeshi Maeda, Iizuka, Japan
Osamu Kawano, MD
Tsuneaki Takao, MD, Iizuka, Japan
Yuichiro Morishita, MD, PhD, Iizuka, Japan
Keiichiro Shiba, MD, Iizuka, Japan

Our study demonstrated collapse of the non-united posterior vertebral wall and intracanal protrusion of vertebral fragments would occur simultaneously with axial loading, causing canal encoachment.

Poster No. P362

Crossing the Cervico-Thoracic Junction in Long Posterior Cervical Fusions Reduces Adjacent Segment Breakdown

Woojin Cho, MD, PhD, New York, NY
Joshua D. Auerbach, MD, Chappaqua, New York
Jennifer Sehn, MD
Andrew H. Milby, MD, Philadelphia, PA
Charles H. Crawford III, MD, Louisville, KY
Brian A. O'Shaughnessy, MD, Nashville, TN
Michael S. Chang, MD, Phoenix, AZ
K D. Riew, MD, Saint Louis, MO

Long posterior cervical fusions that cross the C-T junction have superior clinical outcomes and reduced rates of cranial and caudal breakdown, at the expense of longer fusions and higher EBL.

Poster No. P363

◆Long Adult Spinal Deformity Fusion to Sacrum Using Low Dose rhBMP-2

Joshua E. Heller, MD, Philadelphia, PA
Justin S. Smith, MD, Charlottesville, VA
Woojin Cho, MD, PhD, New York, NY
Kaiming G. Fu, MD, PhD, Charlottesvle, VA
Christopher I. Shaffrey, MD, Charlottesville, VA

We report our experience in long adult spinal deformity fusion to sacrum using rhBMP-2 at a lower dose (38.3mg). Our pseudarthrosis rate (31.3%) was similar to that reported for ICBG (28.1%).

Poster No. P364

Development and Testing of a Patient Cervical Spine Surgery Expectations Survey

Carol A. Mancuso, MD, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
Andrew A. Sama, MD, New York, NY
Alexander P. Hughes, MD, New York, NY
Federico P. Girardi, MD, New York, NY

A 21-item patient-derived survey was developed that is valid and reliable and addresses patients' physical and psychological expectations of cervical spine surgery.

Poster No. P365

◆Staged vs. Same Day Anterior Posterior Cervical Decompression and Fusion Crossing the Cervico-Thoracic Junction

Krzysztof B. Siemionow, MD, Chicago, IL
Luis C. Grau, BS, Chicago, IL
Sergey Neckrysh, MD, Chicago, IL

Staging of multilevel A/P cervical fusion crossing the CT junction may result in higher rates of transfusion and longer LOS. Complications are frequent and staging does not appear to be advantagous.

◆The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P366
Correlations between the EQ-5D, the Oswestry Disability Index and Pain Numeric Rating Scales
Benjamin Mueller, MD, Saint Paul, MN
Leah Y. Carreon, MD, Louisville, KY
Lauren Burke, MPH, Louisville, KY
Chelsea Canan, MPH, Louisville, KY
Steven D. Glassman, MD, Louisville, KY

Data on 8385 patients showed strong to moderate correlations between EQ-5D and ODI and Back and Leg pain scores. EQ-5D is an effective measure of clinical outcome and economic impact.

Poster No. P367
C2 Vertical Axis is Associated with Outcome of Cervical Laminectomy and Fusion
Kristen E. Radcliff, MD, Egg Harbor, NJ
Robert Stewart, MD, Chicago, IL
Loukas Koyonos, MD, Philadelphia, PA
Corey Clyde, Philadelphia, PA
Gursukhman Sidhu, MBBS, Philadelphia, PA
Todd J. Albert, MD, Philadelphia, PA
Christopher Kepler, MD, Philadelphia, PA
Alan S. Hilibrand, MD, Philadelphia, PA
Alexander Vaccaro, MD, PhD, Gladwyne, PA

Cervical sagittal balance factors in lumbar deformity reconstruction, such as paraspinous muscle attachment or C23 facet joint preservation, should be considered to improve patient outcome post-PCDF.

Poster No. P368
Biomechanical Study of Sublaminar Polyester Bands versus Pedicle Screws in Adolescent Idiopathic Scoliosis Model
Vu H. Le, MD, Orange, CA
Afshin Aminian, MD, Orange, CA
Nathanael D. Heckmann, Long Beach, CA
Lawrence C. Wang, Orange, CA
Nitin N. Bhatia, MD, Orange, CA
Thay Q. Lee, PhD, Long Beach, CA

Sublaminar polyester bands provide equivalent spinal triplanar corrections compared to pedicle screws.

Poster No. P369
In Mature Patients with Primary Thoracolumbar AIS, Does the 50 Degree Operative Threshold Apply?
Burt Yaszay, MD, San Diego, CA
Tracey Bastrom, MA, San Diego, CA
Carrie Bartley, MA, San Diego, CA
Peter O. Newton, MD, San Diego, CA

Surgically treated patients with thoracolumbar curves <50° were compared to those with 50-60° curves and found to have larger preop trunk shift, less balanced curves, and lower self-image scores.

Poster No. P370
Preoperative Hounsfield Unit Measurements are Associated with Adjacent Segment Fracture After Spinal Fusion
Dennis Meredith, MD, New York, NY
Joseph Schreiber, MD, New York, NY
Fadi Taher, MD, New York, NY
Frank P. Cammisa Jr, MD, New York, NY
Federico P. Girardi, MD, New York, NY

Lower local and global preoperative Hounsfield unit measurements are associated with adjacent segment fracture following spinal fusion.

Poster No. P371
Does the Addition of a Non-Physician Provider Increase the Productivity of an Orthopaedic Spine Surgeon?
Gabriella Broccardo, BS, Springfield, IL
Brooke Robinson, MPh, Springfield, IL
Wendy Novicoff, PhD, Charlottesville, VA
Per Freitag, MD, Springfield, IL

There is a positive impact of adding an orthopaedic spine non-physician provider to an orthopaedic surgery practice in regards to improving productivity.

Poster No. P372
Perioperative Complications of Pedicle Subtraction Osteotomy
Michael D. Daubs, MD, Santa Monica, CA
Prokopis Annis, MD, Salt Lake City, UT
Brandon Lawrence, MD, Salt Lake Cty, UT
Darrel S. Brodke, MD, Salt Lake City, UT

We reviewed all 65 patients (47 females and 18 males, mean age of 60 years (range(r) 24-80)) that underwent a PSO at our institution to evaluate the perioperaive complications associated with PSO.

Poster No. P373
Primary Versus Revision Surgery: Multi-Center Analysis of Outcomes Following Surgery for Adult Spinal Deformity
Khaled M. Kebaish, MD, Baltimore, MD
Eric O. Klineberg, MD, Sacramento, CA
Mostafa H. El Dafrawy, MD, Baltimore, MD
Christopher Ames, MD, San Francisco, CA
Shay S. Bess, MD, Castle Rock, Colorado
Vedat Deviren, MD, San Francisco, CA
Robert A. Hart, MD, Portland, OR
Munish C. Gupta, MD, Sacramento, CA

We compare functional outcome and complications for patients undergoing 1yr and revision surgery for the treatment of ASD. Both groups improved their 1yr HRQoL scores, the final scores were better pre.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P374

◆Micro-CT Analysis of Porcine Scoliosis Model Induced by Unilateral Tendon Tethering

Richard E. McCarthy, MD, Little Rock, AR
Michael McCarthy, Little Rock, AR
Dong Sun, MD, Little Rock, AR

Scoliosis was produced in a porcine model using a unique tendon tethering technique with vertebral remodeling noted at the apex. Analysis these vertebrae with micro-CT and noted increased volume of bone density.

Poster No. P375

Is Anterior Cervical Approach on the Right Side Safe? Frequency of Nonrecurrent Inferior Laryngeal Nerve

Yuichiro Abe, MD, PhD, Eniwa, Hokkaido, Japan
Shunichi Abe, MD, PhD, Sapporo, Japan
Shigenobu Sato, MD, Hokkaido, Japan
Takahiko Hyakumachi, MD, Hokkaido, Japan
Yasushi Yanagibashi, MD, Eniwa, Japan
Hiroyuki Yasuda, MD, Eniwa, Japan
Keizo Kazui, MD, Sapporo, Hokkaido, Japan
Takeshi Masuda, MD, Sapporo, Japan

Review of 1671 cases showed frequency of right nonrecurrent inferior laryngeal nerve (NRLN) was 0.79%, and NRLN is a risk factor for laryngeal nerve injury by right sided anterior cervical approach.

Poster No. P376

Bony Anatomic Age Changes in Thoracic Spine Do Not Predispose to Thoracic Stenosis: A Postmortem Specimen Study

Navkirat Bajwa, Medical Student, Garfield Heights, OH
Ernest Young, MS, Cleveland Heights, OH
Nicholas U. Ahn, MD, Shaker Heights, OH

Anatomical changes in thoracic spinal canal with age do not predispose to thoracic stenosis.

Poster No. P377

Comparative Radiographic Analysis Between Pedicle Subtraction Osteotomy and Vertebral Column Resection

Mostafa H. El Dafrawy, MD, Baltimore, MD
Hamid Hassanzadeh, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Philip R. Neubauer, MD, White Hall, MD
David B. Cohen, MD, Cockeysville, MD
Khaled M. Kebaish, MD, Baltimore, MD

Similar focal and global correction of sagittal lumbar deformities can be achieved using either PSO or VCR; VCR should be reserved for the more severe focal kyphotic deformities.

Poster No. P378

Standardization of SRS-22 Scores

Man Hung, PhD, Salt Lake City, UT
Shirley Hon, Salt Lake City, UT
Ashley Woodbury, BS, SLC, UT
Philip Tang, BS, Salt Lake City, UT
Darrel S. Brodke, MD, Salt Lake City, UT
John T. Smith, MD, Salt Lake City, UT
Brandon Lawrence, MD, Salt Lake Cty, UT
Michael D. Daubs, MD, Santa Monica, CA

Using standardized SRS-22 scores allow researchers to conduct meaningful statistical analysis and understand where a particular score lies within the context of the scores of the others.

Poster No. P379

Impact of Fluoroscopist Awareness on Radiation Exposure in Localizing Films for Lumbar Spine Surgery

Alternate Paper: Spine V: Infections and Complications

Amy Wasterlain, Menlo Park, CA
Chad Tang, MD, Houston, TX
David Campbell, MD, Jupiter, FL
Gaetano J. Scuderi, MD, Jupiter, FL

Fluoroscopy technologists who understand the specific imaging task are able to obtain an accurate lateral lumbar localizing image with less fluoroscopy exposure time and fewer images.

Poster No. P380

◆Complications of Minimally Invasive Spinal Surgery for Correction of Spinal Deformity: A Five-year Experience

Neel Anand, MD, Los Angeles, CA
Babak Khandehroo, MD, Los Angeles, CA
Sheila Kahwaty, PA-C, Valencia, CA
Eli M. Baron, MD, Los Angeles, CA

MISS procedures are intended to reduce approach related complications. However, the novelty of the approach and the potential for complications has been a big concern in adopting these new techniques.

Poster No. P381

A Prospective Clinical Trial of Iodine-supported Spinal Instruments for Preventing and Treating Spinal Infection

Hideki Murakami, MD, Kanazawa, Japan
Toshiharu Shirai, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Hiroyuki Hayashi, MD, Kanazawa, Japan
Takashi Ota, MD, Kanazawa, Ishikawa, Japan
Kazuya Shinmura, MD, Ishikawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

We newly developed iodine-supported spinal instruments. The iodine instruments are effective and promising for preventing and treating spinal infection. Strategy of spinal infections will be changed.

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Poster No. P382

Etiology of Traumatic Cervical Spinal Cord Injury without Major Fracture or Dislocation

Yuichiro Morishita, MD, PhD, Iizuka, Japan
Takeshi Maeda, Iizuka, Japan
Eiji Mori, MD, Fukuoka, Japan
Itaru Yugue, MD, Iizuka Fukuoka, Japan
Osamu Kawano, MD
Tsuneaki Takao, MD, Iizuka, Japan
Hiroaki Sakai, MD
Tetsuo Hayashi, MD, Fukuoka, Japan
Keiichiro Shiba, MD, Iizuka, Japan

We measured the pinched diameter of cervical cord during cervical spine extension, and investigated the effect of the pincer mechanism on the etiology of traumatic cervical spinal cord injury without major fracture or dislocation.

Poster No. P383

The Effect of Sagittal Plane Correction on Cervical Spine Alignment

Jayme Hiratzka, MD, Portland, OR
Michael D. Daubs, MD, Santa Monica, CA
Prokopis Annis, MD, Salt Lake City, UT
Justin Hohl, MD, Sandy, UT
Brandon Lawrence, MD, Salt Lake Cty, UT
Darrel S. Brodke, MD, Salt Lake City, UT

Pedicle subtraction osteotomy results in an improvement in translational deformity but not in T1 tilt or cervical lordosis. This is the first study to examine the effects of PSO on cervical alignment.

Poster No. P384

Spinal Shortening is a Key to Provide a Stiffer Construct in Reconstruction after Total En Bloc Spondylectomy

Satoshi Kato, MD, Kanazawa, Japan
Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Takashi Ota, MD, Kanazawa, Ishikawa, Japan
Kazuya Shinmura, MD, Ishikawa, Japan
Noriaki Yokogawa, MD, Ishikawa, Japan
Katsuro Tomita, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

The reconstruction using a 10-mm spinal shortening was stiffer than the reconstruction without shortening after total en bloc spondylectomy of two consecutive vertebrae in a human cadaveric thoracic model.

Poster No. P385

◆Enhancing Pedicle Screw Fixation in the Lumbar Spine Using an Allograft Bone Plug: A Biomechanical Study

Harsha Sree Malempati, MD, Vancouver, BC, Canada
Jacques H. Hacquebord, MD, Seattle, WA
Amit R. Patel, MD, York, PA
Jens R. Chapman, MD, Seattle, WA
Michael J. Lee, MD, Seattle, WA

Pedicle screw fixation in the osteoporotic spine remains one of the most difficult hurdles in spine surgery and this preliminary study offers a new technique to enhance fixation.

Poster No. P386

Intervertebral Disc Repair and Regeneration Using Neonatal Human Dermal Fibroblasts in the Rabbit Model

Ana Chee, Chicago, IL
Peng Shi, PhD, Chicago, IL
Thomas D. Cha, MD, Boston, MA
Ting-Hsien Kao, Taichung, Taiwan
Shu-Hua Yang, MD, PhD, Taipei, Taiwan
Yejia Zhang, MD, PhD, Chicago, IL
Howard S. An, MD, Chicago, IL

An in vivo study was conducted in the established rabbit disc injury model to determine the effects of injecting nHDFs in degenerating intervertebral discs.

Poster No. P387

Age, Sagittal Balance and Operative Correction are Risk Factors for Proximal Junctional Failure in Adult Deformity

Robert A. Hart, MD, Portland, OR
Richard A. Hostin, MD, Plano, TX
Robert S. Bess, MD, Castle Rock, CO
Frank J. Schwab, MD, New York, NY
Virginie Lafage, PhD, New York, NY
Praveen V. Mummaneni, San Francisco, CA
Christopher Ames, MD, San Francisco, CA
Justin S. Smith, MD, Charlottesville, VA
Oheneba Boachie-Adjei, MD, New York, NY

Age, sagittal deformity, and extent of sagittal correction were risk factors for PJF in ASD surgical patients. A pedicle subtraction osteotomy (PSO) and upper thoracic fusion increased this risk.

Poster No. P388

Off-label Use of Cervical Disc Arthroplasty in the USA

Sergiy Nesterenko, MD, Baltimore, MD
Lee H. Riley III, MD, Baltimore, MD
Richard L. Skolasky Jr, ScD, Baltimore, MD

Nearly one quarter (22.7%) of all CDA cases are performed off-label including anterior cervical discectomy and fusion and cervical disc replacement in the same patient.

Poster No. P389

Effect of Lumbar Spinal Canal Stenosis on a Fall-experience and Health Related Quality of Life

Eiji Takasawa, MD, Gunma, Japan

LSS had great effect on falls and a decline in the EuroQol score. Early diagnosis and treatment of LSS may reduce the risk of falls and improve health-related quality of life in the aged population.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P390
Rib Anchors as an Alternative to Spine Anchors in an Immature Porcine Model: Can They Withstand Similar Loads?
Behrooz A. Akbarnia, MD, La Jolla, CA
Burt Yaszay, MD, San Diego, CA
Muharrem Yazici, MD, Ankara, Turkey
Nima Kabirian, MD, San Diego, CA
Kevin Strauss, MS, Leesburg, VA
Diana A. Glaser, PhD, San Diego, CA

A study of four different upper foundations showed Rib Hooks and Spine Screws failed at the highest ultimate loads. Spine Hook anchors showed lower ultimate loads but with a less variable results.

Poster No. P391
Surface Characteristics of the Subaxial Cervical Vertebral Endplates
Jing-Sheng Li, PT, MS, Boston, MA

The bony endplate is thinner in the middle and thicker at the outer rim, ranging from 0.8 to 1.6 mm for a typical disc.

Poster No. P392
Spontaneous Reduction of Low-Grade Spondylolisthesis by Positioning on the Operating Table: Does it Really Occur?
Mostafa H. El Dafrawy, MD, Baltimore, MD
Philip R. Neubauer, MD, White Hall, MD
Hamid Hassanzadeh, MD, Baltimore, MD
Amit Jain, MD, Baltimore, MD
Micheal Alapatt, MD, Demarest, NJ
Khaled M. Kebaish, MD, Baltimore, MD

We compared the effect of intra-operative prone positioning on change in radiographic parameter in 52 patients with low grade Spondylolithesis.

Poster No. P393
Postoperative Spinopelvic Alignment and Adjacent Segment Degeneration: A 16-year Follow-up Study
Tetsuya Kobayashi, Asahikawa, Japan
Kiyoshi Aono, MD, Asahikawa Hokkaido, Japan
Shizuo Jimbo, Asahikawa, Hokkaido, Japan
Issei Senoo, MD, Chicago, IL

A mean 16-year follow-up study of lumbar arthrodesis was conducted, and adjacent segment degeneration (ASD) was found in 43.6% of patients.

Poster No. P394
Smoking Cessation and the Aging Spine Patient
Caleb J. Behrend, MD, Rochester, NY
Lauren M. Ritter, Pittsford, New York
Joshua Hunter, MD, Rochester, NY
Ellen Coyne, MS, Fairport, New York
Glenn R. Rechtine II, MD, Pinellas Park, FL

Older patients are less likely to smoke and equally likely to quit smoking. Smokers report greater pain and less improvement during treatment. Smoking cessation is associated with improved pain.

Poster No. P395
Surgical Treatment of Adolescent Idiopathic Scoliosis: A Prospective Ten-Year Follow-up Study
Krishna R. Cidambi, MD, San Diego, CA
Tracey Bastrom, MA, San Diego, CA
Carrie Bartley, MA, San Diego, CA
David H. Clements III, MD, Camden, NJ
Randal R. Betz, MD, Philadelphia, PA
Lawrence G. Lenke, MD, Saint Louis, MO
Peter O. Newton, MD, San Diego, CA

Ten-year outcomes in patients with surgically treated adolescent idiopathic scoliosis.

Poster No. P396
The Reversibility of Swan Neck Deformity in Chronic Atlantoaxial Dislocations
Peter G. Passias, MD, New York, NY
Shenglin Wang, MD, Beijing, China
Deng Zhao, Beijing, China
Shaobai Wang, MD, Beijing, China
Michal Kozanek, MD, Cambridge, MA
Andy Chang, BS, New York, NY
Chao Wang, MD, Beijing, China

This study reports that correction of upper cervical kyphosis results in secondary auto-correction of subaxial alignment, thus demonstrating the novel finding that swan neck deformity is reversible.

Poster No. P397
Outcomes of Cervical Spine Surgery in Teaching and Non-Teaching Hospitals
Miguel Pelton, BS, Chicago, IL
Kern Singh, MD, Chicago, IL

Patients treated in teaching hospitals for cervical spine surgery demonstrate longer hospitalizations, increased costs, increased venous thrombotic events, and increased mortality.

Poster No. P398
◆Laminar Screw Placement in the Subaxial Spine: A Feasibility Study
Sang Ik Shin, MD, Seoul, Republic of Korea
Jin-Sup Yeom, MD, Sungnam, Republic of Korea
Ho-Joong Kim, Sungnam, Republic of Korea
Bong-Soon Chang, MD, Seoul, Republic of Korea
Choon-Ki Lee, Seoul, Republic of Korea
K. Daniel Riew, MD, Saint Louis, MO

Laminar screws appear to be a viable fixation method at C7. At C3 and C6, careful patient selection and evaluation of CT scan is recommended. At C4 and C5, laminar screws are rarely possible.

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Poster No. P399
Determining Optimal Post-operative Coronal Parameters for Selective Thoracic Fusions
Burt Yaszay, MD, San Diego, CA
Jahangir Asghar, MD, Coral Gables, FL
Tracey Bastrom, MA, San Diego, CA
Amer Samdani, MD, Philadelphia, PA
Peter F. Sturm, MD, Cincinnati, OH
Randal R. Betz, MD, Philadelphia, PA
Harry L. Shufflebarger, MD, Miami, FL
Peter O. Newton, MD, San Diego, CA

Optimal postop parameters for selective thoracic fusions were derived from data and surgeon query: lumbar Cobb 37% and trunk shift within 1.5cm.

Poster No. P400
Effects of Sequential Unilateral Facetectomy on Cervical Spinal Stability
Mageswaran Prasath, MS, Cleveland, OH
Robb Colbrunn, MSc, Cleveland, OH
Tara F. Bonner, BS, MSc, Cleveland, OH
Stephen R. Tolhurst, MD, Coppell, TX
Fernando Techy, MD, Chicago, IL
Robert F. McLain, MD, Cleveland, OH

To compare the kinematics of cervical spine and its stability following sequential unilateral resection of the facet joint.

Poster No. P401
Integrated Interbody Device Versus Anterior Locking Plate in a Single-Level Cervical Spine Fusion Construct
Matthew I. Stein, MD, Tampa, FL
Aniruddh Nayak, MS, Tampa, FL
Roger B. Gaskins, MD, Tampa, FL
Andres F. Cabezas, BS, Tampa, FL
Brandon G. Santoni, PhD, Tampa, FL
Antonio E. Castellvi, MD, Temple Terrace, FL

Integrated interbody fusion device offers comparable stability in all planes of motion when compared to standard anterior locking plate in single-level cervical fusion constructs.

Poster No. P402
Old Distractive Flexion Injuries of the Subaxial Cervical Spine
Osamu Kawano, MD
Takeshi Maeda, Iizuka, Japan
Eiji Mori, MD, Fukuoka, Japan
Itaru Yugue, MD, Iizuka Fukuoka, Japan
Tsuneaki Takao, MD, Iizuka, Japan
Hiroaki Sakai, MD
Tetsuo Hayashi, MD, Fukuoka, Japan
Yuichiro Morishita, MD, PhD, Iizuka, Japan
Keiichiro Shiba, MD, Iizuka, Japan

The classic anterior-posterior-anterior approach is thus considered to be a safe and effective surgical approach for old distractive flexion injuries of the subaxial cervical spine.

Poster No. P403
Trends in Complications after Cervical Spine Surgery from 2002-2009
Miguel Pelton, BS, Chicago, IL
Kern Singh, MD, Chicago, IL

The present findings demonstrate that laminoplasty procedures have had an increasing trend of post-operative complications including pulmonary embolus, surgical site infections and hematomas.

Poster No. P404
Can Inflammatory Profiles Predict Outcomes from Lumbar Discectomy for Disc Herniation?
Micah Smith, MD, Salt Lake City, UT
Ma Agnes Ith, Redwood City, CA
S. Raymond Golish, MD, PhD, Longview, WA
Ivan Cheng, MD, Redwood City, CA
Todd Alamin, MD, Redwood City, CA
Gaetano J. Scuderi, MD, Jupiter, FL
Eugene Carragee, MD, Redwood City, CA
Mathew Smuck, MD, Redwood City, CA

The purpose of this investigation was to determine if the presence of FAC from a lavage of disc herniation tissue from the epidural space bath correlates with clinical outcomes after discectomy.

Poster No. P405
Imaging Characteristics of "Dynamic" versus "Static" Spondylolisthesis
Jesse L. Even, MD, Arlington, TX
Antonia Chen, MD, Pittsburgh, PA
Joon Y. Lee, MD, Pittsburgh, PA

There are distinguishing characteristics notable on Magnetic Resonance Imaging (MRI) to determine if a spondylolisthesis is static or dynamic.

Sports Medicine and Arthroscopy

Poster No. P406
Matrix Metalloproteinase Content and Activity in PRP and Biologic Response to PRP by Human Ligament Fibroblasts
Matthew A. Pifer, MD, Royal Oak, MI
Tristan Maerz, MS, Royal Oak, MI
Kevin Baker, PhD, Royal Oak, MI
Kyle Anderson, MD, West Bloomfield, MI

PRP contains significant concentrations of active MMPs and ligament fibroblasts respond differentially to two commercial PRP systems.

Poster No. P407
Decreased Local Anesthetic Chondrocyte Toxicity with Reduction in Temperature
Tarik S. Onur, BA, San Francisco, CA
Alexis Dang, MD, San Francisco, CA

Decreasing culture conditions leads to increased chondrocyte viability after treatment with the local anesthetics lidocaine and bupivicaine.

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Poster No. P408

Importance of AMB to ACL Function in Resisting Lachman and Pivot-Shift Tests: A Robotic Cadaveric Study

Eric J. Gardner, MD, Scottsbluff, NE
Andrew W. Jetter, BS, Cincinnati, OH
Frank R. Noyes, MD, Cincinnati, OH
Edward S. Grood, PhD, Sarasota, FL

The AM and PL bundle play a synergistic role in restraining anterior tibial compartment translation at low flexion. Sectioning of either bundle alone did not produce a pivot shift phenomenon.

Poster No. P409

Treatment of Full-thickness Chondral Defects with High Molecular Weight Hyaluronic Acid

Maximiliano Espinosa, MD, Santiago, Chile
David Figueroa, MD, Santiago, Chile
Rafael Calvo, MD, Santiago, Chile
Alex Vaisman, MD, Santiago, Chile
Maximiliano Scheu, MD, Santiago, Chile
Juan José Valderrama, MD, Santiago, Chile
Marcela P. Gallegos, MD, Santiago, Chile
Paulette Conget, PhD, Santiago, Chile

Our hypothesis was that HMWHA in monodosis or three doses improve the regeneration of full-thickness chondral defects. No differences between these regimens was observed.

Poster No. P410

Successful Phenotype Rescue of Monolayer-expanded Osteoarthritic Human Chondrocytes using Pellet Culture

Yohei Ono, MD, Greenville, NC
Tadahiro Sakai, Nagoya, Japan
Hideki Hiraiwa, MD, PhD, Nagoya, Japan
Takashi Hamada, Nagoya City, Japan
Motoshige Nakashima, Nagoya, Japan
Shinya Ishizuka, MD, Syouwaku Nagoya City, Japan
Warren Knudson, PhD, Greenville, NC
Cheryl B. Knudson, PhD, Greenville, NC
Naoki Ishiguro, MD, Nagoya, Japan

Osteoarthritic chondrocytes readily dedifferentiate upon expansion in monolayer culture. A pellet culture technique was used to determine the limit of re-differentiation capacity of these cells.

Poster No. P411

Tribological Study of Bovine Cartilage Sliding Against Polyurethane, Polyethylene and Cobalt-chrome

Joseph A. Gil, MD, Providence, RI
Kimberly A. Bartosiak, BS, Forest Park, IL
Robert Erck, PhD, Lemont, IL
Steven C. Chudik, MD, Westmont, IL

This study compares the tribological behavior of bovine cartilage sliding against polyurethane, polyethylene, and cobalt-chrome.

Poster No. P412

Fifth Metatarsal Fractures: Associated Radiographic Factors and Effect on Participation in the NFL

Dominic S. Carreira, MD, Fort Lauderdale, FL
Scott M. Sandilands, BS, Fort Lauderdale, FL

Fifth metatarsal fractures not statistically significant for decreased participation in NFL. Radiographic abnormalities noted in coronal plane with varus alignment.

Poster No. P413

Adolescent Runners: The Effect of Training Shoes upon Running Kinematics

Scott M. Mullen, MD, Kansas City, KS
E. Bruce Toby, MD, Kansas City, KS

Modern running shoes feature a large cushioned heel, intended to dissipate the energy transmitted to the knees and hips. Adolescents wearing running shoes landed on their heels strike 70% of the time.

Poster No. P414

◆Platelet-Derived Growth Factor-BB, Platelet-Rich Plasma and Corticosteroids in a Tendinopathy Model

Joshua Dines, MD, Great Neck, NY
Vivek R. Shah, PhD, Hanover Park, IL
Luis A. Solchaga, PhD, Franklin, TN
Alison M. Benedele, PhD, Boulder, CO
Jack Ratliff, BA, Franklin, TN
Patricia A. Ward, MS, Franklin, TN
Hans Kestler, Franklin, TN
Christopher Hee, Phd, Franklin, TN

Treatment with recombinant human platelet-derived growth factor-BB results in improved biomechanical properties compared to platelet-rich plasma or corticosteroids in a rat Achilles tendinopathy model.

Poster No. P415

Osteochondral Lesion of Talus: Is There a Critical Factor in Three-Dimensional Profile of Defect for Poor Outcome?

Chayanin Angthong, MD, Pathum Thani, Thailand
Ichiro Yoshimura, MD, Fukuoka, Japan
Kazuki Kanazawa, MD, Fukuoka, Japan
Tomonobu Hagio, MD, Fukuoka, Japan
Takahiro Ida, MD, Fukuoka, Japan
Masatoshi Naito, MD, Fukuoka, Japan

Defect depth is an essential factor in OLT and may assist as a basis for preoperative decisions. A cutoff value exists concerning the risk of poor outcome at a defect depth of 6 mm as measured via MRI.

Poster No. P416

Epidemiology and Outcomes of Concussions in Major League Baseball

Vincent M. Moretti, MD, Chicago, IL
Leslie E. Schwindel, MD, Chicago, IL
Jonathan Watson, MD, Chicago, IL
Mark R. Hutchinson, MD, Chicago, IL

The impact of concussion injuries to professional baseball players can be significant. They can result in lengthy time on the injured list, temporary performance decreases, and the end of careers.

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Poster No. P417

◆Comparison of Four Cartilage Repair Techniques in the Human Cadaveric Hip Joint: A Biomechanical Study

Adrian J. Cassar Gheiti, MD, MRCSEd, Dublin, Ireland
Daniel Byrne, PhD, Santry Demsne, Ireland
Kevin J. Mulhall, MD, Dublin, Ireland

In this study, four techniques of chondral repair on the acetabular articular surface were biomechanically compared by simulating a walking cycle in the hip joint at 25% weight bearing.

Poster No. P418

Five to Seven Year Survivorship Following Hip Arthroscopy

Marc J. Philippon, MD, Vail, CO
Mackenzie M. Herzog, BA, Vail, CO
Karen K. Briggs, MPH, Vail, CO

The purpose of this study was to determine the survivorship (not requiring total hip replacement) following hip arthroscopy at 5 to 7 years.

Poster No. P419

Gender Differences in Acetabular Morphology: Implications in Femoroacetabular Impingement

Joseph Maratt, MD, Ann Arbor, MI
M. Mustafa Gomberawalla, MD, Ann Arbor, MI
Sven Holcombe, BS, Ann Arbor, MI
Stewart C. Wang, Ann Arbor, MI
James A. Goulet, MD, Ann Arbor, MI

Identified gender differences in acetabular morphology including focal and global femoral head coverage, acetabular version and quantified the prevalence of acetabular retroversion in the population.

Poster No. P420

Sports Activities after Total Hip Arthroplasty - A Questionnaire Study for 607 Patients

Hirohito Abe, MD, Osaka, Japan
Takashi Sakai, MD, Suita, Japan
Takashi Nishii, MD, Osaka, Japan
Masaki Takao, MD, Suita, Japan
Nobuo Nakamura, MD, Osaka, Japan
Nobuhiko Sugano, MD, Suita, Japan

88% of the patients have postoperatively participated in the sports activities after total hip arthroplasty. The most common reason why they did not participated in the sports activities was anxiety.

Poster No. P421

Endoscopic Release of the Iliotibal Band for External Snapping Hip Syndrome

Victor M. Ilizaliturri Sanchez Jr, MD, Mexico City, Mexico

Two year follow-up results of 45 patients treated with endoscopic release of the iliotibal band for external snapping hip syndrome. Results of this procedure were similar to those of open surgery.

Poster No. P422

The Accuracy of Magnetic Resonance Arthrography after Hip Arthroscopic Labral Surgery

Alessandro Aprato, MD, Torino, Italy
Narlaka Jayasekera, FRCS (Ortho), Cambridge, United Kingdom
Richard N. Villar, MD, Cambridge, United Kingdom

When a labral tear has been repaired or partial labral excision has been performed, a post-operative MRA may inaccurately diagnose the presence of a persistent, recurrent, or unhealed tear.

Poster No. P423

Midterm Comparison of Clinical Results in Simultaneous Open Wedge HTO and ACL Reconstruction

Jae-Young Moon, MD, Hwasun-Gun, Republic of Korea
Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Republic of Korea
Ji-Hyeon Yim, Jeonnam, Republic of Korea
Kyujin Cho, MD, Gwangju, Republic of Korea

Simultaneous open wedge HTO and ACL reconstruction showed satisfactory correction angle and improved knee joint function.

Poster No. P424

Systemic Performance-Enhancing Effects of Platelet-Rich Plasma (PRP) Injection

Amy Wasterlain, Menlo Park, CA
Hillary Braun, BA, Redwood City, CA
Alex H. Harris, PhD, MS
Hyeon Joo Kim, PhD
Jason L. Dragoo, MD, Redwood City, CA

Serum IGF-1, VEGF and bFGF increase after PRP treatment, suggesting that PRP may enhance athletic performance, and providing a molecular profile that could detect athletes who have been treated.

Poster No. P425

Biomechanical Evaluation of Pediatric Anterior Cruciate Ligament Reconstruction Techniques

Moira M. McCarthy, MD, New York, NY
Scott M. Tucker, MS, BS, New York, NY
Joseph Nguyen, MPH, New York, NY
Daniel W. Green, MD, New York, NY
Carl W. Imhauser, PhD, New York, NY
Frank A. Cordasco, MD, New York, NY

Pediatric ACL reconstruction techniques including the all-epiphyseal technique restore stability to the ACL deficient knee.

Poster No. P426

Midterm Results of Double Bundle ACL Reconstruction Using Soft Tissue Allograft

Jong-Keun Seon, MD, Hwasungun, Republic of Korea
Eun K. Song, MD, Hwasun-Gun, Republic of Korea
Ji-Hyeon Yim, Jeonnam, Republic of Korea
Jae-Young Moon, MD, Hwasun-Gun, Republic of Korea

The double-bundle ACL reconstruction technique showed satisfactory clinical and stability results, but not regarding the progression of osteoarthritis and graft healing.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P427

Intraarticular Injections of Adipose-derived Stem Cells Improved Clinical Results in Knee Osteoarthritis

Yun-Jin Choi, Seoul, Republic of Korea
Yong-Gon Koh, Seoul, Republic of Korea
Oh-Ryong Kwon, MD, Seoul, Republic of Korea
Seung-Bae Jo, MD, Seoul, Republic of Korea
Dongsuk Suh, Seoul, Republic of Korea

Intra-articular injections of buttock subcutaneous adipose-derived stem cells improved clinical results in patients with knee osteoarthritis.

Poster No. P428

Lateral Compartment Cartilage Pressure: Implications for Cartilage Procedures

Carmen E. Quatman, MD, Columbus, OH
Ata Kiapour, MS, Toledo, OH
Vijay Goel, PhD, Toledo, OH
Richard Ditto, MS, Van Wert, OH
Samuel C. Wordeman, BS, Columbus, OH
Jason W. Levine, MD, Toledo, OH
Timothy E. Hewett, PhD, Columbus, OH
Constantine Demetropoulos, PhD, Toledo, OH

This study evaluated intra-articular pressure distribution patterns during a simulated squat. Avoidance of tibial abduction and internal rotation during rehabilitation may be important for lateral tibia.

Poster No. P429

Evaluation of the Rates of Arthroscopy for Osteoarthritis

Robert E. Holmes, Wilder, Vermont
Wayne E. Moschetti, MD, Lebanon, NH
Brook I. Martin, Lebanon, NH
Ivan M. Tomek, MD, Lebanon, NH
Samuel Finlyson, MD, MPH, Boston, MA

Evidence of the ineffectiveness of arthroscopy as a treatment for knee osteoarthritis, along with changes in reimbursement, preceded a significant decline in the rate of this procedure from 2002-2008.

Poster No. P430

◆Cost-Effectiveness Analysis of ACI: A Comparison of Periosteal Patch Versus Type I/III Collagen Membrane

Eric M. Samuelson, MD, Omaha, NE
David E. Brown, MD, Omaha, NE

This analysis revealed that, while both autologous chondrocyte implantation with periosteum (ACI-P) and a collagen patch (ACI-C) are cost-effective, ACI-C is slightly more cost-effective than ACI-P.

Poster No. P431

Biomechanical Analysis of Posterior Cruciate Ligament Reconstruction Using Aperture Femoral Fixation

Amar Mutnal, MD, Cleveland, OH
Luis Vargas, MD, Coral Gables, FL
John W. Uribe, MD, Coral Gables, FL
Robb Colbrunn, MSc, Cleveland, OH
Robert S. Butler, BSMSMS, Cleveland, OH
Brian M. Leo, MD, Weston, FL

Using a novel femoral fixation device, single-bundle PCL reconstruction better restored native knee kinematics than single-tunnel--double-bundle reconstruction in this 3-D robotic testing model.

Poster No. P432

Day Case Knee Arthroscopy in Methicillin Resistant Staphyloccus Aureus Positive Patients

Jane Campbell, Galway, Ireland
Paraic A. Murray, MD, Galway City, Ireland

A report on the incidences of positive Methicillin Resistant Staphyloccus Aureus (MRSA) results of a cohort of knee arthroscopy patients, screened on admission.

Poster No. P433

Factors Related to Meniscal Extrusion and Cartilage Lesions after Medial Meniscus Root Tears

Sung-Hwan Kim, MD, Seoul, Republic of Korea
Sung-Jae Kim, MD, Seoul, Republic of Korea
Yong-Min Chun, MD, Seoul, Republic of Korea
Seong H. Kim, MD, Seoul, Republic of Korea
Min Jung, MD, Seoul, Republic of Korea
Su Keon A. Lee, MD, Seoul, Republic of Korea
Jae-Hoo Lee, MD, Seoul, Republic of Korea

The risk of medial extrusion of the meniscus and severity of articular cartilage lesion increased with time after injury. It could be suggested that a 2 month period after MRT is a critical time for intervention.

Poster No. P434

Incidence of Deep Venous Thrombosis after Tibial Tubercle Osteotomy: A Case Series Study

Alternate Paper: Sports Medicine/Arthroscopy IV: Patella/Meniscus

Miho J. Tanaka, MD, New York, NY
Joseph Nguyen, MPH, New York, NY
Beth E. Shubin Stein, MD, New York, NY

We report the incidence of deep venous thrombosis after tibial tubercle osteotomy in a case series of a single-surgeon cohort.

Poster No. P435

Platelet Rich Plasma in Accelerated Achilles Tendon Regeneration: A Randomized Controlled Trial -Pilot Phase

Joseph Alsousou, MD, Oxford united Kingdom

Our preliminary findings show that PRP application in Achilles tendon rupture may lead to faster regeneration and return to function as supported by a combination of objective and subjective outcome measures.

◆The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P436
Are Medicaid Patients at Greater Risk of Infection after Arthroscopy?
Joseph L. Finstein, MD, New Orleans, LA
Aaron K. Black, MD, Boston, MA
Steven B. Cohen, MD, Media, PA

A PA Medicaid Database review found an arthroscopy infection rate significantly higher than reported in the literature illustrating a population at risk & weakness of "Pay for Performance" policy.

Poster No. P437
Minimum Two-year Follow Up of Arthroscopic Direct Removal of Popliteal Cyst by Posteromedial Portal
Jinho Cho, MD, PhD, Goyang-Si, Republic of Korea
Jae Gwang Song, MD, Go-Yang City, Republic of Korea
Dong-Hyun Seo, Goyang, Republic of Korea

we propose a new arthroscopic technique, that is, direct excision of popliteal cyst without additional skin incision, using 70 degree arthroscopy and posteromedial portal.

Poster No. P438
Clinical Utility of Magnetic Resonance Imaging in the Evaluation of Knee Pain in Patients 40 and Older
Muyibat A. Adelani, MD, Saint Louis, MO
Nathan A. Mall, MD, Chesterfield, MO
Robert H. Brophy, MD, Chesterfield, MO
Mark Halstead, MD, Chesterfield, MO
Matthew V. Smith, MD, Town and Country, MO
Rick W. Wright, MD, Saint Louis, MO

Magnetic resonance imaging has limited clinical utility in the evaluation of patients 40 years and older with knee pain.

Poster No. P439
An Alternative Endoscopic Portal for Suprascapular Nerve Approach: An Anatomic Study
Akin Uzumcugil, Ankara, Turkey
Gazi Huri, Ankara, Turkey
Omer S. Bicer, Adana, Turkey
Mahmut N. Doral, MD, Ankara, Turkey

Endoscopic portal for suprascapular nerve approach.

Poster No. P440
Simultaneous Reconstruction of Acromioclavicular and Coracoclavicular Ligaments using a Single Tendon Graft
Sang-Jin Shin, MD, Seoul, Republic of Korea
Sean Campbell, BS, Long Beach, CA
Jonathan H. Scott, Irvine, CA
Michelle H. McGarry, MD, Long Beach, CA
Thay Q. Lee, PhD, Long Beach, CA

A single tendon AC-CC reconstruction technique using a single free tendon graft provided an anatomic provided greater stability and stronger load to failure characteristics than a CC reconstruction.

Poster No. P441
Coracoclavicular Stabilization with Endobuttons and Suture Anchor for Acute Acromioclavicular Joint Dislocation
Yohsiyasu Uchiyama, MD, PhD, Kanagawa, Japan
Akiyoshi Handa, MD, PhD, Isehara, Kanagawa, Japan
Eiji Shimpuku, DMed, Tokyo, Japan
Hiroko Omi, Isehara, Japan
Joji Mochida, MD, PhD, Isehara, Kanagawa, Japan

Coracoclavicular ligament reconstruction using suture anchor and endobuttons is a reliable technique for restoring the stability of the AC joint in cases of type V AC joint dislocation.

Poster No. P442
Reconstruction of a Bony Bankart Lesion: Best Fit Based on Radius of Curvature
Alexander DeHaan, MD, Portland, OR
Jacqueline Munch, MD, Portland, OR
Michael Durkan, BS, Portland, OR
Jung U. Yoo, MD, Portland, OR
Dennis C. Crawford, MD, Portland, OR

Based on cadaveric measurements of the glenoid radius of curvature, the most ideal augmentation would be either an inferior coracoid autograft or lateral distal tibia osteochondral allograft.

Poster No. P443
Why the Tenodesis? A Comparison of Large Hill-Sachs Lesions Treated by Remplissage or Isolated Bankart Repair
Grant Garcia, MD, New York, NY
Min J. Park, MD, MSc, Philadelphia, PA
Clare Zhang, MD, Philadelphia, PA
John D. Kelly IV, MD, Newtown Square, PA
G. Russell Huffman, MD, Philadelphia, PA

In comparison to isolated Bankart repair, Remplissage is a superior option for recurrent instability patients with large Hill-Sachs lesions as seen by improved failure rates and outcome scores.

Poster No. P444
In Bankart Repair, Inclusion of the Middle Glenohumeral Ligament does not Affect Shoulder Kinematics
Alexander C. Garber, MD, Honolulu, HI
Sang-Jin Shin, MD, Seoul, Republic of Korea
Michelle H. McGarry, MD, Long Beach, CA
Evan H. Argintar, MD, Washington, DC
James E. Tibone, MD, Los Angeles, CA
Thay Q. Lee, PhD, Long Beach, CA

Inclusion of the MGHL in a Bankart repair may result in a stronger repair while not significantly limiting range of motion or over-constraining the glenohumeral joint.

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Poster No. P445
Outcome of a Partial Cap Resurfacing Implant for Humeral Head Defects in Patients with Shoulder Instability
Nicholas C. Frisch, MD, Shaker Heights, OH
Pradeep Kodali, MD, Bellaire, TX
Morgan H. Jones, MD, Cleveland Heights, OH
Anthony Miniaci, MD,FRCSC, Garfield Hts, OH

In 21 shoulders with instability receiving a HemiCAP resurfacing implant for a humeral bony defect, none have suffered a re-dislocation and self reported outcomes scores have statistically improved.

Poster No. P446
Suspensory Fixation for Subpectoral Biceps Tenodesis: A Cadaveric Study
Anshuman Singh, MD, San Diego, CA
Amarpal S. Arora, MD, San Diego, CA
James P. Tasto, MD, San Diego, CA

With its technical simplicity, favorable biomechanical properties and small stress riser, suspensory unicortical fixation is a safe and practical option for subpectoral biceps tenodesis.

Poster No. P447
A Comparison of Glenoid Bone Loss Measurement Methods in Patients with Shoulder Instability
Neil Bakshi, BA, Canton, MI
Omar Jameel, MD, Royal Oak, MI
Jon A. Jacobson, MD, Ann Arbor, MI
Richard E. Debski, PhD, Pittsburgh, PA
Jon K. Sekiya, MD, Ann Arbor, MI

This study proposes a new method to measure glenoid bone loss and compares it and two other established methods to arthroscopic estimation.

Poster No. P448
The "Bony Bankart Bridge" Technique for Restoration of Anterior Shoulder Stability
Frank Martetschlager, MD, Vail, CO
Marilee P. Horan, MPH, Vail, CO
Daniel Rios, MD, Avon, Colorado
Peter J. Millett, MD, MSc, Vail, CO

Arthroscopic Bony Bankart Bridge technique for anterior instability with glenoid rim fractures can restore shoulder stability, yield successful clinical outcomes and provide high patient satisfaction.

Poster No. P449
Characterization of Symptomatic Hip Impingement in Butterfly Ice Hockey Goalies
Asheesh Bedi, MD, Ann Arbor, MI
Rebecca M. Stone, ATC, Edina, MN
Elizabeth R. Sibilsky Enselman, MEd, ATC, Ann Arbor, MI
Bryan T. Kelly, MD, New York, NY
Christopher Larson, MD, Edina, MN

FAI with predominate femoral sided deformity is frequently observed in butterfly hockey goalies with symptomatic hip and groin pain. Arthroscopic osteoplasty can successfully address the deformity.

Poster No. P450
Results of Open Osteochondroplasty for Femoroacetabular Impingement with Minimum Two-year Follow Up
Brian M. Curtin, MD, Richmond, VA
Susan M. Odum, Charlotte, NC
John L. Masonis, MD, Charlotte, NC

Just over one third of patients treated surgically with open osteochondroplasty for femoroacetabular impingement have gone on to require additional surgery or showed signs of arthritic progression.

Poster No. P451
Lateral vs. Beach Chair Shoulder Arthroscopy Position: Is There Really a Vital Signs Difference During Positioning?
Alternate Paper: Sports Medicine/Arthroscopy VI: Shoulder (RC), Elbow
Joseph L. Finstein, MD, New Orleans, LA
Lawrence S. Miller, MD, Camden, NJ
John P. Salvo Jr, MD, Voorhees, NJ

We compared the change in vitals signs between beach chair vs lateral decubitus positioning during shoulder arthroscopy and found no statistical difference.

Poster No. P452
Arthroscopic Hip Revision Surgery for Residual Femoroacetabular Impingement: Surgical Outcomes
Christopher Larson, MD, Edina, MN
Marc Russell Giveans, PhD, Eden Prairie, MN
Asheesh Bedi, MD, Ann Arbor, MI
Kathryn Samuelson, BS, Edina, MN
Rebecca M. Stone, ATC, Edina, MN

Arthroscopic hip revision surgery for residual FAI led to significantly improved outcome measures. Outcomes, however, were inferior to those after primary arthroscopic FAI corrective surgery.

Poster No. P453
Quantifying the Influence of Flow Rate on the Safety Profile of Radiofrequency Ablation in Hip Arthroscopy
Alternate Paper: Sports Medicine/Arthroscopy VII: Hip
Frank McCormick, MD, Chicago, IL
Kyle Alpaugh, MS, Boston, MA
Benedict U. Nwachukwu, Boston, MA
Scott D. Martin, MD, Boston, MA

Use of Radiofrequency ablation in hip arthroscopy is safe with minimal risk to chondrocytes provided 5 second pulsed irrigation is performed.

Posters

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Poster No. P454

Manangement of Common Pernoneal Nerve Injuries - Our Experiences at Royal National Orthopaedic Hospital

Alternate Paper: Sports Medicine/Arthroscopy V: ACL, PCL, Multiligament

Anna Panagiotidou, MBBS, London, United Kingdom
Jagwant Singh, MRCS, Colchester, United Kingdom
Michael Fox, FRCS (Ortho), Middlesex, United Kingdom
Marco M. Sinisi, London, United Kingdom

There is still a controversy regarding the management of Common peroneal nerve (CPN) injuries Is neurolysis of CPN enough in terms of surgical intervention or do we need nerve grafting?

Poster No. P455

Pelvic Incidence and Femoroacetabular Impingement - A Novel Relationship

Michael D. Hellman, MD, Chicago, IL
Bryan Haughom, MD, Chicago, IL
Nicholas M. Brown, MD, Chicago, IL
Yale Fillingham, MD, Chicago, IL
Shane J. Nho, MD, Chicago, IL

Pelvic Incidence (PI) is lower in patients with labral tears due to femoroacetabular impingement (FAI), particularly those with pincer FAI. PI may affect aberrant hip development such as FAI.

Poster No. P456

Complete Proximal Hamstring Insertion Avulsion: Functional Outcomes after Conservative Treatment

Kurt J. Hofmann, MD, Norwood, MA
Daniel M. Connors, DPT, Natick, MA
Adam Paggi, DPT, PT, Boston, MA
Suzanne L. Miller, MD, Wayland, MA

Nonsurgical management after a complete proximal hamstring avulsion yields significant subjective and strength deficits.

Poster No. P457

Elevated Biomarkers of Cartilage Catabolism and Inflammation in Athletes with Femoroacetabular Impingement

Asheesh Bedi, MD, Ann Arbor, MI
Evan B. Lynch, BS, Ann Arbor, MI
Elizabeth R. Sibilsky Enselman, MEd, ATC, Ann Arbor, MI
Max Davis, BA, Ann Arbor, MI
Tarek Makki, BS, Ann Arbor, MI
Paul DeWolf, BS, Ann Arbor, MI
Bryan T. Kelly, MD, New York, NY
Phillip T. Henning, DO, Ann Arbor, MI
Christopher L. Mendias, PhD, ATC, Ann Arbor, MI

Subjects with femoroacetabular impingement had significantly higher levels of biomarkers of cartilage catabolism and inflammation, and decreases in SF-12 and HOOS scores compared to control subjects.

Poster No. P458

Three-Dimensional Mapping of Cartilage and Labral Pathology in Femoroacetabular Impingement

Antony Palmer, MA, BMBCh, Oxford, United Kingdom
Scott J. Fernquest, BA, Oxford, United Kingdom
Geraint E. Thomas, MA, MBBS, Oxford, United Kingdom
Cameron Griffiths, Surrey, United Kingdom
Lydia Buchanan, London, United Kingdom
Adrian Taylor, MBBS, FRCS, Oxford, United Kingdom
Andrew J. Carr, FRCS, Headington Oxford, United Kingdom
Sion Glyn-Jones, MA MBBS, Oxford, United Kingdom

Cam lesion are most frequently positioned at between1 and 2 O'Clock on the femoral neck, however, damage to acetabular cartilage and labrum is more superior at betweeen 11 and 1 O'Clock.

Poster No. P459

CT and MRI Measurements of Tibial Tubercle to Trochlear Groove Distances are Not Equivalent

Christopher L. Camp, MD, Rochester, MN
Jeffrey R. Bond, MD, Rochester, MN
Mark Collins, Rochester, MN
Michael J. Stuart, MD, Rochester, MN
Aaron J. Krych, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN
Diane L. Dahm, MD, Rochester, MN

In patients with patellar instability, TTTG by magnetic resonance imaging (MRI) tended to be lower than that measured by computed tomography (CT) with decreased reliability between the two modalities.

Poster No. P460

The Results for PCL of Single Bundle Versus Double Bundle Reconstruction for More Than 10 Years Follow Up

Masataka Deie, MD, Hiroshima, Japan
Mitsuo Ochi, MD, PhD, Hiroshima, Japan
Nobuo Adachi, MD, Hiroshima, Japan
Atsuo Nakamae, MD, PhD, Hiroshima, Japan
Kobun Takazawa, Hiroshima, Japan

No significant clinical differences were between PCL single bundle reconstruction and double bundle reconstruction after more than 10 years. While almost of both cases had good results, some cases have.

Poster No. P461

Clinical Outcomes of Surgical Treatment of Multi-ligamentous Knee Injury with Associated Peroneal Nerve Palsy

Steven A. Giuseffi, MD, Rochester, MN
Joshua L. Hudgens, MD, Ann Arbor, MI
Michael J. Stuart, MD, Rochester, MN
Bruce A. Levy, MD, Rochester, MN

Outcomes after surgical treatment of multi-ligamentous knee injury with concomitant peroneal nerve palsy are worse than those previously reported for isolated ligamentous injury.

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Poster No. P462

The Postoperative Vascular Risk Associated with Multiple-Ligament Knee Reconstruction Under Tourniquet Control

Kyle F. Chun, MD, Edmonds,
Lauren Meyer, BS, Seattle, WA
Alex W. Farnand, BA, Seattle, WA
Christopher J. Wahl, MD, La Jolla, CA

During the treatment of multiligament knee injured patients, risk stratification may minimize but not eliminate the risk of vascular injury associated with the use of a tourniquet.

Poster No. P463

Platelet-Rich Plasma as a Treatment for Patellar Tendinopathy: A Double-Blind Randomized Controlled Trial

Jason L. Dragoo, MD, Redwood City, CA
Amy Wasterlain, Menlo Park, CA
Hillary Braun, BA, Redwood City, CA

A therapeutic regimen of eccentric exercise and dry needling with PRP is significantly better than exercises and dry needling alone at 12 weeks.

Poster No. P464

Anterior Cruciate Ligament Reconstruction in Patients Over 50 Years Old

Tyler T. Steubs, BS, Minneapolis, MN
Sabrina K. Sikka, North Oaks, MN
Keshav Kohli, North Oaks, MN
Robby S. Sikka, MD, Minneapolis, MN
Madan Mohan G. Reddy, MBBS, MS, Bloomington, MN
Gary B. Fetzer, MD, Minneapolis, MN
Joel L. Boyd, MD, Minneapolis, MN

CL Reconstruction in carefully-selected patients over 50 years old can result in return to sport and substantial improvement in quality of life and activities of daily living.

Poster No. P465

Deformation of Two Anterior Cruciate Ligament Femoral Anchoring Systems Following Cyclical-Loading

Harvey E. Montijo, MD, Charlotte, NC
Nahir A. Habet, MSc, Charlotte, NC
Scott B. O'Neal, MD, Waxhaw, NC
James E. Fleischli, MD, Charlotte, NC
Richard D. Peindl, PhD, Charlotte, NC

Two fairly new suspensory femoral anchoring devices (TR and ZL) see deformation during cyclical loading. These values are important when considering graft placement.

Trauma

Poster No. P466

Dedicated Clearance Protocols Affect Length of Stay and Complications in Hip Fracture Patients

Ronald Huang, MD, Philadelphia, PA
Michael J. Bercik, MD, Philadelphia, PA
Zachary D. Post, MD, Egg Harbor Township, NJ
Fabio Orozco, MD, Egg Harbor Township, NJ
Alvin C. Ong, MD, Linwood, NJ

Protocol-driven clearance and postoperative medical management of hip fracture patients by a team of dedicated medical specialist led to fewer wound infections and shorter lengths of stay.

Poster No. P467

The New Strategy for Fracture Healing by Ex-vivo Expanded Bone Marrow CD34 Positive Progenitor Cells

Yohei Kawakami, MD, Hyogo, Japan
Masaaki Ii, MD, PhD, Takatsuki, Osaka, Japan
Tomoyuki Matsumoto, MD., PhD, Kobe, Japan
Yutaka Mifune, MD, Kobe, Japan
Tomoaki Fukui, Kobe, Japan
Ryosuke Kuroda, MD, Kobe, Japan
Masahiro Kurosaka, MD, Kobe, Japan
Takayuki Asahara, Isehara, Japan

Autologous culture expanded BM CD34+ cell transplantation therapy would be not only a simple but also powerful therapeutic strategy for unhealing fracture.

Poster No. P468

A Biomechanical Study Comparing Polyaxial Locking Screw Mechanisms

Jonah Hebert-Davies, MD, Montreal, QC, Canada
Fanny Canet, Montreal, QC, Canada
Emilie Sandman, MD, Outremont, QC, Canada
Li Ang, BS, Montréal, QC, Canada
Dominique Rouleau, MD, Montreal, QC, Canada
George Y. Laflamme, MD, Montreal, QC, Canada

Several types of polyaxial screws experience significant loss in strength of up to 45% when inserted at maximal angulation. The effective total freedom of motion is reduced to 20 degrees.

Poster No. P469

Transfection of NF-κB Decoy Oligodeoxynucleotide Protects Against Ischemia/reperfusion Injury in Rat Skin Flap

Takeshi Uemura, MD, Tsu City, Japan
Masaya Tsujii, MD, PhD
Koji Akeda, MD, PhD, Tsu, Japan
Haruhiko Satonaka, MD, PhD, Tsu, Japan
Kazuichiro Hori, MD, Nagoya, Japan
Akihiro Sudo, Prof., Tsu City, Mie, Japan

Naked NF-κB decoy ODN was distributed over the entire flap. Transfection of the ODN significantly protected rat skin flap against I/R injury and decreased inflammation and expression of iNOS.

Posters

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Poster No. P470
Pelvic Recoil and Anterior Sacroiliac Ligament Integrity Related to Rapid Separation of the Symphysis Pubis
Alternate Paper: Trauma III: Plevis and Acetabulum
Hans Joseph, DO, Erie, PA
Steven F. Habusta, DO, Erie, PA

This study examines the anterior sacroiliac ligament integrity in open book pelvic ring injuries, as well as graphs the pelvis' ability to recoil from various amounts of opening.

Poster No. P471
◆Prevention of Pin Tract Infection with Iodine-supported Titanium Pin
Toshiharu Shirai, MD, Kanazawa, Japan
Koji Watanabe, Kanazawa, Japan
Hidenori Matsubara, MD, Kanazawa, Japan
Issei Nomura, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Antibacterial iodine-supported pins (i-pins) which we have developed were able to significantly decrease pin tract infection rate and had no cytotoxicity. I-pins are next-generation materials.

Poster No. P472
Comparison of Image Quality and Radiation Exposure from C-arm Flouroscopes when Used for Imaging the Pelvis
Mark L. Prasarn, MD, Bellaire, TX
David B. Doherty JR, MS, BA, Houston, TX
Timothy S. Achor, MD, Houston, TX
Joshua L. Gary, MD, Houston, TX
John W. Munz, MD, Houston, TX
Milan Sen, MD, Houston, TX
Glenn R. Rechtine II, MD, Pinellas Park, FL

Upon evaluation of commonly used C-arm fluoroscopes, the GE OEC produced the best quality images and ranked the highest, while emitting the least amount of radiation.

Poster No. P473
◆Fluoroscopic Radiation to the Orthopedic Traumatologist's Hand & Efficacy of a Novel Radiation Attenuation Product
Evan Dougherty, MD, Maywood, IL
Erika J. Mitchell, MD, Maywood, IL
Michael D. Stover, MD, Chicago, IL
Hobie D. Summers, MD, Chicago, IL
Adam S. Hintz, BS, Oak Park, IL

The orthopedic traumatologist's hand is routinely exposed to fluoroscopic radiation scatter. This study outlines that risk and introduces a novel product that reduces radiation exposure to the hand.

Poster No. P474
Inflammatory Response Following Tibial Plateau Fracture
Justin Haller, MD, Salt Lake City, UT
Thomas F. Higgins, MD, Salt Lake City, UT
Erik Kubiak, MD, Salt Lake City, UT

Inflammatory response following intra-articular fracture is elevated and there is a time-dependent response with cytokines.

Poster No. P475
Locking Plate Fixation of the Proximal Humerus with Fracture Impaction to Restore the Medial Column
Colleen Weeks, MD, Edmonton, AB, Canada
Farhana Begum, BscEng, Edmonton, AB, Canada
Samer Adeeb, PhD, Edmonton, AB, Canada
Lauren A. Beaupre, PhD, Edmonton, AB, Canada
Jason P. Carey, PhD, Edmonton, AB, Canada
Martin J. Bouliane, MD, Edmonton, AB, Canada

Proximal humerus fixation with shaft medialization and impaction to restore the medial column was shown to be a biomechanically superior construct when compared to traditional locking plate fixation.

Poster No. P476
Sacroiliac Screw Placement in Dysmorphic Sacrum is More Accurate with 3D Navigation than 2D or Fluoroscopy
Amir Matityahu, MD, San Francisco, CA
David M. Kahler, MD, Earlysville, VA
Christian Krettek, MD, Hannover, Germany
Ulrich Stöckle, MD, Tuebingen, Germany
Peter Messmer, MD, Dubai, United Arab Emirates
Jan Ljungqvist, Duebendorf, Switzerland
Florian Gebhard, MD, Ulm, Germany

Placement of Iliosacral screws utilizing intraoperative 3D navigation significantly increases accuracy in the dysmorphic and typical sacrum relative to fluoroscopy and 2D navigation.

Poster No. P477
Comparison of Titanium Elastic Nail and Plate Fixation of Pediatric Subtrochanteric Femur Fractures
G. Ying Y. Li, MD, Ann Arbor, MI
Benton E. Heyworth, MD, Boston, MA
Michael P. Glotzbecker, MD, Waban, MA
Mark Seeley, MD, Ann Arbor, MI
Joel J. Gagnier, PhD, Ann Arbor, MI
Kelly L. Vanderhave, MD, Ann Arbor, MI
Michelle S. Caird, MD, Ann Arbor, MI
Frances A. Farley, MD, Ann Arbor, MI
Daniel J. Hedequist, MD, Boston, MA

A multicenter retrospective study showed that plating of pediatric subtrochanteric femur fractures was associated with better outcome scores and a lower complication rate than titanium elastic nailing.

Poster No. P478
Vitamin D Insufficiency in Patients with Acute Hip Fractures of all Ages and both Sexes in a Sunny Climate
Alternate Paper: Trauma IV: Hip and Femur
Amanda L. Johnson, MD, San Jose, CA
Joel J. Smith, MD, San Diego, CA
Jeffrey M. Smith, MD, San Diego, CA
Anthony G. Sanzone, MD, Encinitas, CA

Patients aged 18 and older of both sexes with hip fractures had insufficient levels of Vitamin D, and those aged 71+ had significantly lower levels than a control group of total joint patients.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P479

The Effects of "Old" Red Blood Cells Transfusion on Mortality and Morbidity in Hip Fracture Patients

Assaf Kadar, MD, Givaatayim, Israel
Ofir Chechik, MD, Ramat Hasharon, Israel
Ely L. Steinberg, MD, Rishoh LeZion, Israel
Moshe Salai, MD, Tel-Aviv, Israel
Amir Sternheim, Toronto, ON, Canada

The study assess the influence of the number and age of blood units transfused on mortality. We conclude that both the number of ABT's and the age of the units were related to increased mortality.

Poster No. P480

Notch Signaling in Mesenchymal Stem Cells (MSCs) and Tibial Fracture Callus Harvested from Geriatric Mice

Nicole S. Belkin, MD, Philadelphia, PA
Lorraine L. Mutyaba, BS, Philadelphia, PA
Allison E. Williams, Philadelphia, PA
Lee McDaniel Jr, MS, Philadelphia, PA
Derek L. Dopkin, BA, Philadelphia, PA
Kurt D. Hankenson, DVM, Philadelphia, PA
Jaimo Ahn, MD, PhD, Philadelphia, PA

MSCs and fracture callus from geriatric mice show altererations in notch signaling pathways, suggesting a potential therapeutic target to improve geriatric fracture healing.

Poster No. P481

Laser Targeting with C-arm Fluoroscopy: Effect on Image Acquisition and Radiation Exposure

Franklin D. Shuler, MD, Huntington, WV
Justin Daigre, MD, Morgantown, WV
Danh Pham, BS, Morgantown, WV

Laser targeting helped with imaging knees and ankles with statistically significant reductions in fluoroscopy time and a statistically significant improvement of image quality.

Poster No. P482

◆CAM Walkers Only Diminish Lower-Extremity Loading in a Clinically Meaningful Way During Dynamic Loading

Kylee North, MS, Bountiful, UT
Ami Stuart, Salt Lake Cty, UT
Thomas F. Higgins, MD, Salt Lake City, UT
Robert W. Hitchcock, Salt Lake City, UT
Erik Kubiak, MD, Salt Lake City, UT

Previous literature demonstrates that CAM walkers decrease peak loading by 30-37%. Our findings show that the amount of decrease is dependent on the use of the CAM walker's strapping mechanism.

Poster No. P483

Minimally Displaced Clavicle Fracture After High Energy Injury: Are They Likely to Displace?

Alternate Paper: Trauma V: Lower Extremity: Knee and Tibia

John Riehl, MD, Orlando, FL
William Athans, MD, Orlando, FL
Mark W. Munro, MD, Windermere, FL
George J. Haidukewych, MD, Orlando, FL
Stanley J. Kupiszewski, MD, Orlando, FL
Joshua Langford, MD, Orlando, FL
Kenneth J. Koval, MD, Orlando, FL

Clavicle fractures in patients who sustain a high energy injury have a high propensity to displace on follow-up x-rays, even when initially minimally displaced.

Poster No. P484

An In Vitro Fibroproliferative Model to Investigate Cellular Precursors of Heterotopic Ossification

Emily Shin, MD, Bethesda, MD
Ji Youngmi, Bethesda, MD
Gregory T. Christopherson, Bethesda, MD
Husain Bharmal, MD, Silver Spring, MD
Wesley M. Jackson, Albany, CA
Leon Nesti, MD, PhD, Crownsville, MD

We propose that an in vitro cellular model of fibrotic nodule formation is representative of TGFβ1-induced fibrosis, which plays a role in wound healing and subsequent formation of HO.

Poster No. P485

SDF-1/CXCR4 Axis Regulate Both Vasculogenesis and Osteogenesis for Bone Fracture Healing

Yohei Kawakami, MD, Hyogo, Japan
Tomoyuki Matsumoto, MD., PhD, Kobe, Japan
Yutaka Mifune, MD, Kobe, Japan
Tomoaki Fukui, Kobe, Japan
Ryosuke Kuroda, MD, Kobe, Japan
Masahiro Kurosaka, MD, Kobe, Japan
Takayuki Asahara, Isehara, Japan

The promotion of CXCR4/SDF-1 signal on EPCs lead to the acceleration of bone fracture healing for new therapeutic strategies to fracture repair.

Poster No. P486

The Impact of Multiple Cultures on Antibiotic Usage: A Protocol for Nonunion and Hardware Infections

Michael Kuhne, MD, Portland, OR
Joseph Volpi, BS, Portland, OR
Penelope Barnes, MBBS, PhD, Portland, OR
Darin M. Friess, MD, Portland, OR

In comparison to 1-2 biopsies, 5 or more biopsies improved diagnostic accuracy of septic nonunion or hardware infection and altered post-operative antibiotic management in nearly one quarter of cases.

◆The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P487
Osteoporosis Treatment Reduces Mortality Risk after Hip Fracture Surgery in Elderly Women
Alternate Paper: Trauma II: Geriatric Fractures
Youn-Soo Park, MD, Seoul, Republic of Korea
Young-Wan Moon, MD, Seoul, Republic of Korea
Seung-Jae Lim, MD, Seoul, Republic of Korea
Sang-Min Kim, MD, Seoul, Republic of Korea

Osteoporosis treatment appears to reduce mortality risk in elderly women after hip fracture surgery.

Poster No. P488
Displaced Supracondylar Humerus Fractures in Toddlers: Are They Different?
Camila B. De Mattos, MD, Portland, OR
David Ramski, Washington, DC
Bernard D. Horn, MD, Philadelphia, PA

Toddlers differ from older children regarding type 3 fractures especially concerning the location where the injury occurs, higher rate of suspected child abuse and the number of pins used in surgery.

Poster No. P489
Length of Stay and American Society of Anesthesiologists (ASA) Status in the Orthopaedic Trauma Patient
Zachary Yoneda, BA, Nashville, TN
Amir A. Jahangir, MD, Nashville, TN
Jesse Ehrenfeld, MD, MPH, Nashville, TN
Mallory Powell, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Manish K. Sethi, MD, Nashville, TN

ASA status was shown to have strong predictive value in estimation of length of stay following procedures across orthopedic trauma surgeries in a retrospective study at a major trauma center.

Poster No. P490
A Small Interfering RNA Targeting Lnk is Effective in Treatment of Bone Fracture via Early Neovascularization
Yohei Kawakami, MD, Hyogo, Japan
Tomoyuki Matsumoto, MD., PhD, Kobe, Japan
Ryosuke Kuroda, MD, Kobe, Japan
Masaaki Ii, MD, PhD, Takatsuki, Osaka, Japan
Yutaka Mifune, MD, Kobe, Japan
Tomoaki Fukui, Kobe, Japan
Masahiro Kurosaka, MD, Kobe, Japan
Takayuki Asahara, Isehara, Japan

We clarified that negatively controlled Lnk system contributed to a favorable environment for fracture healing by enhancing vasculogenesis and osteogenesis.

Poster No. P491
Reliability of Qualitative Radiographic Characteristics of Upper Sacral Segment Dysmorphism
Scott Kaiser, MD, San Francisco, CA
Joseph Liu, MD, New York, NY
Michael J. Gardner, MD, Saint Louis, MO
Milton L. Routt Jr, MD, Seattle, WA
Saam Morshed, MD, San Francisco, CA

From 100 pelves, a cluster was defined with a short safe sacral osseous corridor. Findings of dysmorphism were present with significantly greater frequency. Kappa reliability was fair to moderate.

Poster No. P492
Does Surgical Management Reduce the Risk of Premature Physeal Closure in Salter-Harris II Distal Tibia Fractures?
Franco Russo, BS, San Diego, CA
Molly Moor, Hallandale Beach, FL
Scott J. Mubarak, MD, San Diego, CA
Andrew T. Pennock, MD, San Diego, CA

We recommend all displaced SH type II fractures of the distal tibia be treated with closed reduction unless gross deformity, secondary to interposed tissue, prevents anatomic alignment.

Poster No. P493
Total Hip Arthroplasty for Failed Treatment of Acetabular Fractures with Prior Open Reduction and Internal Fixation
Kyle Hubler, DO, State College, PA
Jerald Westberg, BA, Minneapolis, MN
Patrick Yoon, MD, Minneapolis, MN
David C. Templeman, MD, Minneapolis, MN
Andrew H. Schmidt, MD, Minneapolis, MN
Richard F. Kyle, MD, Minneapolis, MN

Identifying a subset of acetabular fractures that have a high incidence of secondary THA.

Poster No. P494
Progressive Displacement After Clavicle Fracture; An Observational Study
Erich M. Gauger, MD, St Paul, MN
Aaron Jacobson, DC, St Paul, MN
Ryan E. Will, MD, Tacoma, Washington
Peter A. Cole, MD, Saint Paul, MN

This study is to describes the incidence of progressive displacement; compares inter-observer reliability of measurements; analyzes if patient positioning effects displacement measurements.

Poster No. P495
Mortality of the 100-year-old with Hip Fracture
Eric B. Smith, MD, Merion Station, PA
Mohammad R. Rasouli, MD, Philadelphia, PA
Kyle J. Dolan, Havertown, PA
T. David Tarity, MD, Philadelphia, PA
Javad Parvizi, MD, FRCS, Philadelphia, PA

One hundred year-old patients with hip fractures should not be denied surgery based on age alone. Surgical fixation or hemiarthroplasty are reasonable approaches.

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Poster No. P496
Return to Duty After Integrated Orthotic and Rehabilitation Initiative
James A. Blair, MD, San Antonio, TX
Jeanne C. Patzkowski, MD, San Antonio, TX
Ryan Blanck, Fort Sam Houston, TX
Johnny Owens, San Antonio, TX
Joseph R. Hsu, MD, San Antonio, TX
After completion of the Return To Run rehabilitation pathway, more than 50% of wounded servicemembers returned to duty.

Poster No. P497
Intramedullary Hip Screw: A 10-year Review in a Level 1 Trauma Center
Aseer Shafqat, MBBS, MRCS, Bishopstown, Ireland
Leo Carroll, Vancouver, BC, Canada
James A. Harty, MD, Cork, Ireland

A single-centre, 10-year retrospective review of postoperative complications of the intramedullary hip screw after proximal femoral fracture stabilization.

Poster No. P498
Comparing Length of Stay after Isolated Femoral and Tibial Fractures at Two Level 1 Trauma Centers
Syed H. Hussaini, BS, Saint Louis, MO
James M. Jackman, DO, Clackamas, OR
Lisa K. Cannada, MD, Clayton, MO

The purpose was to determine length of stay (LOS) after isolated femoral and tibial shaft fractures at 2 Level 1 hospitals in a metropolitan area and identify differences and factors affecting LOS.

Poster No. P499
Osteoclast Activation and Bone Remodeling Following Administration of Osteoinductive Agents
Scott A. Wingerter, MD, PhD, St Louis, MO
Tracye Lawyer, MD, Jackson, MS
Hamed Benghuzzi, Jackson, MS
Michelle Tucci, Jackson, MS

Bone remodeling in fracture healing is dependent on osteoclast activation. Based on immunohistochemical results, treatment with OP-1 does not appear to provide the activation signal for osteoclasts.

Poster No. P500
Placenta Derived Mesenchymal-like Adherent Stromal Cells for the Treatment of Skeletal Muscle Injury in Rats
Philipp Von Roth, MD, Berlin, Germany
Tobias Winkler, MD, Berlin, Germany
Christoph Paul, Berlin, Germany
Ayelet Chajut, PhD, Haifa, Israel
Lena Pinzur, Haifa, Israel
Georg Duda, Dr Ing, Berlin, Germany
Carsten Perka, MD, Berlin, Germany

Our data demonstrate the potential of PLX cells given as a local cell therapy for improvement of muscle function after skeletal muscle trauma.

Poster No. P501
Systemic Proteomic Profiles Associated with Healing of Mid-shaft Femur Fractures
Melissa N. Zimel, MD, Royal Oak, MI
Denise Koueiter, Royal Oak, MI
Timothy Geddes, BS, Royal Oak, MI
Kevin Baker, PhD, Royal Oak, MI
Kevin D. Grant, MD, Royal Oak, MI

Biomarkers known to play a role in osteogenesis demonstrated differential systemic expression in an osteotomy group versus a control group at 3, 7, 14, and 28 days postoperatively.

Poster No. P502
Extra-articular Distal Humerus Fractures: Is One Plate Enough?
Brett D Crist, MD, Columbia, MO
Kevin C. Paisley, DO, Columbia, MO
Alan G. Anz, MD, Columbia, MO
Ferris Pfeiffer, PhD, Boonville, MO
Gregory J. Della Rocca, MD, PhD, Columbia, MO

A single metaphyseal locking plate is significantly stiffer in the sagittal plane when compared to traditional two plate constructs for extra-articular distal humerus fractures.

Poster No. P503
Prospective Randomized Evaluation of Outcomes with Different Tibial Nail Entry Portals
Michael McClincy, MD, Pittsburgh, PA
Dana J. Farrell, BS, Pittsburgh, PA
Peter Siska, MD, Pittsburgh, PA
Gary S. Gruen, MD, Pittsburgh, PA
James J. Irrgang, PhD, Pittsburgh, PA
Ivan S. Tarkin, MD, Pittsburgh, PA

This prospective randomized trial examined outcomes comparing traditional high intracapsular and low extracapsular starting points for tibial shaft nailing finding that both had similar results.

Poster No. P504
Validity of the Patient Satisfaction Questionnaire-18 for Orthopaedic Trauma
Renan C. Castillo, MD, Baltimore, MD
Ebrahim Paryavi, MD, MPH, Baltimore, MD
Elisa J. Knutsen, MD, Saint Louis, MO
Eric Belin, MD, Baltimore, MD
Sara E. Heins, BA, Baltimore, MD
Robert V. O'Toole, MD, Baltimore, MD

This analysis is a validation of this widely used instrument in an orthopedic trauma setting, and identifies the domains of patient satisfaction being captured in this population.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P505
Ultrasound as a Screening Test for Occult Hip Fracture: A Safe Alternative to MRI?
Joshua Schroeder, MD
Konstantin Kotov, MD, Jerusalem, Israel
Rami Mosheiff, MD, Jerusalem, Israel
Yoram A. Weil, MD, Jerusalem, Israel
Meir Liebergall, MD, Jerusalem, Israel
Amal Khoury, MD, Jerusalem, Israel

Occult hip fractures are hard to image, songrophy is is highly sensitive for ditection of the fractues and can serve as an effective screening tool.

Poster No. P506
Staged Treatment of High Energy Midfoot Fracture/Dislocations
Mollie Manley, MD, Pittsburgh, PA
Peter Siska, MD, Pittsburgh, PA
Andrew R. Evans, MD, Pittsburgh, PA
Ivan S. Tarkin, MD, Pittsburgh, PA

Staged care is safe and effective management of selected complex midfoot fracture dislocations. Delayed definitive reconstruction can achieve optimal alignment without wound or septic complication.

Poster No. P507
Quantification of Anterior Cortical Bone Removal and Intermeniscal Ligament Damage at the Tibial Nail Entry Zone
Jesse E. Bible, MD, MHS, Nashville, TN
Ankeet Choxi, BS, Nashville, TN
Sravan Dhulipala, Atlanta, GA
Jason M. Evans, MD, Franklin, TN
Hassan R. Mir, MD, Nashville, TN

The results suggest that a substantial amount of anterior tibial bone is removed during nail entry portal creation and IM ligament damage occurs adjacent to the majority of tibial nail entry zones.

Poster No. P508
Angle Stable Locking Screws Reduce Malalignment in Distal Tibia Fractures Treated with Intramedullary Nails
Alternate Paper: Trauma I: Ankle and Pilon
John D. Adams Jr, MD, Greenville, SC
Stephanie L. Tanner, MS, Greenville, SC
Kyle J. Jeray, MD, Greenville, SC

Angle stable locking screws may reduce the incidence of final malalignment in fractures of the distal tibia that undergo IMN.

Poster No. P509
Comparison of Outcomes After Triceps Split vs. Sparing Surgery for Extra-Articular Distal Humeral Fracture
Ivan S. Tarkin, MD, Pittsburgh, PA
Andrew R. Evans, MD, Pittsburgh, PA
Peter Siska, MD, Pittsburgh, PA

Triceps strength and elbow ROM are optimized after ORIF distal humeral fracture when triceps sparing approach is chosen over the more traditional triceps splitting technique.

Poster No. P510
Femoral Neck Fracture After Removal of the Compression Hip Screw
Pil Whan Yoon, MD, Seoul, Republic of Korea
Kim Dong Ok, MD, Jeonju-Si, Republic of Korea
Jeong Joon Yoo, MD, Seoul, Republic of Korea
Hee Joong Kim, MD, Seoul, Republic of Korea
Kang Sup Yoon, MD, Seoul, Republic of Korea

The incidence of femoral neck fracture after removal of the compression hip screw was relatively high (9.1%), therefore it should not be removed unless for good reason.

Poster No. P511
Morphological Characteristics of Transient Osteoporosis of the Hip
Ryosuke Yamaguchi, MD, Fukuoka Higashi-Ku, Japan
Takuaki Yamamoto, MD, Fukuoka, Japan
Goro Motomura, MD, Fukuoka, Japan
Yasuharu Nakashima, MD, Fukuoka, Japan
Satoshi Ikemura, MD, Fukuoka, Japan
Kenyu Iwasaki, MD, PhD, Fukuoka, Japan
Garida Zhao, Fukuoka, Japan
Yukihide Iwamoto, MD, Fukuoka, Japan

This radiographic morphological study indicates that a focal biomechanical stress between the acetabulum and the femoral head may contribute to the pathophysiology of TOH.

Poster No. P512
The Good, the Bad and the Ugly: Recognizing and Treating Pediatric Radial Neck Fractures
Camila B. De Mattos, MD, Portland, OR
David Ramski, Washington, DC
Chanika Angsanuntsukh, MD, Iowa City, IA
John M. Flynn, MD, Philadelphia, PA

18% of pediatric radial neck fractures require surgery, of which over two-thirds do well, but 21% experience fair or poor outcomes.

Poster No. P513
◆Indomethacin does not Prevent Heterotopic Ossification After Operative Fixation of Acetabular Fractures
Charles J. Jordan, MD, Coral Gables, FL
Katheryne Downes, MPH, Tampa, FL
Henry C. Sagi, MD, Tampa, FL

Indomethacin does not affect the incidence of clinically significant HO after operatively treated acetabular fractures, and may increase the incidence of posterior wall non-union.

Poster No. P514
Biomechanical Mechanisms Underlying Peroneal Nerve Injury Following Acetabular Fracture and Surgery
Kanu Goyal, MD, Pittsburgh, PA
Michael R. Hill, PhD, Austin, TX
Hans-Christoph Pape, MD, Aachen, Germany
John Moossy, Pittsburgh, PA
Ivan S. Tarkin, MD, Pittsburgh, PA

A biomechanical study was performed to determine whether the peroneal division of the sciatic nerve is stiff (compared to the tibial division) and thus more vulnerable to retraction injury.

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Poster No. P515
The Orthopaedic Trauma Patient: Risk Factors Influencing Follow Up
Vignesh Alamanda, BS, Nashville, TN
Barry Kang, Nashville, TN
Jesse Ehrenfeld, MD, MPH, Nashville, TN
William T. Obremskey, MD, MPH, Nashville, TN
Zachary Yoneda, BA, Nashville, TN
Manish K. Sethi, MD, Nashville, TN
Amir A. Jahangir, MD, Nashville, TN

A study of 11463 clinic visits identified tobacco use, insurance status, ASA score, and distance from clinic play a crucial role in influencing compliance with follow up appointments.

Poster No. P516
Outcomes After Operative Management of Symptomatic Rib Nonunion
Erich M. Gauger, MD, St Paul, MN
Brian W. Hill, MD, St Paul, MN
Peter A. Cole, MD, St Paul, MN

Successful treatment of symptomatic rib nonunion is possible with good functional outcomes and a low complication rate.

Poster No. P517
Use of the Multiple Listing Service to Obtain Surrogate Socioeconomic Data in Orthopaedic Trauma Patients
Ebrahim Paryavi, MD, MPH, Baltimore, MD
Renan C. Castillo, MD, Baltimore, MD

Median property value proximate to trauma patients' home addresses obtained from an MLS database can be a reliable surrogate for income and education level.

Poster No. P518
Upright Compared to Supine Radiographs of Clavicle Fractures: Does Patient Positioning affect Displacement?
Jonathan D. Backus, MD, Saint Louis, MO
Mark J. Jo, MD, Montrose, CA
David J. Merriman, MD, Springfield, MO
Christopher McAndrew, MD, St Louis, MO
Michael J. Gardner, MD, Saint Louis, MO
William M. Ricci, MD, St Louis, MO

Both upright and supine radiographs are recommended to most accurately determine the extent of clavicle fracture displacement.

Poster No. P519
Defining the Lateral and Accessory Views of the Patella: An Anatomic and Radiographic Study
Marschall B. Berkes, MD, New York, NY
Milton T. Little, MD, New York, NY
Lionel E. Lazaro, MD, New York, NY
Nadine Pardee, BS, New York, NY
Craig Klinger, BS, New York, NY
David L. Helfet, MD, New York, NY
Dean G. Lorich, MD, New York, NY

Described here is a comprehensive description of the true lateral radiographic view of the patella and accessory views, with implications for patella fracture osteosynthesis.

Poster No. P520
Transcutaneous Application of CO2 Accelerates Fracture Repair in Rat
Takaaki Koga, MD, Kobe, Japan
Takahiro Niikura, MD, PhD, Kobe, Japan
Sang Y. Lee, MD, Kobe, Japan
Yoshihiro Dogaki, Kobe City, Hyogo, Japan
Etsuko Okumachi, MD, Kobe, Japan
Takahiro Waki, Kobe, Japan
Takeshi Ueha, Hyogo, Japan
Yoshitada Sakai, MD, PhD, Kobe, Japan
Masahiro Kurosaka, MD, Kobe, Japan

Transcutaneous application of CO2 accelerates fracture repair via acceleration of endochondral ossification and vascularization, and may become a novel and useful therapy for promoting fracture repair.

Poster No. P521
◆Accumulation of Fibrin Impairs Fracture Vascularity and Healing
Masato Yuasa, PhD, Nashville, TN
Jonathan G. Schoenecker, MD, Nashville, TN

Formation of a clot is considered essential for fracture repair. We refute this belief demonstrating that a clot is not essential for fracture repair and that accumulation of fibrin causes nonunion.

Poster No. P522
Tissue Engineering Scaffold Regularity Affects Extent of Bone Regeneration: A Rabbit Pelvis Model
Gazi Huri, Ankara, Turkey
Yurdanur Uçar, Balcali, Sariçam, Adana, Turkey
Pinar Yilgor Huri, PhD, Adana, Turkey
Mahmut N. Doral, MD, Ankara, Turkey

3-D scaffold architecture is influential on bone regeneration.

Poster No. P523
◆Three-dimensional Corrective Osteotomy of Cubitus Varus Deformity Based on Computer Simulation
Tsuyoshi Murase, MD, Suita, Japan
Yukari Takeyasu, Kawanishi, Japan
Toshiyuki Kataoka, Suita, Osaka, Japan
Junichi Miyake, MD, Suita, Japan
Shinsuke Omori, MD, Suita, Japan
Yohei Kawanishi, Osaka-Hu, Japan
Hiroyuki Tanaka, MD, PhD, Suita, Japan
Hisao Moritomo, MD, PhD, Osaka, Japan
Hideki Yoshikawa, MD, Osaka, Japan

Cubitus varus deformity is a complex three-dimensional deformity. 3-D corrective osteotomy using a custom-made surgical template designed based on computer simulation is a useful treatment option for cubitus varus deformity.

Posters

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Poster No. P524
Risk of Hospital Readmission in Orthopaedic Trauma: Using Electronic Medical Records to Improve Quality of Care
Holman Chan, MD, Vancouver, BC, Canada
Sarah Waldman, BA, Rochester, NY
John P. Ketz, MD, Pittsford, New York
Jonathan M. Gross, MD, Rochester, NY
John T. Gorczyca, MD, Rochester, NY
Catherine A. Humphrey, MD, Rochester, NY

Orthopaedic trauma patients have specific comorbidities and injuries, such as tobacco use and open tibia fractures, that predispose them to a greater risk for hospital readmission.

Poster No. P525
Accurate Screw Placement for Displaced Intraarticular Calcaneus Fracture
Jaron P. Sullivan, MD, Iowa City, IA
Phinit Phisitkul, MD, Iowa City, IA
John L. Marsh, MD, Iowa City, IA

This study identifies a safe starting zone, screw length, and trajectory for screws placed from the posterolateral facet into the center of the sustentaculum without violating the subtalar joint.

Tumor and Metabolic Disease

Poster No. P526
Prognostic Value of Expression of ERCC1, MDR1 and GSTP1 for Cisplatine Based Chemotherapy in Osteosarcoma
Kentaro Igarashi, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Hideji Nishida, MD, Kanazawa City, Japan
Hiroaki Kimura, MD, PhD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Shingo Shimozaki, MD, Kanazawa, Japan
Takashi Kato, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Immunohistochemical studies for ERCC1 may be useful in prediction of the clinical outcome in osteosarcoma patients treated with cisplatin-based chemotherapy.

Poster No. P527
Local Caffeine Potentiated Chemotherapy Using Calcium Phosphate Cement Containing Cisplatin and Caffeine
Yoshikazu Tanzawa, PhD, Kanazawa, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Toshiharu Shirai, MD, Kanazawa, Japan
Katsuhiro Hayashi, MD, Nagoya, Japan
Hideji Nishida, MD, Kanazawa City, Japan
Hiroaki Kimura, MD, PhD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

Introduction: New drug delivery systems have been developed that incorporate anticancer drugs into calcium phosphate cement (CPC) to maintain high concentrations of anticancer drugs at local sites.

Poster No. P528
Paley's Multiplier Method for Height Prediction in Patients with Osteosarcoma and Ewing's Sarcoma
Magdalena M. Gilg, Graz, Austria
Dimosthenis Andreou, MD, Berlin, Germany
Patrick Sadoghi, Graz, Austria
Christine Wibmer, Graz, Austria
Per-Ulf Tunn, Berlin, Germany
Alexander Avian, PhD, Graz, Austria
Petra Sovinz, MD, Graz, Austria
Andreas Leithner, MD, Graz, Austria

Paley's multiplier method for height prediction in patients with osteosarcoma and Ewing's sarcoma- the long-term effect of polychemotherapy on final height.

Poster No. P529
Surgical Outcome of Soft Tissue Sarcoma in Elderly Patients Aged Over 70 Years
Toshiyuki Kunisada, MD, Okayama, Japan
Toshifumi Ozaki, MD, Okayama, Japan

Complete resection should be indicated and can lead to optimal treatment outcome for elderly patients, who may be managed with less intensive treatment due to some factors such as comorbidities.

Poster No. P530
C-reactive Protein Level May be a Marker of Tumor Aggressiveness in Soft Tissue Sarcoma Patients
Tomoki Nakamura, MD, PhD, Tsu-City, Mie, Japan
Akihiko Matsumine, MD, PhD, Tsu City, Mie, Japan
Takao Matsubara, MD, Tsu-City, Japan
Kunihiro Asanuma, MD, Tsu, Japan
Akihiro Sudo, Prof., Tsu City, Mie, Japan

CRP levels may be a marker of tumor aggressiveness in soft tissue sarcoma patients. CRP levels were found to be a poor prognostic factor for overall survival in a univariate analysis and for event free survival.

Poster No. P531
Long-term Results of Intralesional Curettage and Cryosurgery for Treatment of Low-grade Chondrosarcoma
Morteza Meftah, MD, New York, NY
Robert M. Henshaw, MD, Washington, DC

Intralesional curettage and cryosurgery for low-grade chondrosarcoma in selected patients is safe and effective. Indications include lesions without significant soft-tissue expansion.

Poster No. P532
Sarcoma Care in an Urban Healthcare System: Which Factors Lead to Variance of Care?
Alan T. Blank, MD, MS, New York, NY
Richelle C. Takemoto, MD, Pittsburgh, PA
Neeraj M. Patel, MD, MPH, MBS, New York, NY
Daniel M. Lerman, MD, New York, NY
Timothy Rapp, MD, New York, NY

Race, insurance and hospital type were associated with variations in sarcoma care in a retrospective review of our large urban healthcare system.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P533

Osteosarcoma in Young Adults: A Single Institution Retrospective Review of Presentation, Therapy and Outcome

Gerald E. Alexander, MD, Tampa, FL
G. Douglas Letson, MD, Tampa, FL
David Cheong, MD, Tampa, FL
Leon Anijar, BS, Tampa, FL
Anthony P. Conley, MD, Wesley Chapel, FL
Damon Reed, MD, MD, Tampa, FL

Children with osteosarcoma have a significantly better prognosis and overall survival than young adult patients.

Poster No. P534

Inhibitory Effect of Bone Morphogenetic Protein-2 in the Growth of Human Breast Cancer Cell

Alternate Paper: Tumor/Metabolic Disease II: Pre-Clinical and Clinical Research in Orthopaedic Oncology

Kwang-Bok Lee, MD, Jeonju, Republic of Korea
Kyung-Jin J. Song, MD, Jeonju, Republic of Korea
Jong-Han H. Lim III, Jenoju, Republic of Korea
Do-Yeon Kim, Jeonju, Republic of Korea
Shuai Ye, MD, Jeonju, Republic of Korea

There is a cross talk on the response of various tumors including those of breast origin, to BMPs.In this model rhBMP-2 was an effective in vivo antineoplastic agent.

Poster No. P535

Real-time Molecular Imaging of αv Integrin GFP-expression in Osteosarcoma in vitro and in vivo

Yasunori Tome, MD, Okinawa, Japan
Hiroki Maehara, PhD, Nishihara, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Robert M. Hoffman, PhD, San Diego, CA
Fuminori Kanaya, MD, Okinawa-Ken, Japan

The linkage of αv integrin to GFP enabled molecular dynamics imaging of integrin behavior during osteosarcoma progression in a nude-mouse model as well as in 3-dimensional culture.

Poster No. P536

Percutaneous Cementoplasy for Pelvic Bone Metastasis in Patients with Advanced Cancer

Hyun-Guy Kang, MD, Goyang-Si, Republic of Korea
Min Wook Joo, MD, Goyang, Republic of Korea
June Hyuk KIM, MD, Goyang-Si, Republic of Korea
Patrick P. Lin, MD, Houston, TX
Han-Soo Kim, MD, PhD, Seoul, Republic of Korea

Purpose To show the clinical results of percutaneous cementoplasty(PC) by consistent surgical technique for the pelvic bone metastases in the patients of advanced cancer.

Poster No. P537

Biomechanical Analysis of Percutaneous Cement Augmentation of Osteolytic Lesions

Brian Palumbo, MD, Boston, MA
Charles C. Nalley, MD, Tampa, FL
Roger B. Gaskins, MD, Tampa, FL
Sergio Gutierrez, PhD, Tampa, FL
Gerald E. Alexander, MD, Tampa, FL
David Cheong, MD, Tampa, FL
Brandon G. Santoni, PhD, Tampa, FL

In this biomechanical analysis, osteolytic femoral neck lesions augmented with cement in a bicortical column fashion achieved greater stiffness and load to failure than with internal fixation alone.

Poster No. P538

Antibacterial Iodine-supported Titanium Megaprostheses: A Clinical Trial

Hiroyuki Tsuchiya, MD, Kanazawa, Japan
Toshiharu Shirai, MD, Kanazawa, Japan
Hideji Nishida, MD, Kanazawa City, Japan
Norio Yamamoto, MD, Kanazawa, Ishikawa, Japan
Katsuhiro Hayashi, MD, Nagoya, Japan
Koji Watanabe, Kanazawa, Japan
Junsuke Nakase, MD, Kanazawa, Japan
Hiroaki Kimura, MD, PhD, Kanazawa, Japan
Akihiko Takeuchi, MD, Kanazawa, Japan

Iodine-supported titanium megaprostheses can be effective and promising in the prevention and treatment of infections for large bone defect. There were no cytotoxicity and adverse effects detected.

Poster No. P539

Radiosensitization Effects of Hyaluronan Synthesis Inhibitor on Bone Metastasis of Lung Cancer

Naohisa Futamura, MD, Aichi, Japan
Yoshihiro Nishida, Nagoya, Japan
Hiroshi Urakawa, Nagoya, Japan
Eisuke Arai, Nagoya, Japan
Eiji Kozawa, MD, Nagoya, Japan
Kunihiro Ikuta, Nagoya, Japan
Shunsuke Hamada, Nagoya City, Japan
Naoki Ishiguro, MD, Nagoya, Japan

Investigating effects of 4-methylumbelliferone as a radiosensitizer on bone metastasis of lung cancer.

Posters

◆The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P540

Application of Tumor-induced Cryoimmunology to Total En Bloc Spondylectomy for Spinal Metastasis

Hideki Murakami, MD, Kanazawa, Japan
Satoru Demura, MD, Kanazawa, Japan
Hideji Nishida, MD, Kanazawa City, Japan
Satoshi Kato, MD, Kanazawa, Japan
Katsuhito Yoshioka, MD, Kanazawa, Japan
Hiroyuki Hayashi, MD, Kanazawa, Japan
Takashi Ota, MD, Kanazawa, Ishikawa, Japan
Kazuya Shinmura, MD, Ishikawa, Japan
Hiroyuki Tsuchiya, MD, Kanazawa, Japan

We newly developed "second-generation TES" enhancing antitumor immunity for spinal metastasis. Further prolonged survival is promising by antitumor effect against disseminated tumor cells.

Poster No. P541

Does the Addition of Cement Reduce the Risk of Local Recurrence after Curettage of Giant Cell Tumor of Bone?

Costantino Errani, MD, Bagheria, Italy
Francesco Traina, MD, Bologna, Italy
Angelo Toscano, MD, Mori (TN), Italy
Matteo Nanni, MD, Bagheria, Italy
Alice Bondi, MD, Cesrnatico, Italy
Marcello De Fine, MD, Bologna, Italy
Davide Donati, MD, Bologna, Italy
Cesare Faldini, MD, Bologna, Italy
Sandro Giannini, MD, Bologna, Italy

The purpose of our study was to retrospectively review the outcome after the treatment of giant cell tumour of bone either with curettage and bone grafts or with curettage and cementation.

Poster No. P542

Musculoskeletal Tumors and Tumor-Like Conditions Presenting to the Sports Medicine Clinic

Bailee Williams, BS, Temple Terrace, FL
Derek Pupello, Tampa, FL
Seth I. Gasser, MD, Tampa, FL

This was a retrospective study on patients presenting to the sports medicine clinic with either pain (later diagnosed with a tumor or tumor-like condition) or an existing tumor-like condition.

Poster No. P543

Thrombomodulin and Tissue Factor mRNA Expression in 62 Soft Tissue Sarcoma Patients

Kunihiro Asanuma, MD, Tsu, Japan
Akihiko Matsumine, MD, PhD, Tsu City, Mie, Japan
Takao Matsubara, MD, Tsu-City, Japan
Tomoki Nakamura, MD, PhD, Tsu-City, Mie, Japan
Tomoaki Yoshikawa, MD, Tsu, Mie, Japan
Akihiro Sudo, Prof., Tsu City, Mie, Japan

Analysis of mRNA expression in 62 soft tissue sarcoma patients

Poster No. P544

Oncologic and Functional Outcomes of an Endoprosthetic (Osteobridge) for Intercalary Resections for Bone Tumor

Joseph Benevenia, MD, Newark, NJ
Kathleen S. Beebe, MD, Montclair, NJ
Francis R. Patterson, MD, Newark, NJ
Mark J. Palma, BA, Montclair, NJ

The Osteobridge intercalary prosthesis was used in 11 reconstructions following resection of diaphyseal tumors with results equivalent to custom implants and plate-cement constructs.

Poster No. P545

Clinical Outcome of En Bloc Lumbopelvic Resection for Osteosarcoma and Chondrosarcoma

Yu-Min Lin, MD, Taichung, Taiwan
Peter S. Rose, MD, Rochester, MN
Michael J. Yaszemski, MD, PhD, Rochester, MN
Franklin H. Sim, MD, Rochester, MN

Introduction: En bloc lumbopelvic resection for malignancies in the sacrum and lower lumbar spine is challenging and technique demanding. We present the outcomes of lumbopelvic resection for osteosarcoma.

Orthopaedic Research Society

Poster No. P556

Anterior Acetabular Rim Morphology in an Asymptomatic Population

Michael D. Hellman, MD, Chicago, IL
Christopher Gross, Chicago, IL
Michael Hart, Chicago, IL
Ryan Freedman, MS, Chicago, IL
Michael Salata, MD, Cleveland, OH
Charles Bush-Joseph, MD, Chicago, IL
Shane Nho, MD, Chicago, IL

This study reports anterior rim angle, anterior will angle and anterior margin ratio within an asymptomatic sample.

Poster No. P557

Association of Radiographic Knee Osteoarthritis and Pain with Gait Asymmetry: The Multicenter Osteoarthritis Study

Rajshree Mootanah, PhD, Chelmsford, Essex, UK
Howard Hillstrom, PhD, New York, NY
Douglas Gross, ScD, Bostom, MA
Jingbo Niu, DSc, Bostom, MA
Michael C. Nevitt, PhD, San Francisco, CA
Cora E. Lewis, MD, Birmingham, AL
James Torner, PhD, Iowa City, IA;
Jean Hietpas, MSW, San Francisco, CA
David Felson, PhD, Boston, MA

Asymmetry indices for single support and stance times can differentiate between subjects with unilateral knee osteoarthritis and no knee osteoarthritis.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P558
The Effect of Hindfoot Alignment on Frontal Plane Mechanics Following Total Ankle Replacement
Robin M Queen, PhD, Durham, NC
Robert J. Butler, DPT, PhD, Durham, NC
Samuel B Adams, Jr., MD, Durham, NC
Mark E Easley, MD, Durham, NC
James K DeOrio, MD, Durham, NC
James A Nunley, II, MD, Durham, NC
Michael W Krzyzewski, Durham, NC

Patients with extreme coronal plane malalignment respond differently to TAR than those with less severe deformity.

Poster No. P559
Does SL Ligament Injury Adversely Alter In Vivo Wrist Joint Mechanics? An MRI-based Modeling Study
Joshua E Johnson, Lawrence, KS
Phil Lee, Kansas City, KS
Terence E. McIff, PhD, Kansas City, KS
Bruce Toby, MD, Kansas City, KS
Kenneth J Fischer, PhD, Lawrence, KS

This study provides novel in vivo data quantifying the detrimental effects of scapholunate ligament injury on radiocarpal joint mechanics.

Poster No. P560
Determination of Humeral Head Size for Anatomic Shoulder Replacement in Glenohumeral Osteoarthritis
Ari R Youderian, MD, Morton Grove, IL
Eric T Ricchetti, MD, Cleveland, OH
Meghan Drews, Cleveland, OH
Joseph P Iannotti, MD, PhD, Cleveland, OH

We demonstrate using a sphere superimposed upon preserved landmarks of the proximal humerus to determine head size and height preoperatively.

Poster No. P561
Transverse Process Hooks at Upper Instrumented Vertebra Provide a More Gradual Transition to Normal Motion Compared to Pedicle Screws in Long Posterior Spinal Fusion Constructs
David Glos, BS, Cincinnati, OH
Dinesh Thawrani, MD, Cincinnati, OH
Matthew Coombs, MS, Cincinnati, OH
Kevin Louis, Cincinnati, OH
Donita Bylski-Austrow, PhD, Cincinnati, OH
Peter Sturm, Cincinnati, OH

Transverse process hooks at upper instrumented vertebra provided more gradual motion transition than pedicle screws in long posterior spinal constructs.

Poster No. P562
In Vivo Tibial Compression Decreases Tumor Formation and Osteolysis in a Model of Human Breast Cancer Metastasis
Maureen Lynch, PhD, Ithaca, NY
Daniel Brooks, MS, Ithaca, NY
Sunish Mohanan, DVM, Ithaca, NY
Kelsey Dent, BS, Ithaca, NY
Marjolein van der Meulen, PhD, Ithaca, NY
Claudia Fischbach, PhD, Ithaca, NY

Tibial compression inhibited tumor-driven osteolysis and subsequent tumorigenesis in a mouse model of human metastatic breast cancer.

Guest Nation Canada

Poster No. P563
Trial to Evaluate Ultrasound in the Treatment of Tibial Fractures (TRUST): A Pilot Study
Mohit Bhandari, MD, FRCSC, ON, Canada
Jason Busse, DC, PhD/Assistant Professor, ON, Canada

Our pilot study supports the feasibility of a definitive trial. A pivotal trial of 500 patients to resolve uncertainty around our pilot trial estimates of function gains, radiographic fracture healing and reoperations is currently underway.

Poster No. P564
Early Mobilization Following Mini-open Rotator Cuff Repair
Matthew Souster, MD, Edmonton, AB, Canada
Robert Balyk, MD, FRCSC, Sherwood Park, AB, Canada
Lauren Beaupre, PhD, Edmonton, AB, Canada
Martin Bouliane, MD, Edmonton, AB, Canada
Jeff Bury, MD, Edmonton, AB, Canada
Robert Glasgow, MD, Edmonton, AB, Canada
Charlene Luciak-Corea, BSCPT, Edmonton, AB, Canada
David Sheps, MD, MSc, FRCSC, Edmonton, AB, Canada
Fiona Styles-Tripp, PT, BSc, Edmonton, AB, Canada

Patients who performed painfree active ROM for ADLs had no significant difference in power, ROM, HRQL or pain at six months compared to those who were immobilized for six weeks following MORCR.

Poster No. P565
Osteotomy vs. Subscapularis Peel in Shoulder Arthroplasty: Healing Rates and Fatty Infiltration
Peter Lapner, MD, Ottawa, ON, Canada
George Athwal, MD, London, ON, Canada
Kimberly Bell, BA, Ottawa, ON, Canada
Kawan Rakhra, MD, Ottawa, ON, Canada

The purpose of this study was to compare healing rates and subscapularis fatty infiltration in patients undergoing a lesser tuberosity osteotomy (LTO) versus subscapularis peel for exposure during arthroplasty.

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

Poster No. P566

Intra- and Inter-Rater Reliability of the Detection of Full-Thickness Tears of the Supraspinatus Central Tendon

Bruce S. Miller, MD, Ann Arbor, MI
James Carpenter, MD, Ann Arbor, MI
John Grant, PhD, MD, Saint John, NB, Canada
Jon Jacobson, MD, Ann Arbor, MI
Yoav Morag, MD, Ann Arbor, MI

The purpose of the current study was to determine the intra- and inter-rater reliability of detecting a full tear of the supraspinatus central tendon on MRI by orthopaedic shoulder surgeons.

Poster No. P567

A Randomized Controlled Trial Comparing Web-Based to Clinic Follow Up: Are Routine Clinic Visits Necessary?

Jackie Marsh, MSc, London, ON, Canada
Dianne Bryant, PhD, London, ON, Canada
James Howard, MD, London, ON, Canada
Steven MacDonald, MD, London, ON, Canada
James McAuley, MD, London, ON, Canada
Richard McCalden, MD, London, ON, Canada
Douglas Naudie, MD, FRCSC, London, ON, Canada

The purpose of this study was to measure the feasibility and costs associated with web-based assessment compared to the usual methods of follow up.

Poster No. P568

No Orthosis is Equivalent to TLSO for the Treatment of Thoracolumbar Burst Fractures Without Neurologic Injury

Christopher Bailey, MD, MSc, London, ON, Canada
Stewart Bailey, MD, FRCSC, London, ON, Canada
Marcel Dvorak, MD, FRCSC, Vancouver, BC, Canada
Charles Fisher, MD, Prof, Vancouver, BC, Canada
Kevin Gurr, MD, London, ON, Canada
Melissa Nadeau, MD, FRCSC, Vancouver, BC, Canada
Kenneth Thomas, MD, MHSc, Calgary, AB, Canada

The purpose of this study is to compare the functional outcome of patients with AO type A3 burst fractures randomly treated with a thoracic lumbosacral orthosis (TLSO) versus no orthosis (NO).

Poster No. P569

Vacuum Assisted Closure Device Effects on Skeletal Muscle after Experimental Compartment Syndrome

Geoffrey Wilkin, MD, Ottawa, ON, Canada
Shiemaa Khogali, Ottawa, ON, Canada
Shawn Garbedian, MD, Toronto, ON, Canada
Wade Gofton, BSCH, MD, Ottawa, ON, Canada
Allan Liew, MD, FRCSC, Ottawa, ON, Canada
Bradley Slagel, MD, Sault Ste. Marie, ON, Canada
Jean-Marc Renaud, PhD, Ottawa, ON, Canada
Steven Papp, MD, Ottawa, ON, Canada

A Vacuum Assisted Closure (V.A.C.™) device can improve wound closure after fasciotomy for compartment syndrome, however, the effects on the underlying muscle are unknown. Our purpose was to evaluate V.A.C.™

Poster No. P570

Thromboembolic and Bleeding Events following Elective Hip and Knee Arthroplasty using Oral Factor Xa Inhibitor

John J. Murnaghan, MD, Toronto, ON, Canada
Vikas Bansal, Toronto, ON, Canada
Andrea Donovan, MD, Toronto, ON, Canada
Jeffrey Gollish, MD, Toronto, ON, Canada
Deborah Murnaghan, RN, CRC, Toronto, ON, Canada
Helen Razmjou, PhD, Toronto, ON, Canada

The aim was to prospectively document the incidence and timing of thromboembolic and bleeding events in patients who received this drug as thromboprophylaxis.

Poster No. P571

A Prospective Randomized Multicenter Evaluation of a "New" MIS Approach to THA: Stem Subsidence an Issue?

Nelson Greidanus, MD, MPH, Vancouver, BC, Canada
Samir Chihab, MD, Trier, Germany
Clive Duncan, MD, BC, Vancouver, BC, Canada
Donald Garbuz, MD, MHSc, Vancouver, BC, Canada
Allan Gross, MD, FRCSC, Toronto, ON, Canada
Bassam Masri, MD, FRCSC, Vancouver, BC, Canada
Michael Tanzer, MD, Montreal, Quebec, Canada

The purpose of this study is to examine the potential superiority of a "new" intermuscular surgical approach to limited incision total hip replacement.

Poster No. P572

Evaluation of the use of Spinal Epimorph in Total Hip Arthroplasty: A Prospective Double-Blinded Randomized Control Trial

Rajrishi Sharma, MD, Burlington, ON, Canada
Aaron Bigham, MD, FRCSC, Woodstock, ON, Canada
Robert Bourne, CM, MD, FRCSC, London, ON, Canada
Sugantha Ganapathy, MBBS, FRCA, London, ON, Canada
James Howard, MD, London, ON, Canada
Steven MacDonald, MD, London, ON, Canada
James McAuley, MD, London, ON, Canada
Richard McCalden, MD, London, ON, Canada
Douglas Naudie, MD, London, ON, Canada

The purpose of our study was to determine in patients undergoing total hip arthroplasty whether spinal with epimorph versus spinal without epimorph resulted in better pain control and fewer complications.

BOS Societies

Poster No. P573

◆Preoperative Lactate Does Not Predict Pulmonary Complications in Multiple Trauma Patients

Justin Richards, MD, Nashville, TN
Sean Griffin, Louisville, KY
Daniel Koehler, MD, Iowa City, IA
Michael Bosse, MD, Charlotte, NC
William Obremsky, MD, Nashville, TN
Jason Evans, MD, Nashville, TN

The purpose of this study was to evaluate the relationship of preoperative serum lactate and pulmonary complications in multiple trauma patients.

An alphabetical faculty financial disclosure list can be found starting on page 292.

Poster No. P574
Drug Induced Bone Loss - The Influence of Ethnicity and Gender
Raymond O. Pierce Jr, MD, Indianapolis, IN
Alvin Crawford, MD, Cincinnati, OH
Elby Washington, MD, Los Angeles
Melvyn Harrington, MD, Houston, TX

A clinical review of medication that effect bone loss will be reviewed in reference to ethnicity and gender.

Poster No. P575
AOSSM BOS Poster: Changes in Serum Biomarkers of Cartilage Turnover Following Anterior Cruciate Ligament Injury
Steven J. Svoboda, MD, West Point, NY
Travis Harvey, PhD, Columbus, GA
Brett D Owens, MD, West Point, NY
William F. Brechue, PhD, West Point, NY
Patrick Tarwater, PhD, El Paso, TX
Kenneth L. Cameron, PhD, West Point, NY

Biomarkers of cartilage turnover are affected by ACL injury and may be precursors to osteoarthritis.

Allied Health

Poster No. P576
Efficacy of Conservative Treatment for Ulnar-Sided Wrist Pain
Aleksey Dvorzhinskiy, BA, New York, NY
Alison Kitay, MD, New York, NY
Matthew Grosso, BS, Roslyn, New York
Aaron Daluiski, MD, New York, NY

This study reviewed the efficacy of conservative treatment for ulnar-sided wrist pain.

Poster No. P577
American Fracture Association
Diana D. Carr, MD, Sebring, FL
Judy L. Wright, MD, Bloomington, IL
Alfonso E. Pino, MD, Dublin, TX
Jose G. Ramon, MD, Belleville, IL
Geoffrey M. Miller, MD, El Segundo, CA

The American Fracture Association was founded in 1938 to furthur knowledge of fracture care.

Poster No. P578
American Society of Orthopaedic Physician's Assistant (ASOPA)
Jason S. Mazza, OPA-C, Trinity, FL
Frank E. Greaves, OPA-C, OTC, Houston, TX
Tammy D. Drerup, OPA, Humble, TX
Evilio Prendes, OPA-C, RMA, Hialeah, FL
Paul Trevino, OPA, Mc Allen, TX
Bridget L. Brecheen, OPA-C, Amarillo, TX

ASOPA is an organization for physician extenders who specialize in orthopaedic Board-certified surgery.

Poster No. P579
National Association of Orthopaedic Technologists
Cynthia Henderson, Indianapolis, IN
Sean B. Conkle, OTC, Bethlehem, PA
Nicole T. Williams, OTC, Aurora, CO
Robyn Masseth, OTC, Indianapolis, IN
Kristie M. Woolems, OTC, Noble, OK

To familiarize orthopaedic surgeons with the value of orthopaedic technologists in their practice.

Nth Dimensions

Poster No. P580
Autlologous Chondrocyte Implanation and High Tibial Osteotomy: Patient Reported Outcomes
Michael E. E. Trice, MD, Baltimore, MD
Sean Spence, MS, Tampa, FL

We studied clinical outcomes after ACI and corrective high tibial osteotomy (HTO) for medial femoral condylar lesions in varus knees.

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Nursing and Allied Health Program Continuing Education

Nurses

A total of 32 contact hours are being offered through NAON; 4.0 contact hours for each NUR course and for the CAST1 and CAST2 courses. Each session is provider approved by the California Board of Registered Nursing, Provider Number CEP3432, for 4.00 contact hours for each NUR course and 8.00 contact hours each for the CAST1 and CAST2 courses.
The National Association of Orthopaedic Nurses is accredited as a provider of continuing nursing education by the American Nurses' Credentialing Center's Commission on Accreditation.

Orthopaedic Technologists

Applying to the National Board for Certification of Orthopaedic Technologists for approval of a total of 32 contact hours or 4 contact hours for each NUR session and 8 contact hours each for the CAST1 and CAST2 courses.

Physician Assistants

Applying to the American Academy of Physician Assistants (AAPA) for Category 1 CME credit from the AOA Council on Continuing Medical Education, Prescribed credit from the AAFP and AMA Category 1 CME credit for the PRA from organizations accredited by the ACCME. Total number of contact hours: 32.

Orthopaedic Physician Assistants

Applying to the National Board for Certification of Orthopaedic Physician Assistants for approval of a total of 32 contact hours for orthopaedic physician assistants or 4 contact hours for each NUR session and 8 contact hours each for the CAST1 and CAST2 courses.

General

Certificates for sessions will be available online once a participant completes a session evaluation. A link to the evaluation will be distributed to participants via email following each session. Please be sure to give your correct e-mail address when registering for the courses. Once participants complete the evaluation, a contact hour certificate will be available to print. To receive any certificate other than nursing, please visit the table outside of the session room. For credit that may be acceptable to state medical associations, specialty societies or state boards of medical licensure, please contact those organizations. NAON and the AAOS make every effort to have the course approved for credit prior to the course dates. It is not always possible to obtain approval in advance of a program.

NUR1 – Non-surgical Approaches to Orthopaedic Conditions

Tuesday, March 19
7:30 AM – 12:00 PM
McCormick Place, Lakeside, Room E450a
Course Co-Chairs: Lynn D. Burkett, RN, BSN, MBA, ONC
Gary C. Canner, MD

Overview

Some orthopaedic conditions call for conservative management prior to surgical consideration. Others may justify treatment by non-surgical methods and surgery, or by non-surgical methods alone. This session will focus on some of the current non-surgical approaches to provide high quality care for orthopaedic patients.

Program

7:30 AM	**Welcome** Jan Foecke, MS, RN, ONC, NAON Director of Programs Harpal S. Khanuja, MD, AAOS Allied Health Program Director Christy Oakes, MSN, RN, ONC 2012-2013 NAON President
	Introduction Lynn D. Burkett, RN, BSN, MBA, ONC Gary C. Canner, MD
7:45 AM	**Cartilage Restoration: Overview of Treatment Options** Brian J. Cole, MD, MBA
8:25 AM	**Nursing Care of the Postoperative Shoulder Patient** Frederick M. Brown, Jr., DNP, RN, ONC
9:05 AM	**Orthopaedic Braces for Office & Operating Room (OR) Application** Glade Pauley, MA, AT
9:45 AM	**Break**
10:00 AM	**Evaluation and Treatment of the Knee** Gary C. Canner, MD
10:40 AM	**Osteoporosis Management: Now Is the Time to Take Action!** Debra L. Sietsema, PhD, RN
11:20 AM	**Nutrition and Its Impact on the Musculoskeletal System** Pamela Chlad, BSN, M.Ed, RN, LAT
12:00 PM	**Adjournment**

An alphabetical faculty financial disclosure list can be found starting on page 292.

NUR2 – Surgical Approaches to Orthopaedic Conditions

Tuesday, March 19
1:30 – 6:00 PM
McCormick Place, Lakeside, Room E450a
Course Co-Chairs:
Cheryl Grove, RN, BSN, ONC
Thomas S. Thornhill, MD

Overview
Surgery is definitely an important management option for orthopaedic conditions. A variety of treatments will be addressed, including arthroplasty, robotics, arthroscopy, and bracing for various orthopaedic conditions.

Program

1:30 PM	**Welcome** Jan Foecke, MS, RN, ONC NAON Director of Programs Harpal S. Khanuja, MD AAOS Allied Health Program Director Christy Oakes, MSN, RN, ONC 2012-2013, NAON President
	Introduction Cheryl Grove, RN, BSN, ONC Thomas S. Thornhill, MD
1:45 PM	**Shoulder Arthroplasty: Indications and Complications** Courtney Dawson, MD
2:30 PM	**The A.R.T. (Advanced Robotic Technology) of TKR (Total Knee Replacement)** Jan Albert Koenig, MD
3:25 PM	**Break**
3:40 PM	**Shoulder Arthroscopy: Rotator Cuff and Labral Repair** Abigail Hamilton, MD
4:25 PM	**Total Knee Arthroplasty** Thomas S. Thornhill, MD
5:15 PM	**Pediatric Spine** Angela M. Strader, RN Maureen Grady, RN
6:00 PM	**Adjournment**

NUR3 – Unusual Orthopaedic Conditions

Wednesday, March 20
7:30 AM – 12:00 PM
McCormick Place, Lakeside, Room E450a
Course Co-Chairs:
Cheryl Grove, RN, BSN, ONC
Courtney Dawson, MD

Overview
A wide range of orthopaedic conditions and procedures may not be seen with any frequency in clinical practice. Discussions will include treatment options for failed back, pediatric club foot and leg length discrepancy, hemorrhagic anemia, and orthopaedic oncology.

Program

7:30 AM	**Welcome** Jan Foecke, MS, RN, ONC NAON Director of Programs Harpal S. Khanuja, MD AAOS Allied Health Program Director Christy Oakes, MSN, RN, ONC, 2012-2013 NAON President
	Introduction Cheryl Grove, RN, BSN, ONC Courtney Dawson, MD
7:45 AM	**Physical Therapy for Lower Back Pain Using Treatment-based Classification** Peter Oldenburg, PT, DPT, OCS, Cert. MDT
8:30 AM	**Pediatric Club Foot in Third World Countries** Garen Koloyan, MD
9:15 AM	**Break**
9:30 AM	**Leg Length Discrepancy in Children** Yi-Meng Yen, MD, PhD
10:15 AM	**The Influence of Hemorrhagic Anemia on Fracture Healing** Thomas F. Varecka, MD
11:05 AM	**Orthopaedic Oncology and the Megaprosthesis** John E. Ready, MD
12:00 PM	**Adjournment**

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NUR4 – Pharmacology Related to Orthopaedics

Wednesday, March 20
1:30 – 6:00 PM
McCormick Place, Lakeside, Room E450a
Course Co-Chairs:
Lynn D. Burkett, RN, BSN, MBA, ONC
Gary C. Canner, MD

Overview
Pharmacology is often part of the treatment plan for patients with orthopaedic conditions and medical co-morbidities. This session will illustrate the benefits and risks of anticoagulants, bisphosphonates, antimicrobials, anti-inflammatories, analgesics, anticonvulsants, and medications to manage cardiopulmonary complications.

Program

1:30PM	**Welcome** Jan Foecke, MS, RN, ONC NAON Director of Programs Harpal S. Khanuja, MD AAOS Allied Health Program Director Christy Oakes, MSN, RN, ONC 2012-2013 NAON President
	Introduction Lynn D. Burkett, RN, BSN, MBA, ONC Gary C. Canner, MD
1:45 PM	**Anticoagulants** Nina S. Huynh, PharmD, BCPS
2:25 PM	**Bisphosphonates** Erika J. Mitchell, MD
3:05 PM	**Bugs and Biofilms – Why Orthopaedic Infections Are so Resistant to Treatment** Andrew H. Schmidt, MD
3:45 PM	**Break**
4:00 PM	**Multidisciplinary Management of the Post-Orthopaedic Surgical Patient** Erin Caldwell, RN, ANOP, MSN Asokumar Buvanendran, MD
5:20 PM	**Postoperative Cardio-pulmonary Management of the Orthopaedic Patient** Deana M. Ruby, APN, ACNP-BC
6:00 PM	**Adjournment**

CAST 1 – Casting and Splinting – Fundamentals

Thursday, March 21
8:15 AM – 5:45 PM
McCormick Place, Lakeside, Room E451b
Course Co-Chairs:
Cynthia Henderson, OTC, CO
President, National Association of Orthopaedic Technologists
Harpal S. Khanuja, MD
AAOS Allied Health Program Director

Overview
This course will feature presentations about innovations in immobilization, casting complication causes and solutions, and the casting procedure. Demonstration and return demonstration will include application and removal of a short arm cast, thumb-spica cast, short leg cast, and a sugar tong splint.

Program

8:15 AM	**Historical Events and Innovations in Immobilization** Cynthia Henderson, OTC, CO
8:45 AM	**Casting Complications** Sean Conkle, OTC
9:15 AM	**Casting Supplies** Nicole Williams, OTC, MBA
9:45 AM	**Break**
10:00 AM	**The Casting Procedure** Robyn Masseth, OTC
12:30 PM	**Lunch break (lunch not provided)**
1:30 PM	**Casting Demonstration and Return Demonstration** Sean Conkle, OTC Cynthia Henderson, OTC, CO Robin Masseth, OTC Nicole Williams, OTC, MBA Kristie Woolems, OTC
3:30 PM	**Break**
3:45 PM	**Casting Demonstration and Return Demonstration** Sean Conkle, OTC Cynthia Henderson, OTC, CO Robin Masseth, OTC Nicole Williams, OTC, MBA Kristie Woolems, OTC
5:30 PM	**Questions & Answers/Evaluations**
5:45 PM	**Adjournment**

An alphabetical faculty financial disclosure list can be found starting on page 292.

CAST 2 – Casting and Splinting – Advanced

Friday, March 22
8:15 AM – 5:45 PM
McCormick Place, Lakeside, Room E451b

Course Co-Chairs:
Cynthia Henderson, OTC, CO
President, National Association of Orthopaedic Technologists
Harpal S. Khanuja, MD
AAOS Allied Health Program Director

Overview

This course will feature presentations about necessary supplies and procedures for advanced casting. Demonstration and return demonstration will include Meunster, PTB, Pediatric Hip Spica, and Ponsetti Serial Casts.

Program

8:15 AM	**Advanced Casting Supplies** Cynthia Henderson, OTC, CO
8:45 AM	**The Advanced Casting Procedure** Sean Conkle, OTC
10:30 AM	**Break**
10:45 AM	**Advanced Cast Application Demonstration** Nicole Williams, OTC, MBA
12:30 PM	**Lunch break (lunch not provided)**
1:30 PM	**Advanced Casting Demonstration and Return Demonstration** Sean Conkle, OTC Cynthia Henderson, OTC, CO Robyn Masseth, OTC Nicole Williams, OTC, MBA Kristie Woolems, OTC
3:30 PM	**Break**
3:45 PM	**Advanced Casting Demonstration and Return Demonstration** Sean Conkle, OTC Cynthia Henderson, OTC, CO Robyn Masseth, OTC Nicole Williams, OTC, MBA Kristie Woolems, OTC
5:30 PM	**Questions & Answers/Evaluations**
5:45 PM	**Adjournment**

◆ The FDA has not cleared the drug and/or medical device for the use described in this presentation (i.e. the drug or medical device is being discussed for an off label use). For full information refer to page 17.

AAOS

American Academy of Orthopaedic Surgeons

2013 Disclosures

Why Disclosure?

As an accredited provider of continuing medical education (CME), the Academy is required by the Accreditation Council for Continuing Medical Education (ACCME) to obtain and share with participants of any AAOS CME activity any potential conflicts of interest by faculty, program developers, and CME planners.

The ACCME Standards of Commercial Support, Standard 2 states the requirements:

2.1 The provider must be able to show that everyone who is in a position to control the content of an education activity has disclosed all relevant financial relationships with any commercial interest to the provider.

2.2 An individual who refuses to disclose relevant financial relationships will be disqualified from being a planning committee member, a teacher, or an author of CME, and cannot have control of, or responsibility for, the development, management, presentation or evaluation of the CME activity.

The AAOS Mandatory Disclosure Policy for Governance Groups (except Board of Directors), Continuing Medical Education Contributors, Senior Management Team Members, and Others requires that faculty submit all financial relationships with industry occurring within the past 12 months.

Each participant in the Annual Meeting has been asked to disclose if he or she has received something of value from a commercial company, which relates directly or indirectly to the subject of their presentation. The Academy has identified the options to disclose as follows:

1 – Royalties
2 – Speakers Bureau/paid presentations
3a. – Employee
3b. – Paid consultant
3c. – Unpaid consultant
4 – Stock or stock options
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n – No conflicts to disclose

These codes reflect the numbers used in a series of questions answered by all persons participating in the AAOS Orthopaedic Disclosure Program, which is available at www.aaos.org/disclosure.

The Academy does not view the existence of these disclosed interests or commitments as necessarily implying bias or decreasing the value of the author's participation in the meeting; however, these data are offered to the audience as additional information that may be helpful in evaluating the educational presentations. In accordance with ACCME guidelines, all participants in the Annual Meeting must have disclosed on or after April 1, 2012. The disclosures in this list are in compliance and current with the AAOS Orthopaedic Disclosure Program as of November 15, 2012.

In an effort to increase transparency and to protect both AAOS and its members, the Board of Directors recently adopted two additional policies relating to disclosure:

- AAOS Policy for a Fellow or Member Who Fails to Disclose Conflicts of Interest When Required
- AAOS Policy for a Fellow or Member Who Fails to Disclose Conflict of Interests Accurately and Completely

These policies will help appropriate individuals to address specific conflict of interest issues that may arise during Annual Meeting educational programs and activities.

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Disclosures

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Jack E. Zigler, MD: 1 - Zimmer, K2M, Osprey; 3B - Synthes, Spineart; 4 - Flexuspine, Expanding Orthopedics; 6 - AO Spine, Medtronic, DePuy

Melissa Nicole Zimel, MD.....n

Faculty disclosure listed as entered in the AAOS Disclosure Database as of November 15, 2012.

The codes after the name are identified as 1 – Royalties; 2 – Speakers Bureau/paid presentations; 3a. – Employee; 3b. – Paid consultant; 3c. – Unpaid consultant; 4 – Stock or stock options; 5 – Research or institutional support as a principal investigator has been received; 6 – Other financial or material support; 7 – Royalties, financial or material support from publishers; n – No conflicts to disclose

Stephanie Foerster Zimmeck, MS....n

Dorith Zimmermann, DSc.....n

David Zingmond, MD, PhD.....n

Bruce Ziran, MD: 3B - Synthes; 4 - Symbod, Tekartis

Christopher Anzalone Zirker, MSc..n

Nikola Zivaljevic, MD .....n

Michael Zlatkin, MD: 7 - Wolters Kluwer Health - Lippincott Williams & Wilkins, Saunders/Mosby-Elsevier

Dan Ariel Zlotolow, MD: 3B, 3C, 5, 6 - Osteomed, Arthrex, Inc.

Benjamin Zmistowski, BS .....n

Joseph D. Zuckerman, MD: 1 - Exactech, Inc.; 4 - Neostem, Joint Innovation Technology; 7 - SLACK Incorporated, Thieme, Wolters Kluwer Health - Lippincott Williams & Wilkins

Karen Zupko: 3B - Understand.com, Zimmer

David Zurakowski PhD .....n

Natalie Lacey Zusman, BS .....n

Stefan Zwingenberger: 5 - AO Foundation

Michael A. Rauh, MD: 2, 3B - Stryker, Nuance

C. Noel Henley, MD: 2 - Auxilium Pharmaceuticals

David Nelson, MD: 1, 2, 4, 6 - Orthofix, Inc.

Scott F. M. Duncan, MD: 7 - Springer

A. Herbert Alexander, MD.....n

Christian Veillette, MD: 2 - Smith & Nephew; 5 - Biomet, Smith & Nephew; 7 - Clinical Orthopaedics and Related Research, Orthopaedia

Gordon A. Brody, MD .....n

Samik Banerjee, MS .....n

Faculty disclosure listed as entered in the AAOS Disclosure Database as of November 15, 2012.

The codes after the name are identified as 1 – Royalties; 2 – Speakers Bureau/paid presentations; 3a. – Employee; 3b. – Paid consultant; 3c. – Unpaid consultant; 4 – Stock or stock options; 5 – Research or institutional support as a principal investigator has been received; 6 – Other financial or material support; 7 – Royalties, financial or material support from publishers; n – No conflicts to disclose

AAOS

American Academy of Orthopaedic Surgeons

Technical Exhibits

Visit the Technical Exhibits

McCormick Place Hall A
Wednesday and Thursday, 9:00 AM – 5:00 PM
Friday, 9:00 AM – 4:00 PM

The American Academy of Orthopaedic Surgeons invites you to visit the technical exhibits as a part of your educational experience at the annual meeting. The products displayed in the technical exhibits area and the uses suggested by the manufacturer do not represent an endorsement nor imply that the products have been evaluated or approved by the American Academy of Orthopaedic Surgeons.

AAOS is the sole provider of Continuing Medical Education (CME) credits at the annual meeting between the hours of 7:30 AM to 6:00 PM. CME credit is not provided for presentations in the exhibit hall or time spent viewing the techincal exhibits.

- Over 600 companies will be featured
- Over 100 first-time exhibitors will be participating
- Specialty Areas:
  - Allied Organization Displays ..... Booths 404-706
  - Diagnostic Equipment..... Booths 4029-4739
  - First-Time Exhibitors..... Booths 4446-5262
  - Practice Productivity Exhibits ..... Aisles 4800-5400
  - Publishers and Educators Row ..... Booths 765-1574
- Unopposed Exhibit Time daily from 12:30 to 1:30 PM

ANNUAL MEETING SPONSORS

The American Academy of Orthopaedic Surgeons wishes to thank the following companies for their financial support of the 2013 Annual Meeting.

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RTI Biologics, Inc.
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SRSsoft
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While in the Exhibit Hall

AAOS Redemption Centers

Booths 365, 3275, and 5409
Check your registration packet for special coupons, redeemable exclusively in the Exhibit Hall. Be sure to pick up your complimentary tote bag. Drop off your tickets on Thursday and Friday for special prize drawings of airline tickets, hotel room for next year's Annual Meeting, and iPads.

Beverage Breaks

Booths 262, 3475, and 4604
Complimentary beverages are served in the exhibit hall on Wednesday and Thursday from 3:30 to 4:00 PM between scientific sessions, and on Friday at 10:00 AM.

Food Service

Enjoy complimentary food and beverage items supplied by many of the exhibitors in their booth. Food service areas located throughout the exhibit hall will offer a variety of food and beverage options for purchase.

NEW! AAOS Bistro

New this year, the AAOS Bistro provides a comfortable setting for exhibitors and attendees to eat, meet and network. Located directly on the show floor with an all-inclusive buffet lunch and available table reservations, Wednesday through Friday from 11:00 AM to 2:30 PM.

NEW! Ice Cream Social

Booths 262, 3475, and 4604
Friday, 2:00-3:30 PM
Complimentary, make-your-own sundae or other treat. Your ticket to attend is in your on-site registration bag.

NEW! Photo Shoot

Create a memory of the AAOS 2013 Annual Meeting with a complimentary photo taken for you by a professional photographer against a backdrop of the AAOS logo in the exhibit hall on Friday from 10:00 AM to 2:00 PM.

Seating Areas

Park benches are placed throughout the exhibit hall and additional seating is available at the food service areas and in the Academy Lounge at the main entrance to the exhibit hall.

Navigating the Exhibit Hall

- Stop at an Exhibitor Directory kiosk located at the entrance to Hall A and South Level 1 Lobby to view a listing of all exhibitors, their contact and product information, and create and print your personal *My Expo Plan*.
- Pick up an updated floor plan and exhibitor listing at the *You Are Here* signs located in the lobby and in the exhibit hall. These signs and maps are color coded to help you find your way around the exhibit hall.
- Booth numbers are located on the aisle carpet and aisle numbers are on signs hanging overhead.
- Present your badge to exhibitors whose literature you want to receive. After scanning the bar code, exhibitors will be able to mail materials directly to you after the meeting, enabling you to spend more time in face-to-face discussions with vendors.

AAOS EXHIBITS COMMITTEE

The Exhibits Committee is responsible for evaluating the companies that exhibit at the annual meeting. The committee also reviews the exhibits on-site for content, presentation and compliance with FDA guidelines. During the annual meeting, William H. Seitz, Jr., chair of the committee, can be reached at the AAOS Exhibits Office located in Room s400b of McCormick Place.

William H. Seitz Jr, MD, Cleveland, OH, Chair
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Dennis B. Brooks, MD, Pepper Pike, OH
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Pekka A. Mooar, MD, Philadelphia, PA
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James V. Nepola, MD, Iowa City, IA
Rick F. Papandrea, MD, Waukesha, WI
John R. Tenny, MD, Dallas, TX
Scott D. Weiner, MD, Akron, OH

EXHIBITORS' ADVISORY COUNCIL

A Technical Exhibitors' Advisory Council has been established to serve in an advisory capacity to the Academy on issues affecting exhibitors. You are encouraged to contact the Council members with your concerns.

Jill Best, Zimmer
Marie Bukowski, BioMimetic Therapeutics
Denise Cyr, Aesculap Implant Systems, Chair
Janet Gensinger, Symmetry Medical, Inc.
Bonnie Kerrigan, Covidien
Michael Librot, Medin Corporation
Brent Mellecker, FusionOne, Inc.
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Barbara Sharpe, Stryker Instruments, Vice-Chair
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Alissa Stokes, Exactech, Inc.

EXHIBITOR LISTINGS

AdvaMed and PhRMA
The product code **ADVA** following an exhibit company listing indicates that the exhibitor is a member of the Advanced Medical Technology Association and subscribes to its Code of Ethics that govern member relationships with health care professionals, including orthopaedic surgeons. AdvaMed is the world's largest trade association representing manufacturers of medical devices, equipment, diagnostic products and health information systems. AdvaMed members produce nearly ninety percent of the health care technology purchased annually in the U.S. and more than fifty percent purchased annually around the world. AdvaMed is a leader in compliance. Its *Code of Ethics on Interactions with Health Care Professionals* provides ethical and legal standards that are critical to the medical device industry's ability to continue its collaboration with health care professionals. This Code of Ethics went into effect in January 2004. The AdvaMed Code of Ethics may be found at www.aaos.org/IndustryRelationships or http://www5.aaos.org/industryrelationships/standards.cfm

The product code **PhRMA** following an exhibit company listing indicates that the exhibitor is a member of the Pharmaceutical Research and Manufacturers of America. PhRMA represents the country's leading research-based pharmaceutical and biotechnology companies. Its members develop and market new medicines to enable patients to live longer, healthier and more productive lives. The PhRMA *Code of Ethics on Interactions with Health Care Professionals* went into effect in July 2002. The PhRMA Code of Ethics may be found www.aaos.org/IndustryRelationships or http://www5.aaos.org/industryrelationships/standards.cfm

PRODUCT LISTINGS

For your convenience, the technical exhibiting companies are listed alphabetically and the products/services they offer are identified by the following codes.

ADVA	AdvaMed Member
AM	Anatomical Model
AO	Allied Organization
AS	Arthroscopic Systems
BLD	Blood Products
BNE	Bone Products
BB	Business to Business/OEM
CS	Casting Supplies & Equipment
COM	Computer Hardware/Software
DEV	Devices
DI	Diagnostic Equipment
DE	Diagnostic Equipment Aisles
EDU	Education – Patient and Physician
EMR	Electronic Medical Records
FPD	Facility Planning & Design
FIN	Financial Planning/Investments
FRST	First-Time Exhibitor
IMG	Image Guiding/Navigation Systems
I	Implants
MKT	Market Research Services
MS	Medical Supplies
MRI	MRI
O	Orthoses
OTH	Other
PH	Pharmaceuticals
PHRM	PhRMA Member
PR	Physician Recruitment
PM	Practice/Office Management
PP	Practice Productivity Aisles
P	Prostheses
PUB	Publishers
PE	Publishers/Educators Aisles
REHB	Rehabilitation/Exercise Equipment
SF	Shoes & Foot Supplies
SG	Soft Goods (Supports)
SURG	Surgical Equipment
SI	Surgical Instruments
T	Tissue Products
XRAY	X-Ray

Electronic Skills Pavilion – Booth 5236

TIME	PRESENTATION TITLE	PRESENTER
Wednesday, March 20		
9:30 AM-10:15 AM	**Killer Apps**	Ira H. Kirschenbaum, MD
10:30 AM-11:15 AM	**Cloud Tracking to Convert Surgical Indications to Surgery**	Ira H. Kirschenbaum, MD
11:30AM-12:15 PM	**Implementation and Utilization of Voice Recognition Software**	Michael A. Rauh, MD
1:30 PM-2:15 PM	**Defending Your Internet Reputation**	David L. Nelson, MD
2:30 PM-3:15 PM	**Advanced PowerPoint Presentations**	David L. Nelson, MD
3:30 PM-4:15 PM	**EHR and Meaningful Use for the Small Orthopaedic Office**	A. Herbert Alexander, MD
Thursday, March 21		
9:30 AM-10:15 AM	**Five Secrets to Getting New Patients With Your Website**	C. Noel Henley, MD
10:30 AM-11:15 AM	**Coding Macros in Dragon - Integration With EMR**	Steven J. Leibovic, MD
11:30 AM-12:15 PM	**Leveraging Social Media for Your Orthopaedic Practice**	Raymond B. Raven, MD
1:30 PM-2:15 PM	**Managing Your Internet Reputation**	Christian Veillette, MD
2:30 PM-3:15 PM	**Video for PowerPoint Presentations**	Randy R. Bindra, MD
3:30 PM-4:15 PM	**Five Secrets to Getting New Patients With Your Website**	C. Noel Henley, MD
Friday, March 22		
9:30 AM-10:15 AM	**Government and EMR**	Ira H. Kirschenbaum, MD
10:30 AM-11:15 AM	**Search Engine Marketing for Your Practice**	Christian Veillette, MD
11:30 AM-12:15 PM	**Social Media for the Orthopaedic Surgeon**	Christian Veillette, MD
1:30 PM-2:15 PM	**Utilizing iPhone and iPad Apps in an Orthopaedic Surgery Practice**	Scott F. M. Duncan, MD
2:30 PM-3:15 PM	**Office Websites: How to Save Time and Money**	David L. Nelson, MD

It is totally free, no ticket needed! Presentations that showcase current technology products and applications developed for the orthopaedic surgeon take place in the Electronic Skills Pavilion.

Ask an Expert Sessions – Booth 465

TIME	TOPIC	EXPERTS	
Wednesday, March 20			
9:30 AM–10:15 AM	**HIP**	John J. Callaghan, MD	Allan E. Gross, MD
10:30 AM–11:15 AM	**SHOULDER**	Christian Gerber, MD	Scott P. Steinmann, MD
11:30 AM–12:15 PM	**TRAUMA**	Fernando de la Huerta, MD	Kenneth J. Koval, MD
1:30 PM–2:15 PM	**TUMOR**	Richard G. Buch, MD	Henry J. Mankin, MD
2:30 PM–3:15 PM	**HIP & KNEE**	Daniel J. Berry, MD	Aaron G. Rosenberg, MD
3:30 PM-4:15 PM	**TRAUMA**	George J. Haidukewych, MD	Kenneth J. Koval, MD
Thursday, March 21			
9:30 AM–10:15 AM	**SPORTS**	Bernard R. Bach Jr, MD	Mark E. Steiner, MD
10:30 AM–11:15 AM	**HIP**	Per Kjaersgaard-Andersen, MD	Leo A. Whiteside, MD
11:30 AM–12:15 PM	**SHOULDER**	Louis U. Bigliani, MD	Joseph D. Zuckerman, MD
1:30 PM–2:15 PM	**SPORTS**	Bernard R. Bach Jr, MD	Mark E. Steiner, MD
2:30 PM–3:15 PM	**KNEE**	Chitranjan S. Ranawat, MD	Robert T. Trousdale, MD
3:30 PM-4:15 PM	**HAND**	Edward Diao, MD	Melvin P. Rosenwasser, MD
Friday, March 22			
9:30 AM–10:15 AM	**HAND & ELBOW**	Edward Diao, MD	David C. Ring, MD
10:30 AM–11:15 AM	**FOOT & ANKLE**	Mark Scioli, MD	
11:30 AM–12:15 PM	**HIP & KNEE**	Clive P. Duncan, MD	Aaron G. Rosenberg, MD
1:30 PM–2:15 PM	**PEDIATRICS**	Stuart L. Weinstein, MD	
2:30 PM–3:15 PM	**SHOULDER**	Carl J. Basamania, MD	Joseph D. Zuckerman, MD

Take this opportunity to present a perplexing case to an expert in orthopaedics. We invite you to bring your HIPAA compliant case challenges on a flash drive 10 minutes prior to the start of the session and present them for diagnosis and recommendation. We encourage audience participation to complement the exchange of ideas. Pick a session and participate.

COMPANY BOOTH NO.

3-Point Products Inc. 3009
118 Log Canoe Cir
Stevensville, MD 21666
Phone: (410) 604-6393
Web: www.3pointproducts.com
Product Codes: MS, O, REHB, SG

A

AAOS Advocacy Booth 1600
317 Massachusetts Ave. NE
Suite 100
Washington, DC 20002
Phone: (202)548-4150
Web: www.aaos.org
Product Codes: EDU, OTH

AAOS Ask an Expert Presentations 465
6300 N River Road
Rosemont, IL 60018
Phone: 800-346-2267
Web: www.aaos.org/ameducation
Product Codes: EDU

AAOS Electronic Skills Pavilion 5236
6300 North River Road
Rosemont, IL 60018
Phone: 800-346-2267
Web: www.aaos.org/ameducation
Product Codes: EDU

AAOS Exhibit Hall Resource Center 1265
6300 N River Rd
Rosemont, IL 60018-4238
Phone: (800)626-6726
Web: www.aaos.org
Product Codes: EDU, PE, PM, PUB

AAOS Now 1265
6300 N River Road
Rosemont, IL 60018
Phone: 800-626-6726
Web: www.aaos.org
Product Codes: PUB

aap Implantate AG 1416
Lorenzweg 5
Berlin, 12099
Germany
Phone: 49-30750190
Web: www.aap.de
Product Codes: BB, BNE, I, SI, T

AccelLAB Inc. 2308
1635 Lionel-Bertrand Blvd
Boisbriand, QC J7H 1N8
Canada
Phone: (450)435-9482
Web: www.accellab.com
Product Codes: AM, DEV, DI, IMG, MRI, PH, XRAY

Accutek Testing Laboratory 2110
3701 Port Union Rd
Fairfield, OH 45014-2200
Phone: (513)984-4112
Web: www.accutektesting.com
Product Codes: OTH

COMPANY BOOTH NO.

Acell, Inc. 112
6640 Eli Whitney Drive
Suite 200
Columbia, MD 21046
Phone: (800)826-2926
Web: www.acell.com
Product Codes: DEV

ACIGI Relaxation/Fujiiryoki 4006
4399 Ingot St.
Fremont, CA 94538
Phone: (510)651-9088
Web: www.drfuji.com
Product Codes: PM, REHB, SF

Active Implants Corporation 1900
Suite 218
5865 Ridgeway Center Pkwy
Memphis, TN 38120
Phone: (901)762-0352
Web: www.activeimplants.com
Product Codes: DEV, I

Acumed 3446
5885 NW Cornelius Pass Rd
Hillsboro, OR 97124-9370
Phone: (888) 627-9957
Web: www.acumed.net
Product Codes: ADVA, I, SI

Advanced Arm Dynamics 3002
123 W. Torrance Blvd
Suite 203
Redondo Beach, CA 90277
Phone: (310)372-3050
Web: www.armdynamics.com
Product Codes: FRST, P

Advanced Biologics 143
555 Corporate Drive
Suite 260
Ladera Ranch, CA 92694
Phone: (800)272-0267
Web: www.advancedbiologics.com
Product Codes: BNE, DEV, I, T

Advanced Endoscopy Devices, Inc. 1907
22134 Sherman Way
Canoga Park, CA 91303
Phone: (818)227-2720
Web: www.aed.md
Product Codes: AS, SI

Advanced Orthopaedic Solutions, Inc. 824
386 Beech Ave Ste 6
Torrance, CA 90501-6202
Phone: (310)533-9966
Web: www.aosortho.com
Product Codes: DEV, I, SI

Aesculap Implant Systems 1024
3773 Corporate Parkway
Center Valley, PA 18034
Phone: (610)797-3000
Web: www.aesculapimplantsystems.com
Product Codes: ADVA, DEV, I, IMG

COMPANY BOOTH NO.

Aesculap, Inc. 124
3773 Corporate Parkway
Center Valley, PA 18034
Phone: (800)258-1946
Web: www.aesculapusa.com
Product Codes: SI, SURG

Ageless Regenerative Institute 3975
19495 Biscayne Blvd.
Suite 200
Aventura, FL 33180
Phone: (855)274-2355
Web: www.agelessregen.com
Product Codes: EDU, FRST, OTH, PE

Ai-Medic Co., Ltd. 4849
10F STAGE BUILDING
2-7-2 Fujimi, Chiyoda-ku
Tokyo, 102-0071
Japan
Phone: 81-362729286
Web: www.ai-medic.co.jp
Product Codes: FRST, I, SI

AIP 3606
724 Fentress Boulevard
Daytona Beach, FL 32114
Phone: (386)405-7202
Web: www.aipdaytona.com
Product Codes: DEV, I, IMG, OTH, SI, SURG, XRAY

Algea Therapies 5162
Valley Forge Business Center
2560 General Armistead Avenue
Audubon, PA 19403
Phone: (855)639-6612
Web: www.algeatherapies.com
Product Codes: FRST

Alignmed 1420
2909 Tech Center Drive
Santa Ana, CA 92705
Phone: (866)987-5433
Web: www.eblife.com
Product Codes: OTH, SG

Allen Medical Systems 1020
One Post Office Square
Acton, MA 01720
Phone: (978)266-4200
Web: www.allenmedical.com
Product Codes: AS, DEV, SURG

Alliance Surgical Distributors 5418
1901 W. Lugonia Avenue
Suite 210
Redlands, CA 92374
Phone: (909)798-4534
Web: www.alliancesurg.com
Product Codes: OTH, PP

COMPANY	BOOTH NO.
AllMeds 151 Lafayette Drive Suite 401 Oak Ridge, TN 37830 Phone: (888)343-6337 Web: www.allmeds.com Product Codes: EMR, PM, PP	4836
AlloSource 6278 S Troy Cir Centennial, CO 80111 Phone: (720)873-0213 Web: www.allosource.org Product Codes: BNE, OTH, T	3450
Allotech Co., Ltd. 580-10, Onam-ri, Onam-eup Namyangju-Si, Gyenoggi-Do 472-883 South Korea Phone: 82-315557308 Web: www.allotech.kr Product Codes: FRST, SI	4954
AME/Orthotec International 7440 SW 50 Terr #108 Miami, FL 33155 Phone: (305)662-2855 Web: www.artoscopia.net Product Codes: AS, I, SI, SURG	3100
Amedica Corp. 1885 West 2100 South Salt Lake City, UT 84119 Phone: (855)839-3600 Web: www.amedica.com Product Codes: BNE, I, T	1107
American Association of Orthopaedic Executives 6300 N River Road Suite 727 Rosemont, IL 60018 Phone: (800)247-9699 Web: www.aaoe.net Product Codes: AO, PM, PP	5421
American Medical Association 515 N State St 5th Floor Chicago, IL 60654-4825 Phone: (800)621-8335 Web: www.amabookstore.com Product Codes: PE, PUB	967
American Medical Endoscopy, Inc. 3020 NW 82 Ave Miami, FL 33122 Phone: (305)436-0599 Web: www.endoscopia.com Product Codes: AS, BNE, DEV, I, P, SI, SURG	2652

COMPANY	BOOTH NO.
American National Medical Management 19820 North 7th Avenue 150 Phoenix, AZ 85027 Phone: (866)227-8849 Web: www.anmm.us Product Codes: BB, EDU, FIN, FRST, PM, PP	5040
American Orthopaedic Society for Sports Medicine/STOP Sports Injuries Campaign 6300 N. River Road Suite 500 Rosemont, IL 60018 Phone: 847-894-1237 Web: www.stopsportsinjuries.org Product Codes: AO	406
American Preclinical Services 8945 Evergreen Blvd NW Coon Rapids, MN 55433 Phone: (736)717-7990 Web: www.americanpreclinical.com Product Codes: BB, FRST	4261
American Regent PO Box 9001 Shirley, NY 11967 Phone: (800)645-1706 Web: www.americanregent.com Product Codes: PH	107
American Society of Orthopaedic Physicians Assistant 8365 Keystone Crossing, Suite 107 Indianapolis, IN 46240 Phone: 800-280-2390 Web:: www.asopa.org Product Codes: AO	505
Amniox Medical 2221 Newmarket Parkway Ste 106 Marietta, GA 30067 Phone: (888)709-2140 Web: www.amnioxmedical.com Product Codes: FRST, I, T	5261
Anatomage 111 N Market Street #800 San Jose, CA 95113 Phone: (408)885-1474 Web: www.anatomage.com Product Codes: EDU, FRST, PE	1073
Angiotech 1633 Westlake Ave. N Suite 400 Seattle, WA 98109 Phone: (800)523-3332 Web: www.quilldevice.com Product Codes: DEV, SI	2700

COMPANY	BOOTH NO.
ApexNetwork Physical Therapy 15 Apex Dr Highland, IL 62249 Phone: (217)342-6002 Web: www.apexnetworkpt.com Product Codes: BB, FPD, FRST, PP	4655
Aprima Medical Software 3330 Keller Springs Rd Suite 201 Carrollton, TX 75006 Phone: (866)960-6890 Web: www.aprima.com Product Codes: EMR, PM, PP	5019
Arcam AB Krokslatts Farbriker 27A Molndal, SE 431 37 Sweden Phone: 46317103200 Web: www.arcam.com Product Codes: BNE, I	3909
Arcamed, LLC 2801 Fortune Circle East Suite B Indianapolis, IN 46241 Phone: (877)545-6622 Web: www.arcamed.com Product Codes: BB, DEV, FRST, SURG	4458
Arcoma-Imix Americas, Inc. 23112 Alcalde Dr Ste A Laguna Hills, CA 92653-1458 Phone: (949)457-1231 Web: www.arcoma.se Product Codes: DE, FRST, XRAY	4338
Arctic Ease, LLC 200 Schell Lane Suite 204 Phoenixville, PA 19460 Phone: (484)924-9186 Web: www.arcticease.com Product Codes: DEV, FRST, REHB	4651
ARGOmedical AG Gewerbestrasse 5 Cham, 6330 Switzerland Phone: 41417414018 Web: www.argomedical.com Product Codes: DEV, I	1700
Army Medical Recruiting c/o US Army Healthcare Dept 1307 3rd Ave, Bldg. 1307 Fort Knox, KY 40121 Phone: (502)626-0430 Web: www.goarmy.com/amedd.html Product Codes: PP, PR	4806
ARP Wave LLC 7721 145th Street W Apple Valley, MN 55124 Phone: (952)431-9708 Web: www.arpwave.com Product Codes: DEV, FRST, PR, REHB	117

COMPANY BOOTH NO.

Arthrex, Inc. 3453
1370 Creekside Blvd
Naples, FL 34108
Phone: (239)643-5553
Web: www.arthrex.com
Product Codes: AS, BLD, DEV, EDU, I, IMG, SI, SURG, T

ArthroCare 3902
Ste 150
7000 W William Cannon Dr
Austin, TX 78735-8513
Phone: (512)391-3900
Web: www.arthrocare.com
Product Codes: ADVA, DEV, I, SI

ArthroPlastics, Inc. 1008
P O Box 332
Chagrin Falls, OH 44022
Phone: (800)676-3809
Web: www.arthroplastics.com
Product Codes: AS, MS, SG, SI, SURG

Arthrosurface, Inc. 3469
28 Forge Parkway
Franklin, MA 02038
Phone: (866)261-9294
Web: www.arthrosurface.com
Product Codes: I, SI

Artimplant 2900
900N. Preston Road, Suite A
Prosper, TX 75078
Phone: (215)767-7003
Web: www.artimplant.com
Product Codes: I, MS, T

Arzzt 4649
Montecito 38 PB L-6 Col.
Napoles, DF
Mexico
Phone: 52-5590001335
Web: www.arzzt.com
Product Codes: BNE, DEV, I, SI

Asociacion Argentina de Ortopedia y Traumatologia 706
Vicente Lopez 1878
Ciudad Autonoma de Buenos Aires
Buenos Aires, 1018
Argentina
Phone: 54 11 4801-8532
Web: www.aaot.org.ar
Product Codes: AO

Aspen Medical Products 449
6481 Oak Canyon
Irvine, CA 92618
Phone: (949) 681-0200
Web: www.aspenmp.com
Product Codes: DEV, O, SG

COMPANY BOOTH NO.

Aston Medical SAS 4307
19, Victor Grignard Street
Saint Etienne, 42000
France
Phone: 33-477930004
Web: www.aston-medical.com
Product Codes: I

Augustine Temperature Management 4262
6581 City West Parkway
Eden Prairie, MN 55344
Phone: (952)746-1720
Web: www.hotdog-USA.com
Product Codes: DEV, OTH, SURG

Autocam Medical 4306
4436 Broadmoor SE
Kentwood, MI 49512
Phone: (616)541-8080
Web: www.autocam-medical.com
Product Codes: BB, DEV, I, SI

Automated Healthcare Solutions 3302
Suite 400
2901 SW 149th Ave
Miramar, FL 33027
Phone: (888)788-4771
Web: www.ahcs.com
Product Codes: COM, OTH

Auxein Medical 139
103 First Floor Jyoti Bhawan Commercial Complex
Dr Mukherjee Nagar
Delhi, 110009
India
Phone: 91-9811720999
Web: www.auxeinmedical.com
Product Codes: FRST, I, P, SI

Auxilium Pharmaceuticals, Inc. 4253,4256
40 Valley Stream Parkway
Malvern, PA 19355
Phone: (484)321-5900
Web: www.auxilium.com
Product Codes: PH

Avalign Technologies 236
272 E. Deerpath Rd.
Suite 208
Lake Forest, IL 60045
Phone: (317)859-2300
Web: www.avalignmed.com
Product Codes: DEV, I, SI, SURG

AVICENNE 3607
Litwin Building 10, rue Jean Jaures
Puteaux, 92807
France
Phone: 33147784600
Web: www.avicenne.com
Product Codes: MKT

COMPANY BOOTH NO.

AxoGen, Inc. 4750
13859 Progress Blvd
Suite 100
Alachua, FL 32615
Phone: (888)296-4361
Web: www.axogeninc.com
Product Codes: FRST, I, T

B

Bacterin International Holdings, Inc. 409
600 Cruiser Lane
Belgrade, MT 59714
Phone: (406)388-0480
Web: www.bacterin.com
Product Codes: BNE, DEV

Baitella AG 4362
Thurgauerstrasse 70
Zurich, 8050
Switzerland
Phone: 41-443058014
Web: www.fisso.com
Product Codes: DEV, FRST, MS, SURG

Bal Seal Engineering, Inc. 1906
19650 Pauling
Foothill Ranch, CA 92610
Phone: (949)460-2100
Web: www.balseal.com
Product Codes: BB

Bank of America Practice Solutions 1006
600 N. Cleveland Ave.
Suite 300
Westerville, OH 43082
Phone: (800)428-2847
Web: www.bankofamerica.com/smallbusiness/practice-loans/overview.go
Product Codes: FIN, FRST, PP

Bauerfeind USA 1609
Ste 700
3005 Chastain Meadows Pkwy
Marietta, GA 30066-3396
Phone: (800)423-3405
Web: www.bauerfeindusa.com
Product Codes: MS, O, P, REHB, SF, SG

Baxano, Inc. 3006
655 River Oaks Pkwy
San Jose, CA 95134-1907
Phone: (408)514-2200
Web: www.baxano.com
Product Codes: ADVA, DEV, SI

Baxter Healthcare Corporation 616
One Baxter Pkwy
Deerfield, IL 60015
Phone: (800) 423-2090
Web: www.baxterbiosurgery.com
Product Codes: BNE, DEV

COMPANY	BOOTH NO.
BBL Medical Facilities 302 Washington Ave Ext. Albany, NY 12203 Phone: (888)450-4225 Web: www.bblmedicalfacilities.com Product Codes: FPD, PP	5222
Becker Orthopedic 635 Executive Drive Troy, MI 48083 Phone: (800) 521-2192 Web: www.beckerorthopedic.com Product Codes: O	1603
Beijing AKEC Medical Co., Ltd. 2nd Floor, Xingye Building, No. 10 Baifuquan Road Changping Science & Technology Park Beijing, 102200 China Phone: 86-1080109581 Web: www.ak2003.com.cn Product Codes: FRST, I	5256
Beijing Chunlizhengda Medical Instruments Co., Ltd. Room 2007, Hanjiandanyang Bldg. No. 98 South-East 3rd Ring Road, Chaoyang District Beijing, 100021 China Phone: 86-1058611761 Web: www.clzd.com Product Codes: DEV, I, P	2703
Bellevue Pharmacy 212 Millwell Drive Maryland Heights, MO 63043 Phone: (800)728-0288 Web: www.bellevuerx.com Product Codes: FRST, PH	4075
Berkeley Advanced Biomaterials, Inc. 901 Grayson Street Suite 101 Berkeley, CA 94710 Phone: (510)883-0500 Web: www.ostetic.com Product Codes: BNE, DEV, I, T	1406
BioAccess, Inc. 4000 Hudson St Baltimore, MD 21224 Phone: (410)675-8586 Web: www.bioaccess.com Product Codes: SI, SURG	3509
Biocomposites 700 Military Cutoff Road Suite 320 Wilmington, NC 28405 Phone: (910) 350-8015 Web: www.biocomposites.com Product Codes: BNE, I	3046

COMPANY	BOOTH NO.
BioD, LLC 1715 Aaron Brenner Drive Suite 204 Memphis, TN 38120 Phone: (901)417-7868 Web: www.biodlogics.com Product Codes: FRST, T	114
Biologic Therapies, Inc. 5817 NW 44th Avenue Ocala, FL 34482 Phone: (352)304-5149 Web: www.biologictherapies.com Product Codes: BB, BNE, DEV, FRST, OTH, SI, SURG, T	132
Biomatlante 5, rue Edouard Belin Z.A. Les 4 Nations Vigneux de Bretagne, 44360 France Phone: 33228020009 Web: www.biomatlante.com Product Codes: BB, BNE, I	3508
BIOMECH-Paonan Biotech Co., Ltd. 3F, No 50, Lane 258 Rueiguang Road, Neihu Taipei, 11491 Taiwan Phone: 886226274366 Web: www.biomech-spine.com Product Codes: I	3504
Biomet 56 E. Bell Dr. Warsaw, IN 46581 Phone: (574) 267-6639 Web: www.biomet.com Product Codes: DEV, I, SG, SI, T	3429
BioMimetic Therapeutics 389 Nichol Mill Lane Franklin, TN 37067 Phone: (615)844-1280 Web: www.biomimetics.com Product Codes: BNE, DEV, I	1260
Bio-Oil 75 Enterprise Suite 300 Aliso Viejo, CA 92656 Phone: (949)297-9032 Web: www.bio-oilusa.com Product Codes: FRST, OTH	4275
BioPro, Inc. 2929 Lapeer Road Port Huron, MI 48060 Phone: (810) 982-7777 Web: www.bioproimplants.com Product Codes: I, SI	1454

COMPANY	BOOTH NO.
Bioretec Ltd Hermiankatu 22 Tampere, 33720 Finland Phone: 358207789500 Web: www.bioretec.com Product Codes: DEV, I	3609
BIOTECK S.p.A. Via Enrico Fermi, 49 Arcugnano, VI 36057 Italy Phone: 39-0444289366 Web: www.bioteck.com Product Codes: BNE	906
Bioventus 4721 Emperor Blvd Suite 100 Durham, NC 27703 Phone: (800)396-4325 Web: www.bioventusglobal.com Product Codes: DEV, FRST	1624
Bird & Cronin Inc. 1200 Trapp Road Eagan, MN 55121 Phone: (651)683-8089 Web: www.birdcronin.com Product Codes: O, REHB, SF, SG, SI	2209
BK Meditech Co., Ltd. #607 Instopia Building Dogok-Dong, Kangnam-Gu Seoul, 467-23 Korea, Republic of Phone: 8225712500 Web: www.bkmeditech.com Product Codes: I, SI	2707
Bledsoe Brace Systems 2601 Pinewood Drive Grand Prairie, TX 75051 Phone: (972) 647-0884 Web: www.bledsoebrace.com Product Codes: DEV, MS, SG	1220
Blue Belt Technologies 2828 Liberty Avenue Suite 100 Pittsburgh, PA 15222 Phone: (412)683-3844 Web: www.bluebelttech.com Product Codes: FRST, I, IMG, SURG	4950
Blue Star Radiology 1 Cowboys Parkway Irving, TX 75063 Phone: (214)647-6161 Web: www.bluestarimaging.com Product Codes: FRST, OTH	4872
BME 14785 Omicron Drive #205 San Antonio, TX 78245 Phone: (210)677-0354 Web: www.bmeortho.com Product Codes: DEV, I	3352

COMPANY	BOOTH NO.
Bone Clones, Inc. 21416 Chase Street #1 Canoga Park, CA 91304 Phone: (800)914-0091 Web: www.boneclones.com Product Codes: AM, FRST	5059
Bone Foam Inc. 3650 Annapolis Lane Suite 105 Plymouth, MN 55447 Phone: (763)559-1830 Web: www.bonefoam.com Product Codes: SURG	1209
Bonutti Technologies P O Box 1367 Effingham, IL 62401 Phone: (217)342-3412 Web: www.bonuttitechnologies.com Product Codes: DEV, I, O, REHB, SURG	1251
Bort-Swiss Orthopedic Supply 2422 N. Hwy 81 Anderson, SC 29621 Phone: (864)760-0364 Web: www.bort-swissortho.com Product Codes: O, REHB, SF, SG	2410
Boston Endo-Surgical Technologies 1146 Barnum Avenue Bridgeport, CT 06610 Phone: (203)336-6479 Web: www.pepbe-st.com Product Codes: BB, DEV, FRST, SI	120
Bradshaw Medical, Inc. 10325 58th Place Kenosha, WI 53144 Phone: (262)925-1374 Web: www.bradshaw-medical.com Product Codes: SI	4053
Brainlab 3 Westbrook Corporate Center Suite 400 Westchester, IL 60154 Phone: (708)409-1343 Web: www.brainlab.com Product Codes: DEV, IMG	2070
Branch Medical Group 200 Schell Lane Phoenixville, PA 19460 Phone: (484)921-3000 Web: www.branchmedicalgroup.com Product Codes: BB, DEV, FRST, I	4675
Brasseler USA One Brasseler Blvd Savannah, GA 31419 Phone: (800) 569-6738 Web: www.brasselerusa.com Product Codes: BNE, SI, SURG	2000

COMPANY	BOOTH NO.
Breg 2885 E Loker Ave Carlsbad, CA 92010 Phone: (760)795-5440 Web: www.breg.com Product Codes: ADVA, DEV, O, P, PM, SG	2235
Bridge Medical Orthopedics 15621 W 87th Street Suite 211 Lenexa, KS 66219 Phone: (855)388-7867 Product Codes: DEV, FRST	4373
British Editorial Society of Bone & Joint Surgery 22 Buckingham Street London, WC2N 6ET United Kingdom Phone: 442077820010 Web: www.boneandjoint.org.uk Product Codes: PE, PUB	1369
Brownmed 1300 Lundberg Drive W Spirit Lake, IA 51360-7246 Phone: (816)581-7001 Web: www.brownmed.com Product Codes: O, SG	3403
BSN Medical 5825 Carnegie Blvd Charlotte, NC 28209 Phone: (800)552-1157 Web: www.bsnmedical.com Product Codes: CS, SG	1512
Buxton BioMedical, Inc. 15A Melanie Lane East Hanover, NJ 07936 Phone: (973)560-4848 Web: www.buxtonbio.com Product Codes: CS, SI	1304

C

COMPANY	BOOTH NO.
C2F Implants Z.I. Rue Lavoisier - BP 10 Nogent, 52800 France Phone: 33325027289 Web: www.c2f-implants.com Product Codes: I, P, SI	3906
Cannuflow, Inc. 1190 Coleman Ave Suite 250 San Jose, CA 95110 Phone: (408)764-0220 Web: www.cannuflow.com Product Codes: DEV	910

COMPANY	BOOTH NO.
Captiva Spine, Inc. 967 Alternate A1A Suite 1 Jupiter, FL 33477 Phone: (877)772-5571 Web: www.captivaspine.com Product Codes: BB, I	2801
CarboFix Orthopedics Ltd. 3362 Big Pine Trl Ste C Champaign, IL 61822-1409 Phone: (217)351-3288 Web: www.carbo-fix.com Product Codes: I	1051
CARE P.O Box 90082 San Diego, CA 92169 Phone: (888)936-7227 Web: www.careforpatients.com Product Codes: COM, EDU, FRST, OTH, PM, PP	4920
CareFusion 3750 Torrey View Ct San Diego, CA 92130 Phone: (888)876-4287 Web: www.carefusion.com Product Codes: BNE, SI	3204
Case Medical 19 Empire Blvd. South Hackensack, NJ 07606 Phone: (201)313-1999 Web: www.casemed.com Product Codes: AS, DEV, MS, SURG	4509
Cases By Source, Inc. 215 Island Road Mahwah, NJ 07430 Phone: (201)831-0005 Web: www.casesbysource.com Product Codes: BB, MS	4108
CastCoverz! 1760 Airline Hwy #186 Hollister, CA 95023-5634 Phone: (831)636-3500 Web: www.castcoverz.com Product Codes: CS, OTH, SG	1206
Cayenne Medical 16597 N 92nd St Suite 101 Scottsdale, AZ 85260 Phone: (480)502-3661 Web: www.cayennemedical.com Product Codes: AS, DEV, I	2006
CBSET 500 Patriot Way Lexington, MA 02421 Phone: (781)541-5555 Web: www.cbset.org Product Codes: DEV, FRST, I, MKT	4773

COMPANY BOOTH NO.

CDC Design, Inc. 1414
2626 CR 105
Floresville, TX 78114
Phone: (512)940-5989
Web: www.cdcdesigninc.com
Product Codes: AM

Celling Biosciences 3602
93 Red River
Austin, TX 78701
Phone: (512)775-4752
Web: www.cellingbiosciences.com
Product Codes: BLD, BNE, DEV, I, OTH

Cellright Technologies, LLC 5252
1808 Universal City Blvd.
Universal City, TX 78148
Phone: (210)659-9353
Web: www.cellrighttechnologies.com
Product Codes: BNE, FRST, I, T

CeramTec Medical Products 1673
CeramTec-Platz 1-9
Plochingen, D-73207
Germany
Phone: (248)506-5299
Web: www.ceramtec.com
Product Codes: I

Cerapedics, Inc. 1005
11025 Dover Street
Suite 1600
Westminster, CO 80021
Phone: (303)974-6275
Web: www.cerapedics.com
Product Codes: BNE, DEV

Ceterix Orthopaedics 5259
959 Hamilton Avenue
Menlo Park, CA 94025
Phone: (650)316-8660
Web: www.ceterix.com
Product Codes: ADVA, DEV, FRST

Changzhou Waston Medical Appliance Co., Ltd. 1901
9 Xihu Road
Wujin Hi-Tech Industry Zone
Changzhou, 213164
China
Phone: 86-51986522226
Web: www.wastonmed.com
Product Codes: BB, BNE, I, MS, SI

ChartLogic, Inc. 5012
3995 South 700 East
Suite 200
Salt Lake City, UT 84107
Phone: (801)365-1820
Web: www.chartlogic.com
Product Codes: COM, EDU, EMR, PM, PP

COMPANY BOOTH NO.

Checkpoint Surgical, LLC 2904
Suite 110
22901 Millcreek Blvd
Cleveland, OH 44122
Phone: (877)478-9106
Web: www.checkpointsurgical.com
Product Codes: ADVA, DEV, SI, SURG

Chief Medical Co., Ltd. 220
5F, No. 18-3, Sec. 6, Minquan E. Rd.
Taipei, 114
Taiwan
Phone: 886227941122
Web: www.chief-medical.com
Product Codes: BB, REHB, SG

Chinese Orthopaedic Association 604
200 E Randolph Street
Beijing, 1018
China
Phone: 86 1085158146
Web: www.coachina.org
Product Codes: AO

ChM Sp. z o.o. 4050
Lewickie 3b
Juchnowiec Koscielny, 16-061
Poland
Phone: 48857131320
Web: www.chm.eu
Product Codes: I, SI

ChoiceSpine, LP 2309
400 Erin Drive
Knoxville, TN 37919
Phone: (865)246-3333
Web: www.choicespine.net
Product Codes: I

Circle Biologics 4753
3650 Annapolis Lane N.
Suite 105
Plymouth, MN 55447
Phone: (763)577-0900
Web: www.circlebiologics.com
Product Codes: BLD, BNE, DEV, FRST, MS, SI, SURG, T

Citieffe S.r.l. 204
Via Armaroli 21
Calderara Di Reno
Bologna, 40012
Italy
Phone: 39051721850
Web: www.citieffe.com
Product Codes: DEV, I, SI

Cleveland Clinic Foundation 5253
9500 Euclid Ave., ND-20
Cleveland, OH 44195
Phone: (216)445-9305
Web: http://mds.clevelandclinic.org/Services/BioRobotics.aspx
Product Codes: AM, COM, DEV, EDU, FPD, FRST, I, OTH, P

COMPANY BOOTH NO.

Collagen Matrix, Inc. 4510
15 Thornton Road
Oakland, NJ 07436
Phone: (201)405-1477
Web: www.collagenmatrix.com
Product Codes: DEV

Comerlat Enterprises LLC 4450
3200 GUASTI ROAD
SUITE 100
Ontario, CA 91761
Phone: (909)456-8845
Web: www.comerlat-enterprises.com
Product Codes: AS, DEV, DI, FRST, SURG

Community Health Systems 5039
4000 Meridian Blvd
Franklin, TN 37067
Phone: (800)367-6813
Web: www.chs.net
Product Codes: PP, PR

Community Tissue Services 1208
2900 College Drive
Kettering, OH 45420
Phone: (800)684-7783
Web: www.communitytissue.org
Product Codes: T

Compulink Business Systems, Inc. 5033
2645 Townsgate Road
Suite 200
Westlake Village, CA 91361
Phone: (800)456-4522
Web: www.compulinkadvantage.com
Product Codes: COM, EMR, FRST, IMG, PM, PP

ConforMIS, Inc. 646
28 Crosby Drive
Bedford, MA 01730
Phone: (781)345-9001
Web: www.conformis.com
Product Codes: DEV

ConMed Linvatec 2029
11311 Concept Boulevard
Largo, FL 33773
Phone: (800) 237-0169
Web: www.linvatec.com
Product Codes: AS, COM, DEV, EDU, I, SI, SURG, T

Consensus Orthopedics 1839
1115 Windfield Way
Suite 100
El Dorado Hills, CA 95762-9623
Phone: (916)355-7100
Web: www.consensusortho.com
Product Codes: ADVA, DEV, I, SI

ContainMed, Inc. 807
1404 Main St.
Indianapolis, IN 46224
Phone: (317)487-8800
Web: www.containmed.com
Product Codes: SURG

COMPANY BOOTH NO.

Conventus Orthopaedics, Inc. 4553
10200 73rd Avenue North
Suite 122
Maple Grove, MN 55369
Phone: (763)515-5000
Web: www.conventusortho.com
Product Codes: DEV, FRST, I, SI

CoolShirt Systems 3804
170 Andrew Drive
Stockbridge, GA 30281
Phone: (800)345-3176
Web: www.surgeoncoolvest.com
Product Codes: MS, O, SURG

Corentec Co., Ltd. 2901
11F, Chungho Tower
748-1 Banpo 1-dong, Seocho-gu
Seoul, 137-810
Korea, Republic of
Phone: 82-234455493
Web: www.corentec.com
Product Codes: I, SI

CORFLEX INC. 1516
669 E Industrial Park Drive
Manchester, NH 03109-5625
Phone: (603)623-3344
Web: www.corflex.com
Product Codes: O, SG

Corin Group PLC 3212
The Corinium Centre
Cirencester
Gloucestershire, GL7 1YJ
United Kingdom
Phone: 44-441285659866
Web: www.coringroup.com
Product Codes: ADVA, DEV, I, SI

Covidien 1642
15 Hampshire Street
Mansfield, MA 02048
Phone: (800) 962-9888
Web: www.covidien.com
Product Codes: ADVA, DEV

Covision Medical Technologies Ltd. 3252
Lawn Rd.
Carlton In Lindrick
Worksop, Notts, S81 9LB
United Kingdom
Phone: 441909733737
Web: www.covision-medical.co.uk
Product Codes: I, P, SI

Cropper Medical, Inc. 130
240 E Hersey Suite 2
Ashland, OR 97520
Phone: (541) 488-0600
Web: www.bioskin.com
Product Codes: O, SF, SG

COMPANY BOOTH NO.

Cuattro LLC 4239
1618 Valle Vista Blvd.
Pekin, IL 61554
Phone: (309)349-8900
Web: www.cuattro.com
Product Codes: DE, DI, XRAY

Cura Surgical, Inc. 3603
2571 Kaneville Ct.
Geneva, IL 60134
Phone: (630)232-2510
Web: www.curasurgical.com
Product Codes: MS

Curexo Technology Corporation 3846
47320 Mission Falls Court
Fremont, CA 94539
Phone: (510) 249-2300
Web: www.robodoc.com
Product Codes: SURG

Current Concepts Institute 1574
2310 Superior Avenue East
Cleveland, OH 44114
Phone: (216)295-1900
Web: www.ccjr.com
Product Codes: EDU, PE

Custom Fab, Inc. 4410
7261 Lampson Ave
Garden Grove, CA 92841
Phone: (714) 891-9119
Web: www.customfabinc.com
Product Codes: SG

Custom Orthopaedic Solutions 2274
10000 Cedar Ave
Cleveland, OH 44106
Phone: (216)445-2164
Web: www.customorthopaedics.com
Product Codes: AM, EDU, IMG, SI

Cytomedix, Inc. 4453
209 Perry Parkway
Suite 7
Gaithersburg, MD 20877
Phone: (919)354-1864
Web: www.cytomedix.com
Product Codes: DEV, FRST

Cytonics Corporation 4776
555 Heritage Drive
Suite 115
Jupiter, FL 33458
Phone: (561)575-4451
Web: www.cytonics.com
Product Codes: BLD, FRST, OTH

D

D1 Sports 5424
PO Box 1569
Pelham, AL 35124
Phone: (205)621-3378
Web: www.d1sportstraining.com
Product Codes: BB, FIN, PP, REHB

COMPANY BOOTH NO.

Daesung Maref Co. Ltd. 4559
689-31 Gumjung-Dong, Gunpo-Shi
Gunpo, Gyeonggi-Do 435-862
South Korea
Phone: 82-314597211
Web: www.dsmaref.com
Product Codes: DEV, FRST, REHB, SURG

Dallen Medical 137
1046 Calle Recodo
Suite G
San Clemente, CA 92673
Phone: (949)218-0030
Web: www.dallenmedical.com
Product Codes: BNE, DEV, FRST, SI

Danco Anodizing 3406
44 LaPorte Street
Arcadia, CA 91066
Phone: (626)445-3303
Web: www.danco.net
Product Codes: DEV, DI, I, SI, SURG

Darco International 1620
810 Memorial Blvd
Huntington, WV 25701
Phone: (304) 522-4883
Web: www.darcointernational.com
Product Codes: SF, SG

Data Strategies, Inc. 5223
13475 Danielson Street
Suite 210
Poway, CA 92064
Phone: (800)875-0480
Web: www.mdsuite.com
Product Codes: EMR, FRST, PM, PP

Data Trace Publishing 971
110 West Rd
Suite 227
Towson, MD 21204
Phone: (410)494-4994
Web: www.datatrace.com
Product Codes: PE, PUB

Del Medical, Inc. 4536
28 Calvert St.
Harrison, NY 10528
Phone: (800) 800-6006
Web: www.delmedical.com
Product Codes: DE, DI, XRAY

Delfi Medical Innovations, Inc. 131
106-1099 W. 8th Ave
Vancouver, BC V6H 1C3
Canada
Phone: (604)742-0600
Web: www.delfimedical.com
Product Codes: DEV, SI, SURG

Delphi Healthcare Partners 5430
170 Southport Drive
Suite 200
Morrisville, NC 27560
Phone: (866)885-5522
Web: www.delphihp.com
Product Codes: PP, PR

COMPANY BOOTH NO.

DePuy Mitek 1646
325 Paramount
Raynham, MA 02767
Phone: (508) 880-8100
Web: www.depuymitek.com
Product Codes: MS, SURG

Depuy Synthes Joint Reconstruction 1646
P.O. Box 988
700 Orthopaedic Drive
Warsaw, IN 46581-0988
Phone: (800)473-3789
Web: www.depuy.com
Product Codes: ADVA, DEV, EDU, I, IMG, PHRM, SI

DePuy Synthes Joint Reconstruction Mobile Institute 1678
700 Orthopaedic Drive
Warsaw, IN 46581
Phone: (800)473-3789
Web: www.depuy.com
Product Codes: ADVA, DEV, EDU, I, IMG, PHRM, SI

DePuy Synthes Spine 1646
325 Paramount Dr
Raynham, MA 02767
Phone: (508) 880-8100
Web: www.depuyspine.com
Product Codes: SI, SURG

DeRoyal 1632
200 DeBusk Lane
Powell, TN 37849
Phone: (888)938-7828
Web: www.deroyal.com
Product Codes: I, MS, REHB, SG

Designs for Vision, Inc. 1612
760 Koehler Ave
Ronkonkoma, NY 11779
Phone: (631)585-3300
Web: www.DesignsForVision.com
Product Codes: SURG

DeSoutter Medical Ltd 2612
Halton Brook Business Park
Aston Clinton
Aylesbury, Bucks, HP22 5WF
United Kingdom
Phone: 441442860300
Web: www.de-soutter.com
Product Codes: CS, SI

Devicix, LLC 126
7680 Executive Drive
Eden Prairie, MN 55344
Phone: (952)368-0073
Web: www.devicix.com
Product Codes: AS, BNE, COM, DEV, DI, I, IMG, SI, SURG

COMPANY BOOTH NO.

DGIMed Ortho 809
Suite 2010
12400 Whitewater Dr.
Minnetonka, MN 55343
Phone: (952)582-6700
Web: www.dgimedortho.com
Product Codes: DEV, I, SI, SURG

Diagnostic Instruments, Inc. 4440
211 Asquithview Lane
Arnold, MD 21012
Phone: (410)421-5550
Web: www.msultrasound.net
Product Codes: DE, DI, IMG

Directed Manufacturing, Inc. 4356
1007 S. Heatherwilde Blvd.
Suite 700
Pflugerville, TX 92008
Phone: (512)520-6802
Web: www.directedmfg.com
Product Codes: DEV, I, SI, SURG

DJO Global 3039
1430 Decision Street
Vista, CA 92081
Phone: (760)734-3125
Web: https://www.djoglobal.com/
Product Codes: DEV, I, MS, P, REHB, SF, SG, SI, SURG

Donson Machine Co. 5050
12416 S Kedvale Ave
Alsip, IL 60803
Phone: (708)388-0880
Web: www.donsonmachine.com
Product Codes: BB, FRST, I, SI

Doximity 5257
60 E. 3rd Ave #115
San Mateo, CA 94401
Phone: (415)294-0205
Web: www.doximity.com
Product Codes: COM, FRST, PP

Dry Corp, LLC 2406
349 Military Cutoff Rd Ste 1
Wilmington, NC 28405-8796
Phone: (910)791-0009
Web: www.drycorp.com
Product Codes: CS, MS, P

DTC Healthcom 5432
405 Tarrytown Road
Suite 1390
White Plains, NY 10607
Phone: (718)466-8132
Web: www.dtchealthcom.com
Product Codes: COM, EMR, FRST, PP

COMPANY BOOTH NO.

E

East Coast Orthotic and Prosthetic Corporation 5156
75 Burt Drive
Deer Park, NY 11729
Phone: (888)400-8934
Web: www.ec-op.com
Product Codes: FRST, O, P, SF

Eastern, Southern & Western Orthopaedic Associations 704
110 West Rd., Suite 227
Towson, MD 21204
Phone: 410-494-4994
Web: www.eoa-assn.org
Product Codes: AO

Ebone 804
PO Box 742
Kenosha, WI 53144
Phone: (262) 553-2111
Web: www.medicalties.com
Product Codes: EDU, OTH

Ecolab 1508
13000 Deerfield Pkwy
Suite 300
Alpharetta, GA 30004
Phone: (678)896-4202
Web: www.ecolab.com
Product Codes: DEV

Element Cincinnati 3401
1245 Hillsmith Dr
Cincinnati, OH 45215
Phone: (513)771-2536
Web: www.element.com
Product Codes: OTH

ElliptiGO Inc. 4755
722 Genevieve Street
Suite O
Solana Beach, CA 92075
Phone: (858)876-8677
Web: www.elliptigo.com
Product Codes: FRST, REHB

Elliquence LLC 1412
2455 Grand Ave
Baldwin, NY 11510
Phone: (516) 277-9000
Web: www.elliquence.com
Product Codes: DEV, SURG

Elsevier 1469
1600 JFK Blvd
Suite 1800
Philadelphia, PA 19103
Phone: (215)239-3900
Web: www.us.elsevierhealth.com
Product Codes: PE, PUB

COMPANY BOOTH NO.

Elsevier-Clinical Key 1472
1600 JFK Blvd.
Suite 1800
Philadelphia, PA 19103
Phone: (215)239-3490
Web: www.us.elsevierhealth.com
Product Codes: COM, EDU, FRST, IMG, PE, PUB

Empirical Testing Corp. 1802
4628 Northpark Drive
Colorado Springs, CO 80923
Phone: (719)264-9937
Web: www.empiricaltesting.com
Product Codes: OTH

Endolab GmbH 3400
Seb. -Tiefenthaler Str. 13
Thansau/Rohrdorf, 83101
Germany
Phone: 4980312313230
Web: www.endolab.org
Product Codes: BB, I, OTH

Endotec Inc. 1457
300 Sunport Lane
Suite 500
Orlando, FL 32804
Phone: (407)822-0021
Web: www.endotec.com
Product Codes: DEV, I

Engineered Medical Solutions 907
85 Industrial Dr.
Bldg. B
Phillipsburg, NJ 08865
Phone: (908)329-9123
Web: www.scintillantlight.com
Product Codes: SI, SURG

Enova Illumination 5159
1839 Buerkle Road
Saint Paul, MN 55110
Phone: (651)236-8858
Web: www.enovaillumination.com
Product Codes: FRST, SURG

Ensinger 2106
365 Meadowlands Blvd
Washington, PA 15301
Phone: (724)746-6050
Web: www.ensinger-inc.com
Product Codes: SI, SURG

EOS Electro Optical Systems 461
28970 Cabot Drive
Novi, MI 48377-2978
Phone: (248)306-0143
Web: www.eos.info
Product Codes: AM, BB, CS, DEV, I, O, P, SI, SURG

EOS Imaging 4233
185 Alewife Brook Parkway #410
Cambridge, MA 02138
Phone: (678)564-5400
Web: www.eos-imaging.com
Product Codes: DE, DI, XRAY

COMPANY BOOTH NO.

EPM Endo Plant Muller GmbH 2310
Schleusen Str. 8
Kleinwallstadt, Bayern, 63839
Germany
Phone: 49-602225419
Web: www.epm-mueller.de
Product Codes: COM, SI

Ergoactives 3108
3212 NE 211 Terrace
Aventura, FL 33180
Phone: (305)682-9346
Web: www.ergoactives.com
Product Codes: DEV, MS

Ermi, Inc. 1004
441 Armour Pl NE Ste A
Atlanta, GA 30324-3975
Phone: (404)687-0505
Web: www.getmotion.com
Product Codes: DEV

Esaote North America 4241
8000 Castleway Dr.
Indianapolis, IN 46250
Phone: (800)428-4374
Web: www.esaoteusa.com
Product Codes: DE, DI, IMG, MRI

Etex Corporation 1307
675 Massachusetts Ave 12th Floor
Cambridge, MA 02139-3309
Phone: (617) 577-7270
Web: www.etexcorp.com
Product Codes: BNE, T

Eurocoating Spa 5062
Via al dos de la Roda, 60
VAT IT01305350223
Pergine Valsugana, TN 38057
Italy
Phone: 39-0461518940
Web: www.eurocoating.it
Product Codes: FRST, I, P

European Federation of Orthopaedics and Traumatology (EFORT) 604
Technoparkstr 1
Zurich, CH-8005
Switzerland
Phone: 41 44 448 44 02
Web: www.efort.org
Product Codes: AO

Everyday Health Inc. 4939
345 Hudson St Ste 1601
New York, NY 10014-7119
Phone: (213)247-4239
Web: www.EverydayHealth.com/practice-marketing
Product Codes: FRST, PM, PP

Evonik Corporation 3102
299 Jefferson Road
Parsippany, NJ 07054
Phone: (973)929-8000
Web: www.evonik.com
Product Codes: BB, I

COMPANY BOOTH NO.

Exactech, Inc. 4612
2320 NW 66th Court
Gainesville, FL 32653
Phone: (800) 392-2832
Web: www.exac.com
Product Codes: ADVA, BLD, BNE, DEV, I, SI, T

Exponent, Inc. 2704
149 Commonwealth Drive
Menlo Park, CA 94025
Phone: (215)594-8800
Web: www.exponent.com
Product Codes: OTH

Exscribe, Inc. 5009
462 Main Street
Suite 200
Bethlehem, PA 18018
Phone: (610)419-2050
Web: www.exscribe.com
Product Codes: COM, EMR, PM, PP

Extremity Medical, LLC 4709
Suite 410
300 Interpace Parkway
Parsippany, NJ 07054
Phone: (973)588-8980
Web: www.extremitymedical.com
Product Codes: DEV, I

F

Federacion de Sociedades de Ortopedia y Traumatologia de America Latina - SLAOT Federacion 705
Calle 134 No. 7B - 83 Oficina 201 Edificio el Bosque
Bogota, DC 10
Phone: 5731 57862902
Web: www.slaot.org
Product Codes: AO

Ferring Pharmaceuticals 2846
4 Gatehall Drive
Third Floor
Parsippany, NJ 07054
Phone: (973)796-1600
Web: www.euflexxa.com
Product Codes: DEV, PHRM

FH Orthopedics 2646
ZA Mulhouse Heimsbrunn
3, Rue de la Foret
Heimsbrunn, 68990
France
Phone: 33389819092
Web: www.fhorthopedics.com
Product Codes: I, P

Fidia Pharma USA 3706
300 Interpace Parkway
Morris Corporate Center 1 – Bldg. B
Parsippany, NJ 07054
Phone: (973)507-5120
Web: www.hyalgan.com
Product Codes: DEV, PHRM

COMPANY BOOTH NO.

Fii 4853
Za Du Champ De Berre
Saint-Just Malmont, 43240
France
Phone: 33-477350302
Web: www.fii.fr
Product Codes: FRST, P

Flagship Surgical, LLC 1808
16 Mt. Bethel Road
Suite 313
Warren, NJ 07059
Phone: (888)633-5843
Web: www.flagshipsurgical.com
Product Codes: AS, BB, DEV, MS, SF, SG, SI, SURG

FMD LLC 4446
P.O. Box 1500
Lorton, VA 22199
Phone: (703)339-8881
Web: www.duroscope.com
Product Codes: AS, FRST, SI, SURG

FORCE - TJR 1270
55 Lake Avenue North
Worcester, MA 01655
Phone: (508)856-5748
Web: www.force-tjr.org
Product Codes: EDU, FRST, PE

FORE - Foundation For Orthopaedic Research and Education 1474
13020 N Telecom Parkway
Tampa, FL 33637
Phone: (813)910-3667
Web: www.foreonline.org
Product Codes: BB, EDU, FRST, PE

Forecreu America, Inc. 1425
4118 N. Nashville Ave
Chicago, IL 60634-1429
Phone: (773) 539-8501
Web: www.forecreu.com
Product Codes: I, SI

Francis Lamont Innovations Ltd 4650
Unit 10, Hathersage Park
Heather Lane
Hathersage, Derbyshire, S32 1DP
United Kingdom
Phone: 44-1433650178
Web: www.fliuk.com
Product Codes: BB, DEV, FRST, PR, SI, SURG

FUJIFILM Medical Systems USA, Inc. 4436
419 West Ave
Stamford, CT 06902
Phone: (203)324-2000
Web: www.fujiprivatepractice.com
Product Codes: DE, DI, XRAY

COMPANY BOOTH NO.

FusionOne Electronic Healthcare 5117
11 North Roselle Road
Roselle, IL 60172
Phone: (630)815-4818
Web: www.fusiononeinc.com
Product Codes: EMR, PP

Fx Solutions 3203
1663 Rue de Majornas
VIRIAT, 01440
France
Phone: 33-474553555
Web: www.fxsolutions.fr
Product Codes: DEV, I, P, SI

G

G-21 S.r.l. 4007
Via S. Pertini N. 8
San Possidonio, Modena 41039
Italy
Phone: 39-053530312
Web: www.g-21.it
Product Codes: ADVA, BNE, DEV, I, PHRMA

Game Ready 1204
1800 Sutter St.
Suite 500
Concord, CA 94520
Phone: (888) 426-3732
Web: www.gameready.com
Product Codes: ADVA, DEV, REHB

Gateway EDI 5310
501 N Broadway Ste 300
Saint Louis, MO 63102-2136
Phone: (800)969-3666
Web: www.gatewayedi.com
Product Codes: FRST, PM, PP

Gauthier Biomedical, Inc. 3052
2221 Washington Street
Grafton, WI 53024
Phone: (866)546-0010
Web: www.gauthierbiomedical.com
Product Codes: SI

GE Healthcare 4229
3000 N Grandview Blvd
Waukesha, WI 53188
Phone: (262)544-3011
Web: www.gehealthcare.com
Product Codes: DE, DEV, DI, EMR, MRI, PM, SURG, XRAY

Gebauer Company 805
4444 E 153rd St
Cleveland, OH 44128
Phone: (800)321-9348
Web: www.gebauer.com
Product Codes: PH

COMPANY BOOTH NO.

Gensco Laboratories 4175
12741 Miramar Parkway
Suite 301
Miramar, FL 33027
Phone: (352)464-6101
Web: www.genscolabs.com
Product Codes: FRST, PH

GermedUSA 4751
2417 Jericho Turnpike #333
Garden City Park, NY 11040
Phone: (516)358-2180
Web: www.germedusa.com
Product Codes: FRST, SI

GEXFIX International Corp. 4956
55 NE 5th Avenue 501
Boca Raton, FL 33432
Phone: (561)443-3532
Web: www.gexfix.ch
Product Codes: DEV, FRST, I, O, SURG

Globus Medical 3049
2560 General Armistead Ave
Audubon, PA 19403
Phone: (610)930-1800
Web: www.globusmedical.com
Product Codes: ADVA, DEV, I, SI

GMReis 1517
Rua Antonio C. Sebastiao 120
Campinas, S. Paulo 13052-504
Brazil
Phone: 551937659900
Web: www.gmreis.com.br
Product Codes: I, MS, P, SI

Go Steady, LLC 115
690 Wingate
Glen Ellyn, IL 60137
Phone: (630)853-6732
Web: www.ordergosteady.com
Product Codes: DEV, FRST

GPI Prototype and Manufacturing Services Inc. 4454
940 North Shore Drive
Lake Bluff, IL 60044
Phone: (847)615-8900
Web: www.gpiprototype.com
Product Codes: AM, FRST, SI

Greatbatch Medical 4065
10000 Wehrle Drive
Clarence, NY 14031
Phone: (716) 759-5600
Web: www.greatbatchmedical.com
Product Codes: ADVA, I, SI

Greenway Medical Technologies 5212
121 Greenway Blvd.
Carrollton, GA 30117
Phone: (678)390-7270
Web: www.greenwaymedical.com
Product Codes: EMR, PP

COMPANY BOOTH NO.

Group Health Physicians 5018
320 Westlake Ave N, Suite 100
Seattle, WA 98109
Phone: (206)448-6192
Web: www.ghc.org
Product Codes: PP, PR

Groupe Lepine 2809
175 Rue Jacquard
Genay, 69730
France
Phone: 33472330295
Web: www.groupe-lepine.com
Product Codes: I, P, SG, T

Gruppo Bioimpianti SRL 1835
Via Liguria, 28
Peschiera Borromeo, Milano 20068
Italy
Phone: 390251650371
Web: www.bioimpianti.it
Product Codes: DEV, I, SI

GS Medical 3208
3949 Research Park Court
Suite 100
Soquel, CA 95073
Phone: 82-220827727
Web: www.gsmedicalusa.com
Product Codes: I, SI

gSource, LLC 4209
19 Bland St
Emerson, NJ 07630
Phone: (201)599-2277
Web: www.gsource.com
Product Codes: BB, SI

H

H+H Surgical Technologies 3708
4437 Robertson Road
Madison, WI 53714
Phone: (608)222-2776
Web: www.hhsurgical.com
Product Codes: MS, SI, SURG

Haemonetics Corporation 2004
400 Wood Road
Braintree, MA 02184-9114
Phone: (781) 848-7100
Web: www.haemonetics.com
Product Codes: BLD, COM, DEV, SURG

Hand Biomechanics Lab, Inc. 810
77 Scripps Drive Suite 104
Sacramento, CA 95825
Phone: (888)974-7852
Web: www.handbiolab.com
Product Codes: DEV

COMPANY BOOTH NO.

Hangzhou Zhengda Medical Co., Ltd. 4456
No. 279, Shiqiao Road
Xiacheng District
Hangzhou, Zhejiang, 310022
China
Phone: 86-57185094131
Web: www.zd-medical.com
Product Codes: FRST, MS, REHB, SURG

Hans Biomed USA, Inc. 122
140 Sylvan Ave Fl 2-2
Englewd Clfs, NJ 07632-2502
Phone: (201)224-2333
Web: www.hansbiomed.com
Product Codes: BNE, T

Hapad, Inc. 1504
5301 Enterprise Blvd
Bethel Park, PA 15102
Phone: (800) 544-2723
Web: www.hapad.com
Product Codes: SG

Harvest Technologies Corp. 1800
40 Grissom Rd Suite 100
Plymouth, MA 02360
Phone: (508) 732-7500
Web: www.harvesttech.com
Product Codes: BLD, BNE, DEV

Hitachi Medical Systems America, Inc. 4036
1959 Summit Commerce Park
Twinsburg, OH 44087
Phone: (800) 800-3106
Web: www.hitachimed.com
Product Codes: DE, DI, IMG, MRI

HNM Medical 4451
20855 NE 16th Avenue
Suite C15
Miami, FL 33179
Phone: (866)291-8498
Web: www.hnmmedical.com
Product Codes: FRST, SI

Holmed Corporation 1706
40 Norfolk Ave Ste 2
South Easton, MA 02375-1913
Phone: (781)856-0900
Web: www.holmed.net
Product Codes: SI, SURG

Hologic 4042
35 Crosby Dr Ste 101
Bedford, MA 01730-1411
Phone: (781) 999-7300
Web: www.hologic.com
Product Codes: BNE, DE, DEV, DI, MRI, XRAY

Horizon Pharma, Inc. 3702
520 Lake Cook Rd Ste 520
Deerfield, IL 60015-5633
Phone: (224)383-3000
Web: www.horizonpharma.com
Product Codes: PH, PHRM

COMPANY BOOTH NO.

Hospital For Joint Diseases at NYU Langone Medical Center 1373
301 East 17th Street
New York, NY 10003
Phone: (212)598-6000
Web: www.orthosurgery.med.nyu.edu/
Product Codes: EDU, PE

Hospital for Special Surgery 1475
External Affairs Dept., Hospital for Special Surgery
535 E 70th St.
New York, NY 10021
Phone: (212)608-1000
Web: www.hss.edu
Product Codes: EDU, PE

HRA Healthcare Research & Analytics 2307
400 Lanidex Plz Ste 102
Parsippany, NJ 07054-2722
Phone: (973) 240-1200
Web: www.hraresearch.com
Product Codes: MKT

I

I.T.S. GmbH/I.T.S. USA 3248
1778 Park Avenue North
Suite 200
Maitland, FL 32751
Phone: (407)971-8054
Web: www.its-implantusa.com
Product Codes: I

Iconacy Orthopedic Implants 4772
4130 Corridor Drive
Warsaw, IN 46582
Phone: (574)269-4266
Product Codes: FRST, I

iCRco, Inc. 4736
2580 West 237th Street
Torrance, CA 90505
Phone: (310)921-9559
Web: www.icrcompany.com
Product Codes: DE, DI

iData Research Inc. 4206
850 - 777 West Broadway
Vancouver, BC V5Z 4J7
Canada
Phone: (604)266-6933
Web: www.idataresearch.net
Product Codes: MKT

I-Flow, LLC, a Kimberly-Clark Health Care Company 3478
20202 Windrow Drive
Lake Forest, CA 92630
Phone: (800)448-3569
Web: www.myON-Q.com
Product Codes: DEV

COMPANY BOOTH NO.

IMDS - Innovative Medical Device Solutions 658
13600 Heritage Parkway, Suite 170
Ft Worth, TX 76177
Phone: (407)770-0272
Web: www.imds.net
Product Codes: AS, BB, CS, DEV, I, SI, SURG, T

IMEDICOM Co., Ltd 3008
612 Hanlim Human Tower
1-40 Guemjung-dong, Gunpo
Gyeonggi, 435-824
Korea, Republic of
Phone: 82314791156
Web: www.imedicom.co.kr
Product Codes: SI

I-Ming Sanitary Materials Co., Ltd. 3207
101-10, Datu Lane, Er Hsi Road
Peishih LI, Hsihu
Changhua, 51446
Taiwan
Phone: 886-48819638
Web: www.supports.com.tw
Product Codes: O, REHB

Implantcast-USA 4953
2106 W Pioneer Pkwy #125
Arlington, TX 76013
Phone: (817)226-9900
Product Codes: FRST, I

IMT-USA, LLC 1712
548 Apollo Dr.
Suite 10
Lino Lakes, MN 55014
Phone: (651) 493-9634
Web: www.imt-medicalusa.com
Product Codes: DEV, SI, SURG

Incisive Surgical, Inc. 1903
14405 21st Ave. N.
Suite 130
Plymouth, MN 55447
Phone: (952)591-2543
Web: www.insorb.com
Product Codes: DEV, OTH, SI

Indonesian Orthopaedic Association - IOA 506
Gedung Menara Era Lt. 8, Unit 8-04
Jl. Senen Raya No. 135-137,
Jakarta Pusat, 10410
Indonesia
Phone: 62213917378
Web: www.indonesia-orthopaedic.org
Product Codes: AO

Industrial Pharmacy Management 2852
Suite 200
20377 SW Acacia St
Newport Beach, CA 92660
Phone: (800)803-7776
Web: www.ipmrx.com
Product Codes: OTH, PH

COMPANY BOOTH NO.

Industrial Technology Research Institute 4106
Room 602, Bldg 53, 6F, 195, Sec. 4 Chung Hsing Road
Chutung
Hsinchu, 31040
Taiwan
Phone: 886-35912922
Web: www.itri.org.tw
Product Codes: BNE, DEV, I, SI

Industrias Medicas Sampedro S.A.S 2709
Calle 78 D Sur # 47 G 71
Medellin,
Colombia
Phone: 5743013939
Web: www.imsampedro.com
Product Codes: DEV, I, OTH

INEX Surgical Inc. 2906
5731 W Howard St
Niles, IL 60714
Phone: (847)674-2595
Web: www.inexsurgical.com
Product Codes: AS, DEV, DI, O, SI, SURG

Infinite Therapeutics 4360
68 Route 125
Kingston, NH 03848
Phone: (603)347-6006
Web: www.infinitetherapeutics.com
Product Codes: FRST, OTH, REHB

Inion Inc 1865
2800 Glades Cir
Suite 138
Weston, FL 33327
Phone: (954)659-9224
Web: www.inion.com
Product Codes: DEV, I, SI

Innomed, Inc. 224
103 Estus Drive
Savannah, GA 31404
Phone: (912) 236-0000
Web: www.innomed.net
Product Codes: CS, SI, SURG

Innovasis Inc. 4646
614 East 3900 South
Salt Lake City, UT 84107
Phone: (801)261-2236
Web: www.innovasis.com
Product Codes: BNE, FRST, I, SI, SURG, T

Innovative Medical Products 1665
87 Spring Lane
Plainville, CT 06062
Phone: (800) 467-4944
Web: www.impmedical.com
Product Codes: DEV, MS, SG, SI, SURG

COMPANY BOOTH NO.

Innovative Orthopedic Technologies 4546
1140 Business Center Drive
Suite 101
Houston, TX 77043
Phone: (409)658-1017
Web: www.iotiot.com
Product Codes: FRST, SI, SURG

Innovision, Inc. 1308
1975 Nonconnah Blvd
Memphis, TN 38132
Phone: (901)370-5700
Web: www.innovisionus.com
Product Codes: DEV, I, SURG

Instratek, Inc. 1618
4141 Directors Row
Suite #H
Houston, TX 77092
Phone: (800) 892-8020
Web: www.instratek.com
Product Codes: DEV, I, SI, SURG

Insurgical Powered Instruments 5260
9600 Great Hills Trail
Suite 150W
Austin, TX 78759
Phone: (512)318-2980
Web: www.insurgical.com
Product Codes: FRST, SI, SURG

In'tech Medical 3500
2851 Lamb Place #15
Memphis, TN 38103
Phone: (901)375-1109
Web: www.intech-medical.com
Product Codes: BB, DEV, I, SI, SURG

Integra 3465
311 Enterprise Drive
Plainsboro, NJ 08536
Phone: (609) 275-0500
Web: www.integralife.com
Product Codes: ADVA, BNE, DEV, I, SI, SURG, T

Integrated Medical Systems (IMS) 4654
1823 27th Avenue S
Birmingham, AL 35209
Phone: (205)335-1669
Web: www.imsready.com
Product Codes: DEV, FRST, SI, SURG

Inter Equipement 3775
7 Rue Pierre Et Marie Curie
Blanquefort, 33290
France
Phone: 33-556352398
Web: www.inter-equipementl.com
Product Codes: FRST, I

COMPANY BOOTH NO.

International Cartilage Repair Society - ICRS 606
Spitalstrasse 190, Haus 3
Wetzikon, ZH-8623
Switzerland
Phone: 41 44 503 73 70
Web: www.cartilage.org
Product Codes: AO

International Congress for Joint Reconstruction 406
2033 San Elijo Ave., #351
Cardiff, CA 92007
Phone: 707-981-7958
Web: www.icjr.net
Product Codes: AO

Intrauma SRL 4609
Via Rovigo, 4
Rivoli, TO 10098
Italy
Phone: 39-119539496
Web: www.intrauma.com
Product Codes: I, SI

Invibio Inc 3109
300 Conshohocken State Road
Suite 120
Conshohocken, PA 19428
Phone: (484)342-6004
Web: www.invibio.com
Product Codes: I, OTH

InVivoLink 5415
1905 21st Ave.
Nashville, TN 37212
Phone: (866)478-8981
Web: www.invivolink.com
Product Codes: COM, FRST, PP

Invuity 455
39 Stillman St.
San Francisco, CA 94107
Phone: (866)711-7768
Web: www.invuity.com
Product Codes: SI

Ionbond 4455
1823 E. Whitcomb Ave.
Madison Heights, MI 48071
Phone: (248)586-4751
Web: www.ionbond.com
Product Codes: AS, BLD, BNE, DEV, FRST, I, SURG, T

IrriMax Corporation 4754
1665 Lakes Parkway, Suite 102
Lawrenceville, GA 30043
Phone: (770)807-3355
Web: www.irrisept.com
Product Codes: DEV, FRST, MS, OTH

COMPANY BOOTH NO.

ISAKOS 766
2678 Bishop Drive
Suite 250
San Ramon, CA 94583
Phone: (925)807-1197
Web: www.isakos.com
Product Codes: EDU, FRST, PE

J

JAAOS 1265
6300 N River Road
Rosemont, IL 60018
Phone: 847-384-4145
Web: www.aaos.org
Product Codes: PUB

Jackson & Coker 5217
3000 Old Alabama Road
Suite 119-608
Alpharetta, GA 30022
Phone: (800)272-2707
Web: www.jacksoncoker.com
Product Codes: PP, PR

Janssen Pharmaceuticals, Inc. 1660
1000 Route 202
Raritan, NJ 08869
Phone: (908)218-6000
Web: www.janssenpharmaceuticalsinc.com
Product Codes: PH, PHRM

Jaypee Brothers Medical Publishers 769
PO Box 0818-00848
Panama City, 0818
Panama
Phone: 5073010496
Web: www.jphmedical.com
Product Codes: PE, PUB

JBJSJobs 5120
20 Pickering St
Needham, MA 02492
Phone: (781)449-9780
Web: www.jbjsjobs.org
Product Codes: PP, PR

Jewel Precision 2610
200 Commerce Rd
Cedar Grove, NJ 07009
Phone: (973) 857-5545
Web: www.jewelprecision.com
Product Codes: DEV

Jiangsu BaiDe Medical Instrument Co., Ltd. 5058
South Side of Dongqi Road
Donglai, Yangshe Town
Zhangjiagang, Jiangsu, 215627
China
Phone: 86-51256987731
Web: www.bd-ortho.com
Product Codes: FRST, I, O, SI

COMPANY BOOTH NO.

JJ International Instruments 4372
5451 Wind Mountain Ln
Raleigh, NC 27613
Phone: (919)264-4292
Web: www.myjjonline.com
Product Codes: FRST, SI

Joint Restoration Foundation 1006
6278 S. Troy Circle
Centennial, CO 80111
Phone: (877)255-6727
Web: www.jrfortho.org
Product Codes: DEV, T

Joslin Orthopedic Gear 4610
3900 5th Ave, Suite 240
San Diego, CA 92103
Phone: (415)656-3500
Web: www.armsling.com
Product Codes: DEV, MS, SG

Journal of Bone and Joint Surgery (Am) 1572
20 Pickering St
Needham, MA 02492-3157
Phone: (781) 449-9780
Web: www.jbjs.org
Product Codes: EDU, PE, PUB

JRI Orthopaedics Ltd 4756
18 Churchill Way
35A Business Park
Sheffield, South Yorkshire, S35 2PY
United Kingdom
Phone: 44-114257320000
Web: www.jri-ltd.co.uk
Product Codes: FRST, I, P, SI

Juno Inc. 3703
1220 Lund Blvd
Anoka, MN 55303-1092
Phone: (763)427-4161
Web: www.junoinc.com
Product Codes: I, SI, SURG

K

K2M, Inc. 3650
751 Miller Dr SE Ste E2
Leesburg, VA 20175-8993
Phone: (703)777-3155
Web: www.k2m.com
Product Codes: ADVA, BNE, DEV, I, SI, SURG

Kao Chen Enterprise Co., Ltd. 4955
No. 68, Lane 326, Sangand Road
Longjin
Taichung, 434
Taiwan
Phone: 886-426308728
Web: www.softguards.com
Product Codes: FRST, O, REHB, SG

COMPANY BOOTH NO.

Kapp Surgical Instrument Inc. 1616
4919 Warrensville Center Rd
Cleveland, OH 44128
Phone: (800)282-5277
Web: www.kappsurgical.com
Product Codes: I, MS, SI

KareOutcomes 4775
800 Aspen Circle
Little Canada, MN 55109
Phone: (612)354-8484
Web: www.kareoutcomes.com
Product Codes: COM, FRST, PP

Karl Storz Endoscopy-America, Inc. 4224
2151 E Grand Ave Ste 100
El Segundo, CA 90245-2838
Phone: (800)421-0832
Web: www.karlstorz.com
Product Codes: AS, COM, DEV, SI, SURG

Keeler Instruments 1424
456 Parkway
Broomall, PA 19008
Phone: (610) 353-4350
Web: www.keelerusa.com
Product Codes: SI

Kens FineMedTech Sdn. Bhd. 3106
Plot 19, Phase 4, Free Industrial Zone
Bayan Lepas
Penang, 11900
Malaysia
Phone: 60-46161356
Web: www.kensfinemedtech.com
Product Codes: DEV, SI

Kensey Nash Corporation 133
735 Pennsylvania Dr.
Exton, PA 19341
Phone: (484)713-2100
Web: www.kenseynash.com
Product Codes: BB, BNE, DEV, I, OTH

Kilgore International Inc. 1426
36 West Pearl Street
Coldwater, MI 49036
Phone: (517) 279-9000
Web: www.kilgoreinternational.com
Product Codes: AM, EDU

Kinamed, Inc. 2239
820 Flynn Rd.
Camarillo, CA 93012-8701
Phone: (805)384-2748
Web: www.kinamed.com
Product Codes: I, SI

KM Medical Software Ltd 5431
Suite No. 9, South Terrace Medical Centre
Infirmary Road
Cork,
Ireland
Phone: 353-870508529
Web: www.imeddoc.com
Product Codes: COM, EMR, FRST, PP

COMPANY BOOTH NO.

Knee Creations, LLC 4575
900 Airport Road
Suite 3B
West Chester, PA 19380
Phone: (484)887-8893
Web: www.subchondroplasty.com
Product Codes: AS, BNE, DEV, FRST, I, MS, SURG, T

Kneebourne Therapeutic LLC 1408
15299 Stony Creek Way
Noblesville, IN 46060
Phone: (866)756-3706
Web: www.eliteseat.com
Product Codes: DEV, REHB

Koros USA, Inc. 1703
610 Flinn Avenue
Moorpark, CA 93021
Phone: (805) 529-0825
Web: www.korosusa.com
Product Codes: SI

KYOCERA Medical Corporation 2600
Uemura Nissei Bldg.
9F 3-3-31 Miyahara Yodogawa-ku
Osaka, 532-0003
Japan
Phone: 81-663501059
Web: kyocera-md.jp
Product Codes: BLD, DEV, I, MS, P

Kyungwon Medical Co., Ltd. 109
615 Yeonje-ri Gengoe-myoen, Cheongwon-gun
Chung-Buk, 363-450
Korea, Republic of
Phone: 82221138696
Web: www.kyungwonmedical.com
Product Codes: BNE, I

L

L3 Healthcare Design Inc. 5044
Suite 208
222 South Westmonte Drive
Altamonte Springs, FL 32714
Phone: (407)865-6160
Product Codes: DE, FPD

LDR 2101
13785 Research Blvd
Suite 200
Austin, TX 78750
Phone: (512)344-3300
Web: www.ldrspine.com
Product Codes: DEV

Lexi Corporation 4008
Kyodo-Keikaku Bldg. 9F
3-36-6 Sugamo, Toshima-ku
Tokyo, 170-0002
Japan
Phone: 81-353944833
Web: http://www.lexi.co.jp/en/products/zedhip.php
Product Codes: COM, IMG

COMPANY BOOTH NO.

LH Medical Corporation 144
6932 Gettysburg Pike
Fort Wayne, IN 46804
Phone: (260)432-5670
Web: www.lhindustries.com
Product Codes: FRST, I, SI

Li Wai Precision International Ltd. 4461
Room 1804, 18/F, Cheuk Nang Centre
No. 9 Hillwood Road,
Tsim Sha Tsui, Kowloon 0000
Hong Kong
Phone: 852-23746238
Web: www.aquilamedical.com
Product Codes: BNE, FRST, SURG

Life Instrument Corporation 2602
91 French Ave
Braintree, MA 02184
Phone: (781) 849-0109
Web: www.lifeinstruments.com
Product Codes: SI, SURG

Life Spine 1701
2401 Hassell Road
Suite 1535
Hoffman Estates, IL 60169
Phone: (847)884-6117
Web: www.lifespine.com
Product Codes: DEV, I

LifeLink Tissue Bank 2606
8510 Sunstate St.
Tampa, FL 33634
Phone: (800) 683-2400
Web: www.lifelinktb.org
Product Codes: BNE, T

LifeNet Health 2448
1864 Concert Dr
Virginia Beach, VA 23453
Phone: (800)847-7831
Web: www.accesslifenethealth.org
Product Codes: BNE, T

Lilly USA, LLC 4606
Lilly Corporate Center
Indianapolis, IN 46285
Phone: (317)276-2000
Web: www.lilly.com
Product Codes: PH, PHRM

LimaCorporate Spa 3623
Via Nazionale 52
Villanova
San Daniele Del Friuli, UD 33038
Italy
Phone: 39-0432945511
Web: www.limacorporate.com
Product Codes: DEV, I, P, SI

Linear Medical Solutions 5425
3333 Hendricks Ave.
Jacksonville, FL 32207
Phone: (909)739-1309
Web: www.linearsolutions.com
Product Codes: PH, PM, PP

COMPANY BOOTH NO.

Linemaster Switch Corp. 4409
29 Plaine Hill Rd
Woodstock, CT 06281
Phone: (860)974-1000
Web: www.linemaster.com
Product Codes: BNE, MS, SF, SI, SURG, T

Lippincott, Williams & Wilkins - Wolters Kluwer Health 1065
Two Commerce Square
2001 Market Street
Philadelphia, PA 19103
Phone: (215) 521-8300
Web: www.lww.com
Product Codes: PE, PUB

LISI Medical 121
950 Borra Place
Escondido, CA 92029
Phone: (760)432-9785
Web: www.lisi-medical.com
Product Codes: BB, DEV, FRST, I, P

LocumTenens.com 5224
2655 Northwinds Parkway
Alpharetta, GA 30009
Phone: (800)562-8663
Web: www.locumtenens.com
Product Codes: PP, PR

M

M.J. Markell Shoe Co., Inc. 1526
504 Saw Mill River Rd.
Yonkers, NY 10701
Phone: (914) 963-2258
Web: www.markellshoe.com
Product Codes: O, SF, SG

Madison Ortho Inc. 458
1660 Calle Santa Ana
San Juan, PR 00909
Phone: (787)945-5800
Web: www.madisonorthoinc.com
Product Codes: I, P

Maestro 973
401 E Michigan Ave Ste 202
Kalamazoo, MI 49007-5842
Phone: (800)319-2122
Web: www.meetmaestro.com
Product Codes: BB, EDU, PE

Magellan Technology 4819
65 Johnston Street
Annandale, NSW 2038
Australia
Phone: 61-295629800
Web: www.magellan-technology.com
Product Codes: BB, COM, FRST, I, OTH, PP

MAKO Surgical Corp 212
2555 Davie Rd
Suite 110
Fort Lauderdale, FL 33317
Phone: (954)927-2044
Web: www.makosurgical.com
Product Codes: DEV, I

COMPANY BOOTH NO.

Mallinckrodt, the Pharmaceuticals Business of Covidien 855
675 McDonnell Blvd.
Hazelwood, MO 63042
Phone: (888)744-1414
Web: www.mallinckrodt.com
Product Codes: PH

Mammon International Corp. 2909
9F No. 185, Nanking E Rd.
Sec. 4
Taipei City, 10579
Taiwan
Phone: 886227174777
Web: www.mammonmedical.com.tw
Product Codes: O, SF, SG

MAQUET 3869
45 Barbour Pond Drive
Wayne, NJ 07470
Phone: (888)880-2874
Web: www.maquet.com
Product Codes: ADVA, SI, SURG

Maramed Orthopedic Systems 3410
2480 W 82nd St #8
Hialeah, FL 33016
Phone: (800)327-5830
Web: www.maramed.com
Product Codes: AS, O, P, SF

Market Access Partners 1809
3236 Meadowview Road
Evergreen, CO 80439
Phone: (303) 526-1900
Web: www.marketaccesspartners.com
Product Codes: MKT

Massaging Insoles By Bestsole, Inc. 4949
PO Box 2867
Apopka, FL 32704
Phone: (866)301-3338
Web: www.massaginginsoles.com
Product Codes: FRST, SF, SG

Mastin Medical Co. Ltd. 4462
No. 528 Shunfeng Road
Qianjiang Economic Development Zone
Hangzhou, Zhejiang, 311106
China
Phone: 86-15658166600
Web: www.rejoin-medical.com
Product Codes: DEV, FRST, I, SI

Materialise 3710, 4357
Technologielaan 15
Leuven, 3001
Belgium
Phone: (734)259-6445
Web: www.materialise.com/ortho
Product Codes: AM, BN, COM, OTH, SI

COMPANY BOOTH NO.

Mathys Ltd Bettlach 1048
Gueterstrasse 5
Bettlach, SO 2544
Switzerland
Phone: 41-41326441258
Web: www.mathysmedical.com
Product Codes: I, P, SI

Mazur Marketing 3704
1315 North Highland Avenue
Suite 105
Aurora, IL 60506
Phone: (888)830-1588
Web: www.newrongeur.com
Product Codes: FRST, SI

MD Logic EMR 5022
2170 Satellite Blvd
Suite 435
Duluth, GA 30097
Phone: (770) 497-1560
Web: www.mdlogic.com
Product Codes: COM, EMR, PP

Medacta International 651
Strada Regina
Castel San Pietro, CH-6874
Switzerland
Phone: 41916966060
Web: www.medacta.com
Product Codes: I, P

Medartis, Inc. 2452
127 W Street Rd
Suite 203
Kennett Square, PA 19348
Phone: (610)961-6101
Web: www.medartis.com
Product Codes: I

MedCure, Inc. 110
18111 NE Sandy Blvd
Portland, OR 97230-6825
Phone: (503)257-9100
Web: www.medcure.org/the-researchers/
Product Codes: T

MedDirect, a MedData Company 5037
3855 Sparks Drive SE, Suite 100
Grand Rapids, MI 49512
Phone: (800)835-7474
Web: www.meddata.com/meddirect
Product Codes: FRST, PM, PP

Medex Orthopaedic & Medical Supplies 806
Unit D, 13/F, Block 2, Tai Ping Industrial Centre
55 Ting Kok Road, Tai Po
Hong Kong,
Hong Kong
Phone: 85226568211
Web: www.medex.hk
Product Codes: DEV, MS, O, REHB, SF, SG

COMPANY BOOTH NO.

MedFix International, LLC 232
2109 E Grant Rd
Tucson, AZ 85719
Phone: (520)398-5467
Web: www.medfix.com
Product Codes: BB, DEV, I, MS, SI, SURG

Medi USA 2074
6481 Franz Warner Pkwy
Whitsett, NC 27377
Phone: (336) 449-4440
Web: www.mediusa.com
Product Codes: O, SG

Medical Compression Systems, Inc. 118
3101 N Hampton Dr Apt 1407
Alexandria, VA 22302-1533
Phone: (703)589-3525
Web: www.mcsmed.com
Product Codes: DEV, MS

Medical Consultants Network 5422
1301 5th Avenue
Suite 2900
Seattle, WA 98101
Phone: (800)636-3926
Web: www.mcn.com
Product Codes: BB, FRST, OTH, PP, PR

Medical Education Research Institute 2903
44 S Cleveland
Memphis, TN 38104
Phone: (901)722-8001
Web: www.meri.org
Product Codes: BB

Medical Marketing Group 3876
360 San Miguel Drive #502
Newport Beach, CA 92660
Phone: (850)830-1331
Product Codes: EDU, FRST, PP

Medical Modeling Inc. 1104
17301 West Colfax Ave
Suite 300
Golden, CO 80401
Phone: (888) 273-5344
Web: www.medicalmodeling.com
Product Codes: AM

Medical Products Resource 3408
1166 East Cliff Road
Burnsville, MN 55337
Phone: (952)277-1259
Web: www.m-p-r.com
Product Codes: SG, SI, SURG

Medicmicro 4009
Quai de l'Allaine 4
Porrentruy, Jura, 2900
Switzerland
Phone: 41324664951
Web: www.medicmicro.ch
Product Codes: DEV, SI

COMPANY BOOTH NO.

Medicus Healthcare Solutions 5210
22 Roulston Road
Windham, NH 03087
Phone: (855)301-0563
Web: www.medicushcs.com
Product Codes: BB, FRST, PM, PP, PR

Medin Corporation 1829
250 Gorge Road
Cliffside Park, NJ 07010
Phone: (973) 779-2400
Web: www.medin.com
Product Codes: BB, OTH

Meditech Group, LLC 2706
25 Pippen Place
New City, NY 10956
Phone: (845)639-9509
Web: www.meditechny.com
Product Codes: CS, MS, O, P, SF, SG

Medkita, LLC 5144
P.O. Box 263
Villanova, PA 19085
Phone: (610)220-3702
Web: www.medkita.com
Product Codes: FIN, FPD, FRST, PM, PP, REHB

Medmix Systems AG 3107
Grundstrasse 12
Rotkreuz, 6343
Switzerland
Phone: 41-417980680
Web: www.medmix.ch
Product Codes: BB, DEV, MS, PH, SI, T

MedNet Technologies 5322
115 Broadhollow Rd Ste 225
Melville, NY 11747-4989
Phone: (516)285-2200
Web: www.mednet-tech.com
Product Codes: COM, PM, PP

MedShape, Inc. 4056
Suite 440
1575 Northside Drive
Atlanta, GA 30318
Phone: (404)249-9155
Web: www.medshape.com
Product Codes: DEV, I

Medstrat, Inc 229
1901 Butterfield Rd
Suite 600
Downers Grove, IL 60515
Phone: (630) 960-8700
Web: www.medstrat.com
Product Codes: DI, PP

Medstreaming, LLC 5209
8514 154th Ave. NE
Redmond, WA 98052
Phone: (800)633-7876
Web: www.medstreaming.com
Product Codes: EMR, FRST, PM, PP

COMPANY BOOTH NO.

Medtronic 2443
2600 Sofamor Danek
Memphis, TN 38132
Phone: (800)876-3133
Web: www.medtronic.com
Product Codes: ADVA, DEV, I, IMG, SI, SURG

Medweb 2407
667 Folsom Street
San Francisco, CA 94107
Phone: (415)541-9980
Web: www.medweb.com
Product Codes: BB, COM, DI, EMR, PM, PP, XRAY

Medyssey Spine 909
1550 E Higgins Rd Ste 123
Elk Grove Vlg, IL 60007-1627
Phone: (847)982-0100
Web: www.medyssey.com
Product Codes: I, SI

Megadyne 2807
11506 S State Street
Draper, UT 84020
Phone: (801) 576-9669
Web: www.megadyne.com
Product Codes: SURG

Mercy Ships 404
P.O. Box 2020
Lindale, TX 75771
Phone: 903-939-7078
Web: www.mercyships.org
Product Codes: AO

Merete Medical, Inc. 609
4 Crotty Lane - Suite 118
New York International Plaza - SWF
New Windsor, NY 12553
Phone: (914) 967-1532
Web: www.merete-medical.com
Product Codes: BB, I, P, SI, SURG

Merge Healthcare 5229
200 E Randolph Street
24th Floor
Chicago, IL 60601
Phone: (312)565-6868
Web: www.merge.com
Product Codes: COM, DI, EMR, IMG, PM, PP

MicroAire Surgical Instruments 2243
3590 Grand Forks Blvd.
Charlottesville, VA 22911
Phone: (434) 975-8000
Web: www.microaire.com
Product Codes: SI

Micron Products 3776
25 Sawyer Passway
Fitchburg, MA 01420
Phone: (978)602-1482
Web: www.micronproducts.com
Product Codes: CS, FRST, I, SI

COMPANY BOOTH NO.

Microport Orthopedics 5158
No. 23 Building, Lane 588 Tianxiong Rd.
Shanghai, 201318
China
Phone: 86-2138954600
Web: www.microport.com.cn/english
Product Codes: FRST, I

Microsurgery Instruments, Inc. 2010
PO Box 1378
Bellaire, TX 77402
Phone: (713) 664-4707
Web: www.microsurgeryusa.com
Product Codes: SI, SURG

Millennium Research Group 2710
175 Bloor St E
South Tower, Suite 400
Toronto, ON M4W 3R8
Canada
Phone: (416)364-7776
Web: www.mrg.net
Product Codes: MKT

Millstone Medical Outsourcing 4551
580 Commerce Drive
Fall River, MA 02720
Phone: (508)679-8384
Web: www.millstonemedical.com
Product Codes: BB, BNE, COM, DEV, FRST, I, OTH, SI, T

Mimedx Group, Inc. 446
60 Chastain Center Blvd.
Suite 60
Kennesaw, GA 30144
Phone: (404)665-3161
Web: www.mimedx.com
Product Codes: T

Mizuho OSI 1246, 1446
30031 Ahern Avenue
Union City, CA 94587
Phone: (800) 777-4674
Web: www.mizuhosi.com
Product Codes: MS, SG, SURG

Mobi LLC 3202
3500 American Blvd West
Suite 640
Minneapolis, MN 55431
Phone: (952)562-5580
Web: www.mobilegs.com
Product Codes: CS, DEV, MS

Models Plus LLC 4475
605 Grayton Road
Kingsford Heights, IN 46346
Phone: (800)522-4044
Web: www.mydentalmodels.com
Product Codes: AM, FRST

COMPANY BOOTH NO.

Modernizing Medicine, Inc. 5219
3600 FAU Blvd.
Suite 202
Boca Raton, FL 33431
Phone: (561)880-2998
Web: www.modmed.com
Product Codes: COM, EMR, FRST, PP

Moji 5254
2700 Patriot Blvd Ste 150
Glenview, IL 60026-8063
Phone: (847)201-3626
Web: www.gomoji.com
Product Codes: BB, FRST, REHB, SG

MTF 4619
125 May St Ste 300
Edison, NJ 08837-3264
Phone: (800) 433-6576
Web: www.mtf.org
Product Codes: BNE, I, T

Musculoskeletal Clinical Regulatory Advisers, LLC 1908
14th Floor
505 Park Avenue
New York, NY 10022
Phone: (212)583-9700
Web: www.mcra.com
Product Codes: OTH

Musculoskeletal Imaging Consultants, LLC 4656
101 Bretford Court
San Antonio, TX 78230
Phone: (866)690-0008
Web: www.msktelerads.com
Product Codes: BB, FRST, MRI, OTH

N

Nadia International, Inc. 1713
4301 William Cannon Drive
Suite 150-B, #295
Austin, TX 78749
Phone: (512) 301-3888
Web: www.ronadro.com
Product Codes: OTH

National Association of Orthopaedic Nurses 1372
330 N Wabash Ave
Suite 1900
Chicago, IL 60611
Phone: (800) 289-6266
Web: www.orthonurse.org
Product Codes: EDU, PE

National Association of Orthopaedic Technologists - NAOT 405
8365 Keystone Crossing, Suite 107
Indianapolis, IN 46240
Phone: 317-205-9484
Web: www.naot.org
Product Codes: AO

COMPANY BOOTH NO.

Neoligaments (a Division of Xiros) 1106
Springfield House, Whitehouse Lane
Leeds
West Yorkshire, LS19 7UE
United Kingdom
Phone: 44-1132387200
Web: www.neoligaments.com
Product Codes: P

NEOSTEO 5151
2 rue Robert Schuman
Reze, 44408
France
Phone: 33-0236569670
Web: www.neosteo.com
Product Codes: FRST, I

NeuMed 1518
800 Silvia Street
West Trenton, NJ 08628
Phone: (609) 896-3444
Web: www.neumedinc.com
Product Codes: DEV, O

Neuro Resource Group 1909
1100 Jupiter Road
Suite 190
Plano, TX 75074
Phone: (972)665-1810
Web: www.interx.com
Product Codes: DEV, REHB

Neurotech 140
12400 Whitewater Drive
Suite 2010
Minnetonka, MN 55343
Phone: (952)582-6719
Web: www.neurotech.us
Product Codes: O, REHB

NewClip USA 3200
1000 Hampton Center
Suite C
Morgantown, WV 26505
Phone: (314)368-9848
Web: www.upexco.com
Product Codes: DEV, I

Nextech 4642
5550 W Executive Drive
Suite 350
Tampa, FL 33609
Phone: (813)425-9200
Web: www.nextech.com
Product Codes: COM, EMR, FRST, PP

NextGen Healthcare Information Systems, Inc. 5316
795 Horsham Rd.
Horsham, PA 19044
Phone: (215) 657-7010
Web: www.nextgen.com
Product Codes: COM, EMR, PM, PP

COMPANY BOOTH NO.

NHD, Inc. 4539
8251 Mayfield Rd Ste 101
Chesterland, OH 44026-2569
Phone: (888)643-2677
Web: www.nhd.net
Product Codes: DE, DI, FRST, MS, XRAY

NIH Osteoporosis & Related Bone Diseases 768
2 Ams Circle
Bethesda, MD 20892-3676
Phone: (800)624-2663
Web: www.bones.nih.gov
Product Codes: BNE, FRST, OTH, PE

Nihon Kohden America 4076
90 Icon Street
Foothill Rnch, CA 92610
Phone: (949)580-1555
Web: www.nkusa.com/monitoring
Product Codes: DEV, FRST

Nordson Micromedics 2002
1270 Eagan Industrial Road
Saint Paul, MN 55121
Phone: (651)452-1977
Web: www.nordsonmicromedics.com
Product Codes: DEV, SURG

Norman Noble, Inc. 3206
5507 Avion Park Drive
Highland Heights, OH 44143
Phone: (216)761-5387
Web: www.nnoble.com
Product Codes: BB

Normed Medizin-Technik GmbH 1054
Ulrichstrasse 7
Tuttlingen, DE-78532
Germany
Phone: 49-746193430
Web: www.normed-online.com
Product Codes: I, SI

North American Spine Society 866
7075 Veterans Blvd.
Burr Ridge, IL 60527
Phone: (630)230-3600
Web: www.spine.org
Product Codes: EDU, PE

NovaBone Products LLC 108
13631 Progress Blvd
Suite #600
Alachua, FL 32615
Phone: (386)462-7660
Web: www.novabone.com
Product Codes: BNE, I

NovaRad Corporation 4839
752 E. 1180 S.
Suite 200
American Fork, UT 84003
Phone: (801)642-1001
Web: www.novarad.net
Product Codes: OTH, PP

COMPANY BOOTH NO.

Novitas Medical 4561
451 W Lambert Rd Ste 207
Brea, CA 92821-3920
Phone: (888)933-9991
Web: www.novitasmedical.com
Product Codes: BB, DEV, FRST, MS, O, OTH

NSK 3610
700 Shimohinata
Kanuma-shi
Tochigi, 322-8666
Japan
Phone: 81-8023607098
Web: www.nsk-surgery.com
Product Codes: SI, SURG

Nueterra 4919
11221 Roe Ave
Suite 300
Leawood, KS 66211
Phone: (913)387-0616
Web: www.nueterra.com
Product Codes: FPD, FRST, PM, PP, PR

NuTech 1860
2641 Rocky Ridge Lane
Birmingham, AL 35216
Phone: (205)290-2158
Web: www.nutechmedical.com
Product Codes: BNE, I, T

Nutramax Laboratories, Inc. 1806
2208 Lakeside Blvd.
Edgewood, MD 21040
Phone: (800) 925-5187
Web: www.nutramaxlabs.com
Product Codes: OTH

O

ODI North America 3004
5912-F Breckenridge Pkwy
Tampa, FL 33610-4200
Phone: (813)443-4905
Web: www.ODI-NA.com
Product Codes: I, SI

OHK Medical Devices 1108
2885 Sanford Ave SW No. 14751
Grandville, MI 49418
Phone: (866)503-1470
Web: www.hemaclear.com
Product Codes: BLD, DEV, SURG

Olympus Biotech Corporation 1409
35 South St
Hopkinton, MA 01748
Phone: (508)416-5200
Web: www.olympusbiotech.com
Product Codes: BNE

Omega Surgical Instruments Inc. 1520
G-8305 S Saginaw Street
Suite 6
Grand Blanc, MI 48439
Phone: (810) 695-9800
Web: www.omegasurgical.com
Product Codes: CS, DEV, SI

COMPANY BOOTH NO.

Omni Life Science 2615
50 OConnell Way Ste 10
East Taunton, MA 02718-1394
Phone: (800)448-6664
Web: www.omnils.com
Product Codes: DEV, I, IMG

One Medical, LLC 5119
8219 Leesburg Pike
Suite 350
Vienna, VA 22182
Phone: (703)962-7600
Web: www.onemedicalemr.com
Product Codes: EMR, PP

Operation Walk USA 605
6300 N. River Road
Suite 727
Rosemont, IL 60018
Phone: 847-384-4245
Web: www.opwalkusa.com
Product Codes: AO

Oppo Medical Inc. 2701
1030 Industry Drive
Tukwila, WA 98188
Phone: (206)575-8843
Web: www.oppomedical.com
Product Codes: DEV, O, REHB, SF, SG

OPTEC USA, Inc. 3910
975 Progress Circle
Lawrenceville, GA 30043
Phone: (770)513-7380
Web: www.optecusa.com
Product Codes: DEV, O, SG

Orchid Orthopedic Solutions 241
1489 Cedar St.
Holt, MI 48842
Phone: (517)694-2300
Web: www.orchid-ortho.com
Product Codes: BB, DEV, I, OTH, SI

Orfit Industries America 4376
350 Jericho Turnpike
Suite 302
Jericho, NY 11753
Phone: (516)935-8500
Web: www.orfit.com
Product Codes: CS, FRST, O

Ortech Data Centre Inc. 5324
400 Queens Avenue
London, ON N6B 1X9
Canada
Phone: (519)851-3630
Web: www.ortechsystems.com
Product Codes: COM, PM, PP

OrthAlign, Inc. 3850
120 Columbia Ste 500
Aliso Viejo, CA 92656-4107
Phone: (949)715-2424
Web: www.orthalign.com
Product Codes: ADVA, IMG

COMPANY BOOTH NO.

Ortho Development 624
12187 S Business Park Dr
Draper, UT 84020
Phone: (801) 553-9991
Web: www.odev.com
Product Codes: DEV, I

Ortho Solutions Limited 4465
West Station Business Park, Spital Road
Maldon, Essex, CM9 6FF
United Kingdom
Phone: 44-1621843599
Web: www.orthosolutions.com
Product Codes: BNE, DEV, FRST, I, MS, P, SI, SURG

Ortho-Care 1614
11911 East 83rd Street
Raytown, MO 64138
Phone: (800)821-1303
Web: www.orthocare.com
Product Codes: CS, SG

Orthofix 2812
3451 Plano Parkway
Lewisville, TX 75056
Phone: (800)527-0404
Web: www.orthofix.com
Product Codes: ADVA, DEV

Orthogen LLC 4473
19110 Darvin Dr Ste C
Mokena, IL 60448-8683
Phone: (219)670-0410
Product Codes: DEV, FRST, I

OrthoMed, Inc. 2206
3208 SE 13th Ave
Portland, OR 97202
Phone: (503)234-9691
Web: www.orthomedinc.com
Product Codes: I, MS, SI, SURG

Orthopaedic Innovation Centre 138
320-1155 Concordia Avenue
Winnipeg, MB R2K 2M9
Canada
Phone: (204)926-1290
Web: www.orthoinno.com
Product Codes: BB, DEV, FRST, I, P

Orthopaedic Learning Center 1602
6300 N River Road
Suite 103
Rosemont, IL 60018
Phone: (847)384-4210
Web: www.orthopaediclearningcenter.org
Product Codes: EDU, PE

Orthopaedic Research Society 706
6300 N. River Road
Suite 727
Rosemont, IL 60018
Phone: 614-247-7020
Web: www.ors.org
Product Codes: AO

COMPANY BOOTH NO.

Orthopaedics Overseas 506
1900 L St. NW #310
Washington, DC 20036
Phone: 202-296-0928
Web: www.hvousa.org
Product Codes: AO

OrthoPediatrics 3306
2850 Frontier Drive
Warsaw, IN 46582
Phone: (877)268-6339
Web: www.orthopediatrics.com
Product Codes: DEV, I, SI

Orthopedic Analysis LLC 4109
1167 Euclid Ave
Oak Park, IL 60304
Phone: (312)733-7121
Web: www.orthopedicanalysis.com
Product Codes: FRST, OTH

Orthopedic Sciences, Inc. 2035
3020 Old Ranch Parkway
Suite 325
Seal Beach, CA 90740
Phone: (562) 799-5550
Web: www.orthopedicsciences.com
Product Codes: AS, DEV, I

Orthorebirth Co., Ltd. 4549
3-17-43 Chigasaki Higashi, Tsuduki-ku
Yokohama City, Kanagawa, 2240033
Japan
Phone: 81-455323650
Web: www.orthorebirth.com
Product Codes: BNE, FRST, I

OrthoScan Inc. 4442
8212 E Evans Rd
Scottsdale, AZ 85260
Phone: (480)503-8010
Web: www.orthoscan.com
Product Codes: DE, DEV, DI, IMG, SURG, XRAY

Orthosensor, Inc. 452
1560 Sawgrass Corporate Pkwy
4th Floor
Sunrise, FL 33323
Phone: (954)577-7770
Web: www.orthosensor.com
Product Codes: DEV, EMR, I, IMG, SI

OrthoView 5139
4651 Salisbury Road
4th Floor
Jacksonville, FL 32256
Phone: (800)318-0923
Web: www.orthoview.com
Product Codes: COM, I, P, PP

ORTHOWORLD Inc. 974
8401 Chagrin Road
Suite 18
Chagrin Falls, OH 44023
Phone: (440)543-2101
Web: www.orthoworld.com
Product Codes: PE, PUB

COMPANY BOOTH NO.

Osiris Therapeutics, Inc. 207
7015 Albert Einstein Drive
Columbia, MD 21046
Phone: (443)545-1800
Web: www.osiris.com
Product Codes: T

Ossur Americas 1450
27051 Towne Centre Drive
Foothill Ranch, CA 92610
Phone: (800)233-6263
Web: www.ossur.com
Product Codes: COM, CS, DEV, EDU, O, P, PM, SG

OsteoMed 1460
3885 Arapaho Rd
Addison, TX 75001
Phone: (972)677-4600
Web: www.osteomed.com
Product Codes: ADVA, BNE, DEV, I, SI

OTIS Biotech Inc., Ltd. 3502
#514, Sihwa Industrial Complex 2Ba
Jungwang-dong
Siheung-Si, Gyeonggi-Do 429-926
South Korea
Phone: 82-313190406
Web: www.otisbiotech.com
Product Codes: I

Outpatient Surgery Magazine 975
Suite 100
255 Great Valley Parkway
Malvern, PA 19355
Phone: (610)240-4918
Web: www.outpatientsurgery.net
Product Codes: PE, PUB

Oxford Performance Materials 4208
30 S Satellite Road
South Windsor, CT 06074
Phone: (860)698-9300
Web: www.oxfordpm.com
Product Codes: DEV, I

P

P & M Corporate Finance 5043
26300 Northwestern Highway
Suite 120
Southfield, MI 48076
Phone: (248)223-3300
Web: www.pmcf.com
Product Codes: BB, FIN, MKT, PP

Pacific American Life Science Learning Center 4336
5286 Eastgate Mall
San Diego, CA 92121-2835
Phone: (866)943-4589
Web: www.lifesciencelearningcenter.com
Product Codes: DE, EDU, XRAY

COMPANY BOOTH NO.

Pacific Instruments, Inc. 4449
438 Hobron Lane
Suite 204
Honolulu, HI 96815
Phone: (808)941-8880
Web: www.pacificinstruments.biz
Product Codes: FRST, SI

Panasonic 4739
One Panasonic Way
Secaucus, NJ 07094
Phone: (201)392-6907
Web: www.panasonic.com/healthcare
Product Codes: COM, DE, DI

Paradigm BioDevices, Inc. 113
P.O. Box 518
Norwell, MA 02061
Phone: (781)982-9950
Web: www.paradigmbiodevices.com
Product Codes: BNE, SI

Paragon Medical 4406
8 Matchett Industrial Pk Dr.
Pierceton, IN 46562
Phone: (574) 594-2140
Web: www.paragonmedical.com
Product Codes: I, SI, SURG

Paramed Medical Systems, Inc. 4433
Oakton Plaza Business Center
6204 W. Oakton St
Morton Grove, IL 60053
Phone: (866)327-5853
Web: www.paramedmedicalsystems.com
Product Codes: DE, DI, MRI

Parcus Medical, LLC 3000
6423 Parkland Drive
Sarasota, FL 34243
Phone: (941)755-7965
Web: www.parcusmedical.com
Product Codes: AS, I, SI, SURG

PCC Structurals Inc. 3608
4600 SE Harney Drive
Portland, OR 97206
Phone: (503)652-4649
Web: www.pccstructurals.com
Product Codes: DEV, I

Pega Medical, Inc. 2208
1111 Autoroute Chomedey
Laval, QC H7W 5J8
Canada
Phone: (450)688-5144
Web: www.pegamedical.com
Product Codes: ADVA, DEV, I, SI

Penn Medicine - The University of Pennsylvania 972
3400 Spruce Street
Philadelphia, PA 19104
Phone: (877)937-7366
Web: www.pennmedicine.org
Product Codes: EDU, FRST, PE

COMPANY BOOTH NO.

Perfect Fit Health 3675
8317 Marsh Creek Rd
Woodbury, MN 55125
Phone: (303)248-3874
Web: www.perfectfithealth.com
Product Codes: COM, EDU, FRST, OTH, PM, REHB

Perioptix, Inc. 1716
1001 Avenida Pico #C620
San Clemente, CA 92673
Phone: (949)366-3333
Web: www.perioptix.com
Product Codes: SURG

Peter Brehm GmbH 4854
Am Muhlberg 30
Weisendorf, Bavaria, 91085
Germany
Phone: 49-9135710349
Web: www.peter-brehm.de
Product Codes: BNE, FRST, I, P, SURG

Phillips Precision Medicraft 104
7 Paul Kohner Place
50 Bushes Lane
Elmwood Park, NJ 07407
Phone: (201)797-8820
Web: www.phillipsmedicraft.com
Product Codes: DEV, I, P, SI, SURG

Phoenix Ortho 5413
604 Creek View Circle
Ovilla, TX 75154
Phone: (800)843-8179
Web: www.phoenixortho.net
Product Codes: EMR, PP

Physician Assistants in Orthopaedic Surgery 1172
P O Box 10781
Glendale, AZ 85318
Phone: (800) 804-7267
Web: www.paos.org
Product Codes: OTH, PE

Physician Owned Surgery Centers 5412
2619 F Street
Bakersfield, CA 93301
Phone: (281)558-5240
Product Codes: FPD, PM, PP

Physicians' Capital Investments, LLC 5136
8117 Preston Road
Suite 400
Dallas, TX 75225
Phone: (866)936-3089
Web: www.physcap.com
Product Codes: FIN, FPD, FRST, OTH, PP

Physicians Rehab Solution 116
12123 Shelbyville Road
Suite 100 Box 250
Louisville, KY 40243
Phone: (270)307-9427
Web: www.YourPRS.com
Product Codes: FRST, REHB

COMPANY BOOTH NO.

Pioneer Surgical 1717
375 River Park Cirlce
Marquette, MI 49855
Phone: (906)226-9909
Web: www.pioneersurgical.com
Product Codes: BNE, DEV, I

Pivot Medical 4851
247 Humboldt Court
Sunnyvale, CA 94089
Phone: (408)774-1452
Web: www.pivotmedical.com
Product Codes: DEV, FRST, I

Planmed, Inc. 4636
100 North Gary Avenue
Suite A
Roselle, IL 60172
Phone: (630)894-2200
Web: www.planmed.com
Product Codes: DE, DI, XRAY

Portescap 3709
110 Westtown Road
West Chester, PA 19382
Phone: (610)235-5499
Web: www.portescap.com
Product Codes: BB

Practice Flow Solutions 5423
7742 Spalding Drive
Suite 368
Norcross, GA 30092
Phone: (678)983-0229
Web: www.practiceflowsolutions.com
Product Codes: FPD, PM, PP

Practice Partners in Healthcare, Inc. 5118
Suite 200
1 Chase Corporate Drive
Birmingham, AL 35244
Phone: (888)310-1311
Web: www.practicepartners.org
Product Codes: FPD, PM, PP

PracticeLink.com 5315
415 Second Ave.
Hinton, WV 25951
Phone: (800)776-8383
Web: www.practicelink.com
Product Codes: EDU, PP, PR, PUB

Primal Pictures LTD 867
Tennyson House
159-165 Great Portland St
London, W1W 5PA
United Kingdom
Phone: 44-2076371010
Web: www.primalpictures.com
Product Codes: COM, EDU, PE, PUB

Pro-Dex Inc. 4250
2361 McGaw Ave.
Irvine, CA 92614
Phone: (949)769-3200
Web: www.pro-dex.com
Product Codes: AS, DEV, SI, SURG

COMPANY BOOTH NO.

Professional Data Systems, Inc. 5137
10 New King Street
Suite 215
White Plains, NY 10604
Phone: (888)816-3819
Web: www.goprodata.com
Product Codes: COM, FRST, PP

Pulsar Scientific, LLC 4555
8 Stony Brook Street
Ludlow, MA 01056
Phone: (413)589-0851
Web: www.pulsarscientific.com
Product Codes: DEV, FRST, REHB

Pulse Lavage AB 1007
Stabby Alle 2
Uppsala, 752 29
Sweden
Phone: 46-18555505
Web: www.pulselavage.com
Product Codes: SI

Pulse Systems, Inc. 4061
3020 Cypress
Suite 200
Wichita, KS 67226
Phone: (316)636-5900
Web: www.pulseinc.com
Product Codes: EMR, FRST, PP

Purac Biomaterials 3308
111 Barclay Blvd, Suite 100
Lincolnshire Corporate Center
Lincolnshire, IL 60069
Phone: (847)634-6330
Web: www.puracbiomaterials.com
Product Codes: BB, I, PH

Pyxidis 3809
1050 Cross Keys Dr
Doylestown, PA 18902
Phone: (215)230-7307
Web: www.pyxidis-medical.com
Product Codes: DEV, OTH

Q

QAL Medical 5153
3000 Woleske Road
Marinette, WI 54143
Phone: (888)430-1625
Web: www.qalmedical.com
Product Codes: DEV, FRST, REHB

Quadrant Engineering Plastic Products 4107
2120 Fairmont Ave
PO Box 14235
Reading, PA 19612
Phone: (610)320-6600
Web: www.quadrantplastics.com
Product Codes: DEV, DI, I, SI, SURG, XRAY

COMPANY BOOTH NO.

Quality Care Products, LLC 1510
6920 Hall Street
Holland, OH 43528
Phone: (800)337-8606
Web: www.qcpdr.com
Product Codes: PH, REHB

Quantum Medical Imaging, LLC 4236
2002 Orville Dr N
Ronkonkoma, NY 11779-7661
Phone: (631)567-5800
Web: www.quantummedical.net
Product Codes: DE, XRAY

Quintus Composites 129
P.O. Box 3930
684 Industrial Drive
Camp Verde, AZ 86322
Phone: (928)567-3383
Web: www.quintus-inc.com
Product Codes: OTH, SI

R

Radlink 4639
1415 W 178th St
Gardena, CA 90248-3201
Phone: (310)808-6586
Web: www.radlink.com
Product Codes: DE, DI, FRST

Rayence Inc 4136
440 Sylvan Ave
Suite 220
Englewood Cliffs, NJ 07712
Phone: (201)569-0445
Web: www.rayenceusa.com
Product Codes: DE, FRST, XRAY

Raymond Fox & Associates 5215
1660 Hotel Circle North
Suite 340
San Diego, CA 92108
Phone: (619) 296-4595
Web: www.raymondfox.com
Product Codes: EDU, FIN, FPD, MKT, PM, PP

Razek Equipamentos Ltda. 3600
Rua Ernesto Goncalves Rosa Junior, 437
Sao Carlos, SP 13570-460
Brazil
Phone: 551621072345
Web: www.razek.com.br
Product Codes: AS, SI, SURG

RD Concepts, Inc. 5161
543 Country Club Drive
Suite B-511
Simi Valley, CA 93065
Phone: (310)576-0929
Web: www.thecastcover.com
Product Codes: BB, CS, DEV, FRST, MS, SG

COMPANY BOOTH NO.

Regen Lab 4469
En Budron B2
Le Mont Sur Lausanne, 1052
Switzerland
Phone: 41-218640111
Web: www.regenlab.com
Product Codes: BLD, FRST

Research for Life, LLC 5056
119 S. Weber Dr.
Chandler, AZ 85226
Phone: (480)940-1310
Web: www.research-for-life.org
Product Codes: FRST, T

Response Ortho LLC 5149
725 River Road
Suite 32-254
Edgewater, NJ 07020
Phone: (201)203-5773
Web: www.responseortho.com
Product Codes: BNE, FRST, I, SI

Richard Wolf Medical Instruments Corp. 1521
353 Corporate Woods Pkwy
Vernon Hills, IL 60061-3110
Phone: (800)323-9653
Web: www.richardwolfusa.com
Product Codes: AS, SI

Röchling Engineering Plastics 3806
903 Gastonia Technology Parkway
Dallas, NC 28034
Phone: (704)884-3506
Web: www.roechling-plastics.us
Product Codes: MS, SI, SURG

Rodman Publishing - ODT 1175
70 Hilltop Rd
Suite 3000
Ramsey, NJ 07446-1150
Phone: (201)880-2243
Web: www.odtmag.com
Product Codes: PE, PUB

Rose Micro Solutions 5155
4105 Seneca Street
West Seneca, NY 14224
Phone: (716)608-0009
Web: www.rosemicrosolutions.com
Product Codes: FRST, MS, SI, SURG

Rosemont Media, LLC 5416
1010 Turquoise St Ste 301
San Diego, CA 92109-1266
Phone: (800)491-8623
Web: www.rosemontmedia.com
Product Codes: FRST, PM, PP

RTI Biologics, Inc. 3823
11621 Research Circle
Alachua, FL 32615
Phone: (386) 418-8888
Web: www.rtibiologics.com
Product Codes: ADVA, BNE, I, T

COMPANY BOOTH NO.

S

SAGE 1274
2455 Teller Rd
Thousand Oaks, CA 91320
Phone: (805)410-7239
Web: www.sagepub.com
Product Codes: PE, PUB

Sanatmetal Ltd. 2649
Faiskola Street 5.
Eger, 3300
Hungary
Phone: 3636512900
Web: www.sanatmetal.hu
Product Codes: I, P, SI

Sanofi Biosurgery 2839
55 Cambridge Pkwy
Cambridge, MA 02142-1234
Phone: (617) 494-8484
Web: www.sanofi.com
Product Codes: DEV, T

Sawbones/Pacific Research 2506
10221 SW 188th St
Vashon, WA 98070
Phone: (206) 463-5551
Web: www.sawbones.com
Product Codes: AM, AS, EDU

SBM Inc. 1708
19 Hancock St.
Winchester, MA 01890
Phone: (781)369-1782
Web: www.s-b-m.us
Product Codes: BNE, I

Schaerer Mayfield USA 4203
675 Wilmer Ave
Cincinnati, OH 45226
Phone: (513)561-2241
Web: www.schaerermayfieldusa.com
Product Codes: SURG

ScribeAmerica 4850
20900 NE 30th Ave
Suite 200-16
Aventura, FL 33180
Phone: (877)488-5479
Web: www.scribeamerica.com
Product Codes: BB, EDU, EMR, FRST, PP

Sentio, LLC 5049
21520 Bridge Street
Southfield, MI 48033
Phone: (248)595-0438
Web: www.sentiommg.com
Product Codes: BB, DEV, FRST, OTH

Serola Biomechanics, Inc. 4103
5281 Zenith Parkway
Loves Park, IL 61111
Phone: (815)636-2780
Web: www.serola.net
Product Codes: MS, REHB, SG

SH Medical Corp. 4272
3061 NW 82 Ave
Miami, FL 33122
Phone: (305)406-2222
Product Codes: AS, DI, FRST, SI, SURG

Shanghai Bojin Electric Instrument & Device Co., Ltd. 3802
Room 1220, No. 18,
Jiangchang 1 Road
Shanghai, 200436
China
Phone: 86-2166308078
Web: www.bojin-medical.com
Product Codes: BNE, XRAY

Shanghai Xinsheng Photoelectric Technology Co., Ltd. 5258
No. 107, Qianyang Road
Shanghai, 200333
China
Phone: 86-2152709815
Product Codes: BNE, FRST, SI

Sharma Surgical and Engg. Pvt. Ltd. 2108
646, 654 & 655, GIDC
Waghodia Indristal Eastate
Vadodara, Gujurat 391760
India
Phone: 91-2668262060
Web: www.ssepl.com
Product Codes: I

Sharps Compliance, Inc. 5036
9220 Kirby Drive
Suite 500
Houston, TX 77054
Phone: (800)772-5657
Web: www.sharpsinc.com
Product Codes: BB, FRST, MS, PM, PP

Shimadzu Medical Systems USA 4637
20101 S Vermont Ave
Torrance, CA 90502
Phone: (800)228-1429
Web: www.shimadzu.com/medical
Product Codes: DE, DI

Shoulder Options, Inc. 3402
PO Box 1458
100 E South Main Street
Waxhaw, NC 28173
Phone: (704)512-0000
Web: www.shoulderoptions.com
Product Codes: I, SI

Showa Ika Kohgyo Co., Ltd. 141
8-7 Haneinishimachi
Toyohashi Aichi, 441-8026
Japan
Phone: 81-532321543
Web: www.showaika.com
Product Codes: I, SI

Shukla Medical 1254
151 Old New Brunswick Rd
Piscataway, NJ 08854
Phone: (732)474-1770
Web: www.shuklamedical.com
Product Codes: SI

SI-BONE, Inc. 655
3055 Olin Ave Ste 2200
San Jose, CA 95128-2066
Phone: (408)207-0700
Web: www.si-bone.com
Product Codes: DEV

SICOT 505
Rue Washington 40-b.9
Brussels, BE 1050
Belgium
Phone: 32-2-6486823
Web: www.sicot.org
Product Codes: AO

Siemens Medical Solutions USA, Inc. 3865
51 Valley Stream Parkway
MSH33
Malvern, PA 19355
Phone: (610) 448-4500
Web: www.siemens.com
Product Codes: ADVA, AS, COM, DE, DI, EDU, FPD, IMG, MRI, PHRM, SURG, XRAY

SIGN Fracture Care International 504
451 Hills Street, Suite B
Richland, WA 99354
Phone: 509-371-1104
Web: www.signfracturecare.org
Product Codes: AO

Signus Medical, LLC 1524
18888 Lake Drive East
Chanhassen, MN 55317
Phone: (952) 294-8700
Web: www.signusmedical.com
Product Codes: BNE, DEV, I, SI

Simbionix USA Corporation 4875
7100 Euclid Avenue
Suite 180
Cleveland, OH 44103
Phone: (216)229-2040
Web: www.simbionix.com
Product Codes: AM, EDU, FRST

Sinai Hospital of Baltimore, Rubin Inst. for Advanced Orthopedics 865
2401 West Belvedere Avenue
Baltimore, MD 21215
Phone: (410)601-9000
Web: www.rubininstitute.com
Product Codes: COM, EDU, PE, PR, PUB

Skeletal Dynamics 420
8905 SW 87th Ave Ste 210
Miami, FL 33176-2214
Phone: (305)596-7585
Web: www.skeletaldynamics.com
Product Codes: DEV, EDU, I, P, SI

COMPANY BOOTH NO.

Sky Medical, Inc. 1910
5229 NW 108th Ave
Sunrise, FL 33351
Phone: (954) 747-3188
Web: www.skymedicalinc.com
Product Codes: CS, MS, O, REHB, SG

Skylight Healthcare Systems 5419
10935 Vista Sorrento Parkway
Suite 350
San Diego, CA 92130
Phone: (858)523-3700
Web: www.skylight.com
Product Codes: COM, EDU, PP

SLACK Incorporated 965
6900 Grove Road
Thorofare, NJ 08086
Phone: (856) 848-1000
Web: www.Healio.com
Product Codes: PE, PUB

Small Bone Innovations, Inc. 1607
1380 S Pennsylvania Ave Ste 1
Morrisville, PA 19067-1267
Phone: (215) 428-1791
Web: www.totalsmallbone.com
Product Codes: ADVA, DEV, I

Smith & Nephew Inc. 1812
7135 Goodlett Farms Pkwy
Cordova, TN 38016
Phone: (901) 396-2121
Web: www.smith-nephew.com
Product Codes: ADVA, AS, DEV, EDU, I, SI, SURG

Sociedad Colombiana de Cirugia Ortopedica y Traumatolgia – Grupo Corporativo - SCCOT 605
Calle 134 No. 7B - 83Oficina 201 Edificio el Bosque
Bogota, DC 10
Phone: 5731 57862902
Web: www.sccot.org.co
Product Codes: AO

Sociedad Espanola de Cirugia Ortopedica y Traumatologia - SECOT 504
Calle Fernandez de Los Rios 108 2a Planta
Madrid, 28015
Spain
Phone: 34 630991359
Web: www.secot.es
Product Codes: AO

Sociedade Brasileira de Ortopedia e Traumatologia - SBOT 404
Alameda Lorena, 427
14 andar - Jd. Paulista
Sao Paulo, 01424-000
Brazil
Phone: 55 11 2137 5413
Web: www.sbot.org.br
Product Codes: AO

COMPANY BOOTH NO.

Socrates Ortho 5429
PO Box 1307
Rozelle, NSW 2039
Australia
Phone: 61416271011
Web: www.socratesortho.com
Product Codes: COM, PM, PP

Solana Surgical, LLC 5046
6363 Poplar Ave.
Suite 312
Memphis, TN 38119
Phone: (855)214-1860
Web: www.solanasurgical.com
Product Codes: FRST, I, SI, T

Solvay Specialty Polymers 3700
4500 McGinnis Ferry Rd
Alpharetta, GA 30005
Phone: (770)772-8760
Web: www.solvayspecialtypolymers.com
Product Codes: OTH

Sonoma Orthopedic Products 3506
3589 Westwind Blvd
Santa Rosa, CA 95403-8256
Phone: (707)526-1335
Web: www.sonomaorthopedics.com
Product Codes: BNE, DEV, I

SonoSite, Inc. 2849
21919 30th Drive SE
Bothell, WA 98021
Phone: (770) 754-3800
Web: www.sonosite.com
Product Codes: DEV, DI, IMG

Sontec Instruments, Inc. 1505
7248 S Tucson Way
Centennial, CO 80112
Phone: (303) 790-9411
Web: www.sontecinstruments.com
Product Codes: SI

Southwest Medical Books, A Division of Elsevier 1074
1600 JFK Blvd
Suite 1800
Philadelphia, PA 19103
Phone: (215)239-3490
Web: www.us.elsevierhealth.com
Product Codes: FRST, PE, PUB

Span Link International, LLC 5051
28C West Jefryn Blvd.
Deer Park, NY 11729
Phone: (631)392-1432
Web: www.fortebrace.com
Product Codes: FRST, O, SF, SG

Spinal Simplicity LLC 5154
8537 Bluejacket St.
Lenexa, KS 66214
Phone: (913)451-4414
Web: www.spinalsimplicity.com
Product Codes: DEV, FRST, I, SI

COMPANY BOOTH NO.

SpineFrontier 125
500 Cummings Ctr
Suite 3500
Beverly, MA 01915
Phone: (978)232-3990
Web: www.spinefrontier.com
Product Codes: DEV, I, SI

SpineView Inc. 2408
48810 Kato Rd
Suite 100E
Fremont, CA 94538-7364
Phone: (510)743-5069
Web: www.spineview.com
Product Codes: SI, SURG

Spineway 2306
Parc du Chene
34 rue du 35eme Regiment d'Aviation
Bron, 69500
France
Phone: 33472770152
Web: www.spineway.com
Product Codes: I, P

Spiracur Inc. 5053
1180 Bordeaux Drive
Sunnyvale, CA 94089
Phone: (408)701-5300
Web: www.spiracur.com
Product Codes: DEV, FRST, SI

Springer 1272
233 Spring St Fl 6
New York, NY 10013-1578
Phone: (212) 460-1500
Web: www.springer.com
Product Codes: PE, PUB

SRSsoft 5029
155 Chestnut Ridge Road
Montvale, NJ 07645
Phone: (201)802-1300
Web: www.srssoft.com
Product Codes: EMR, PM, PP

Stability Biologics 2908
2910 Poston Avenue
Nashville, TN 37203
Phone: (855)267-5551
Web: www.stabilitybio.com
Product Codes: BNE, FRST, T

Staff Care, Inc. 4940
5001 Statesman Dr
Irving, TX 75063
Phone: (800)876-0500
Web: www.staffcare.com
Product Codes: PP, PR

Stanmore Implants 4246
210 Centennial Avenue
Centennial Park
Elstree, WD6 3SJ
United Kingdom
Phone: 442082386500
Web: www.stanmoreimplants.com
Product Codes: I, IMG, OTH, P

COMPANY BOOTH NO.

Stelkast 4312
200 Hidden Valley Rd
Mc Murray, PA 15317-2659
Phone: (724) 941-6368
Web: www.stelkast.com
Product Codes: DEV, I

Stellen Medical, LLC 4506
1290 Hammond Road
Saint Paul, MN 55110
Phone: (651)426-1496
Web: www.stellenmedical.com
Product Codes: I, T

Stemcup Medical Products AG 4672
Aargauer Strasse 180
Zurich, 8048
Switzerland
Phone: 41-491719789699
Web: www.stemcup.ch
Product Codes: FRST, I

STERIS Corporation 1629
5960 Heisley Road
Mentor, OH 44060
Phone: (800)548-4873
Web: www.steris.com
Product Codes: ADVA, FPD, SURG

StrenuMed Inc. 3407
1833 Portola Rd #K
Ventura, CA 93003
Phone: (805)477-1000
Web: www.strenumed.com
Product Codes: BB, SI, SURG

Stryker Endoscopy 3412
5900 Optical Ct
San Jose, CA 95138
Phone: (800) 435-0220
Web: www.stryker.com/endoscopy
Product Codes: AS, COM, EMR, I, IMG, SG, SI, SURG, T

Stryker Instruments 3412
4100 E Milham Ave
Kalamazoo, MI 49001
Phone: (800)253-3210
Web: www.stryker.com
Product Codes: ADVA, BLD, CS, DEV, IMG, MS, SI, SURG

Stryker Orthopaedics 3412
325 Corporate Drive
Mahwah, NJ 07430
Phone: (201) 831-5000
Web: www.stryker.com
Product Codes: ADVA, AS, BLD, BNE, DEV, EDU, I, OTH, PM, SI

Surefire Social 4104
2201 Cooperative Way
Herndon, VA 20171
Phone: (703)896-7688
Web: www.surefiresocial.com
Product Codes: BB, FRST, OTH, PM, PP

COMPANY BOOTH NO.

Surface Dynamics 5061
231 Northland Blvd.
Cincinnati, OH 45246
Phone: (513)772-6635
Web: www.sdbiocoatings.com
Product Codes: BNE, DEV, FRST, I

Surgical Affiliates Management Group, Inc. 3976
PO Box 1528
Sacramento, CA 95812
Phone: (916)441-0400
Web: www.samgi.com
Product Codes: FRST, PP, PR

Surgical Planning Associates, Inc. 4749
43 Riverside Avenue, #192
Medford, MA 02155
Phone: (617)840-0063
Web: www.hipsextant.com
Product Codes: DEV, FRST, I, IMG, SI

Surgical Power, Inc. 1803
907 S 325 E
Warsaw, IN 46582
Phone: (574)267-8207
Web: www.surgicalpower.com
Product Codes: SI, SURG

SurgiMate 5225
2440 Broadway
Suite 124
New York, NY 10024
Phone: (800)580-1960
Web: www.surgimate.com
Product Codes: EMR, FRST, PM, PP

Surgionix Ltd. 4550
PO Box 20 092
Glen Eden
Auckland, 0641
New Zealand
Phone: 64-98185584
Web: www.surgionix.com
Product Codes: DEV, FRST, SI, SURG

Surgitel/General Scientific Corp. 1514
77 Enterprise Drive
Ann Arbor, MI 48103
Phone: (800)959-0153
Web: www.surgitel.com
Product Codes: SI, SURG

Swarm Interactive 5017
105 Woodshire Ln
Chapel Hill, NC 27514
Phone: (954) 873-2434
Web: www.swarminteractive.com
Product Codes: COM, EDU, PP

Symmetry Medical Inc. 1842
3724 North State Road 15
Warsaw, IN 46582
Phone: (574)267-8700
Web: www.symmetrymedical.com
Product Codes: AS, BB, DEV, I, SI, SURG

COMPANY BOOTH NO.

Synergie Ingenierie Medicale (synimed) 4572
Zone Artisanale de l'Angle
Chamberet, 19370
France
Phone: 33-555983138
Web: www.synimed.com
Product Codes: BB, FRST, P

Synergy Surgicalists 5143
678 Simmons Lane
Bozeman, MT 59715
Phone: (406)581-8899
Web: www.synergysurgicalists.com
Product Codes: FRST, PM, PP, PR

Synthes 1646
1301 Goshen Pkwy
West Chester, PA 19380
Phone: (610) 719-5000
Web: www.depuysynthes.com
Product Codes: DEV, EDU, I, SI

Systemedx Healthcare Technology 4447
18741 US Hwy 31 North
Suite 103
Cullman, AL 35058
Phone: (888)499-8324
Web: www.systemedx.com
Product Codes: COM, EMR, FRST, PM, PP

T

TDM Co., Ltd. 3104
#101-104, Sangsan-dong, Gwangju
Technopark, 958-3
Daechon-dong, Buk-gu
Gwangju-Si, Gwangju-Si 500-706
Korea, Republic of
Phone: 82-626027468
Web: www.tradimedics.com
Product Codes: I

Technicality, Inc. 4558
661 S Addison Road
Addison, IL 60101
Phone: (800)322-2844
Web: www.tmsmed.net
Product Codes: FRST, I, SI

Tecomet 1404
115 Eames Street
Wilmington, MA 01887
Phone: (978)642-2400
Web: www.tecomet.com
Product Codes: BB, I

Tecres Spa 1257
Via Andrea Doria, 6
Sommacampagna (VR), 37066
Italy
Phone: 390459217311
Web: www.tecres.it
Product Codes: BNE, DEV, P

COMPANY BOOTH NO.

TeDan Surgical Innovations 4024
12615 West Airport Blvd
Suite 200
Sugar Land, TX 77478
Phone: (713)726-0886
Web: www.tedansurgical.com
Product Codes: DEV

TekArtis 2100
PO Box 503024
San Diego, CA 92129
Phone: (858)201-4123
Web: www.tekartis.net
Product Codes: AS, I, SURG

Teknimed 1720
Za de Montredon
11, rue D'Apollo
L'Union, 31240
France
Phone: 33-534251060
Web: www.teknimed.com
Product Codes: BNE, DEV, I, P

Tekscan, Inc. 1622
307 West First Street
South Boston, MA 02127-1309
Phone: (617) 464-4500
Web: www.tekscan.com
Product Codes: COM, DI, O, OTH, REHB

Tenex Health, Inc. 4562
26902 Vista Terrace
Lake Forest, CA 92630
Phone: (855)283-6366
Web: www.fastprocedure.com
Product Codes: DEV, DI, FRST, IMG, SI, SURG, T

TGM Medical, Inc. 4856
5145 Golden Foothill Parkway
Suite 175 & 180
El Dorado Hills, CA 95762
Phone: (916)358-8835
Web: www.tgm-med.com
Product Codes: FRST, I, SI

TGS Knee Innovations/ART 3807
15800 32nd Ave N Ste 100
Plymouth, MN 55447
Phone: (952)949-2235
Web: www.tgskneeinnovations.com
Product Codes: DEV, I, SI

The American Journal of Orthopedics 765
7 Century Dr Ste 302
Parsippany, NJ 07054-4609
Phone: (973)206-8015
Web: www.amjorthopedics.com
Product Codes: PE, PUB

The Doctors Company 5420
185 Greenwood Road
Napa, CA 94558
Phone: (707)226-0100
Web: www.thedoctors.com
Product Codes: FRST, OTH, PP

COMPANY BOOTH NO.

The Methodist Hospital 1173
8100 Greenbriar Street
Houston, TX 77054
Phone: (832)360-0023
Web: www.methodisthealth.com
Product Codes: EDU, FRST, PE

The Perry Initiative 606
450 Stanyan Street
San Francisco, CA 94117
Phone: 415-994-5485
Web: www.perryinitiative.org
Product Codes: AO

The Society of Military Orthopaedic Surgeons - SOMOS 704
110 West Rd., Suite 227
Towson, MD 21204
Phone: 410-494-4994
Web: www.somos.org
Product Codes: AO

ThermoTek, Inc 1309
1200 Lakeside Pkwy Ste 200
Flower Mound, TX 75028-4041
Phone: (972)874-4949
Web: www.thermotekusa.com
Product Codes: DEV, MS, REHB, SI

THI - Total Healthcare Innovation GmbH 4507
Gewerbestrasse 4
Feistritz Im Rosental, 9181
Austria
Phone: 43-422830100
Web: www.thigmbh.at
Product Codes: DEV, SURG, T

Thieme Medical Publishers 968
333 7th Ave Rm 500
New York, NY 10001-5122
Phone: (800)782-3488
Web: www.thieme.com
Product Codes: PE, PUB

Thomas Jefferson University Hospitals 868
111 S. 11th Street
Philadelphia, PA 19107
Phone: (215)955-6000
Web: www.jeffersonhospital.org/bonesandjoints
Product Codes: EDU, FRST, PE

Tianjin ZhengTian Medical Instrument Co., Ltd. 1865
8-2-1101 Yuan yang feng jing No. 15
Deshengmen West
Beijing, 100082
China
Phone: 86-1082292929
Web: www.ztmedic.com
Product Codes: I, SI

COMPANY BOOTH NO.

Tiemann Surgical 1636
25 Plant Ave
Hauppauge, NY 11788-3804
Phone: (800)843-6266
Web: www.georgetiemann.com
Product Codes: SI, SURG

Tipsan Tibbi Aletler A.S. 143
Kemalpaza Cad. 740411 Sdk. No. 3 Pinarbael
Izmir, 35060
Turkey
Phone: 90-2324795654
Web: www.tipsan.com.tr
Product Codes: BB, FRST, I, P, SI

Tissue Banks International 2800
815 Park Avenue
Baltimore, MD 21201
Phone: (410)752-3800
Web: www.tbionline.org
Product Codes: BNE, I, T

Toby Orthopaedics LLC 4003
Ste 501
1805 Ponce De Leon Blvd
Coral Gables, FL 33134-4456
Phone: (866)979-8629
Web: www.tobyortho.com
Product Codes: BNE, I, SI

Top Shelf Orthopedics 2803
1851 East Paradise
Suite A
Tracy, CA 95304
Phone: (866)592-0488
Web: www.topshelforthopedics.com
Product Codes: O, REHB, SG

TORNIER 2065
10801 Nesbitt Ave S
Bloomington, MN 55437
Phone: (952)426-7600
Web: www.tornier-us.com
Product Codes: ADVA, AS, DEV, I, P, SI

Total Plastics 3300
7508 Honeywell Drive
Fort Wayne, IN 46825
Phone: (260)489-3656
Web: www.totalplastics.com
Product Codes: BB, DEV, I, O, P, SI

Townsend Design 1639
4615 Shepard St
Bakersfield, CA 93313
Phone: (661) 837-1795
Web: www.townsenddesign.com
Product Codes: O, REHB

Transgenomic 4359
Five Science Park
New Haven, CT 06511
Phone: (877)274-9432
Web: labs.transgenomic.com
Product Codes: FRST, OTH

COMPANY BOOTH NO.

TransPortal 5041
8720 Red Oak Blvd, Suite 390
Charlotte, NC 28217
Phone: (704)926-9634
Web: www.etransportal.com
Product Codes: COM, EMR, FRST, PP

Trauson (China) Medical Instrument Co., Ltd. 4207
Niutang Town
Jiangsu Province
Changzhou City, 213163
China
Phone: 86-13661278937
Web: www.trauson.com
Product Codes: BNE, I, P, SI

TriMed, Inc. 3217
27176 Cedar Ridge Place
Valencia, CA 91381
Phone: (800) 633-7221
Web: www.trimedortho.com
Product Codes: I

TXR Tingle X-Ray LLC 4439
5481 Skyland Blvd. E
Cottondale, AL 35453
Phone: (205)556-3803
Web: www.txr.com
Product Codes: DE, DI, XRAY

Tyy Consulting 4673
3651 Lindell Road
Suite D-179
Las Vegas, NV 89103
Phone: (800)218-0253
Product Codes: FRST, PH, PP

U

U&I Corporation 2843
529-1 Yonghyun-Dong
Uijungbu, Kyunggi-Do 480-050
Korea, Republic of
Phone: 82318520102
Web: www.youic.com
Product Codes: I, P, SI

UBS Financial Services Inc. 4176
One Tower Lane
Suite 640
Oakbrook Terrace, IL 60181
Phone: (630)572-2287
Web: www.ubs.com/team/tategroup
Product Codes: FIN, FRST, PP

UCSF/SFGH Orthopaedic Trauma Institute 1075
2550 23rd Street
Bldg 9, 3rd Floor
San Francisco, CA 94110
Phone: (415)999-9123
Web: www.orthotrauma.com
Product Codes: BB, BNE, EDU, P, PE

COMPANY BOOTH NO.

Understand.com 5025
100 Washington, Suite 100
Reno, NV 89503
Phone: (775)851-3420
Web: www.understand.com
Product Codes: COM, EDU, PM, PP

Union Surgical, LLC 2806
834 Chestnut St
Suite G-114
Philadelphia, PA 19107
Phone: (215)521-3004
Web: www.unionsurgical.com
Product Codes: I, SI

Union Tough International Limited 4375
Room 1605, Tower A,North Ring Center,18
Yumin Road
Xicheng District
Beijing, China, 100029
China
Phone: 86-41188036099
Web: www.union-tough.com
Product Codes: CS, DEV, FRST, MS

United Endoscopy 904
469 E Harrison Street Suite D
Corona, CA 92879
Phone: (951)270-3400
Web: www.endoscope.com
Product Codes: AS, DI, MS, SI, SURG

United Ortho 5262
2235 Pennsylvania Street
Fort Wayne, IN 46803
Phone: (800)227-8748
Web: www.unitedbracing.com
Product Codes: O, SG

United Orthopedic Corporation 820
12F No. 80, Sec 1, Chenggong Road
Yonghe District
New Taipei City, 23452
Taiwan
Phone: 886-229294567
Web: www.uoc.com.tw
Product Codes: I, P, SI

United States Bone and Joint Initiative - USBJI 405
6300 N. River Road
Rosemont, IL 60018
Phone: 847-430-5053
Web: www.usbji.org
Product Codes: AO

University of St. Augustine 1269
1 University Blvd.
Saint Augustine, FL 32086
Phone: (800)241-1027
Web: www.usa.edu
Product Codes: EDU, FRST, PE

COMPANY BOOTH NO.

University of Tennessee Physician Executive MBA Program 869
608 Stokely Management Center
Knoxville, TN 37996-0562
Phone: (865)974-1772
Web: www.pemba.utk.edu
Product Codes: EDU, PE

V

Venel 5426
11260 South 131st Plaza
Omaha, NE 68138
Phone: (402)408-2355
Web: www.venel.com
Product Codes: EDU, MKT, OTH, PP

Venous Health Systems 106
3270 Alpine Road
Portola Valley, CA 94028
Phone: (650)417-5688
Web: www.venoushealth.com
Product Codes: DEV

Veritas Health LLC 1174
790 Estate Drive
Suite 250
Deerfield, IL 60015
Phone: (847)607-8577
Web: www.arthritis-health.com
Product Codes: BB, EDU, FRST, PE, PUB

Vilex, Inc. 2608
111 Moffitt Street
Mc Minnville, TN 37110
Phone: (800)521-5002
Web: www.vilex.com
Product Codes: I, SI

Virtamed AG 4653
Badenerstrasse 141
Zurich, 8004
Switzerland
Phone: 41-445009690
Web: www.virtamed.com
Product Codes: AM, BB, COM, EDU, FRST

VirtualScopics 4540
500 Linden Oaks, Floor 2
Rochester, NY 14625
Phone: (585)249-6231
Web: www.virtualscopics.com
Product Codes: DE, DI, IMG, MRI, XRAY

Viscos 136
10773 Saddle Horse Lane
Fortville, IN 46040
Phone: (317)697-1495
Web: www.playagainnow.com
Product Codes: FRST, OTH

VisionScope Technologies 4337
305 Foster Street
Suite 204
Littleton, MA 01460
Phone: (888)808-8357
Web: www.visionscopes.com
Product Codes: AS, DE, DI, FRST

COMPANY BOOTH NO.

VISTA Staffing Solutions 5326
275 East 200 South
Salt Lake City, UT 84111
Phone: (800) 366-1884
Web: www.vistastaff.com
Product Codes: PP, PR

VQ OrthoCare 612
18011 Mitchell South
Irvine, CA 92614
Phone: (800) 266-6969
Web: www.vqorthocare.com
Product Codes: ADVA, BNE, DEV, EDU, MS, O, REHB, SG

VSMPO-Tirus, US 5054
401 Riverport Drive
Leetsdale, PA 15056
Phone: (937)251-9400
Web: www.vsmpo-tirus.com
Product Codes: BB, FRST, I

W

Waldemar Link GmbH & Co. KG 3423
Barkhausenweg 10
Hamburg, 22339
Germany
Phone: 49-539950
Web: www.linkhh.de
Product Codes: DEV, I, P, SI

Wavemark 3875
1 Monarch Drive
Littleton, MA 01460
Phone: (978)431-1600
Web: www.wavemark.com
Product Codes: BB, COM, FRST, OTH

Webb Dordick, Rare Medical Books 1072
15 Ash Avenue
Sommerville, MA 02145
Phone: (617) 776-1365
Product Codes: PE, PUB

WebToMed 3003
2700 S. River Road
Des Plaines, IL 60018
Phone: (866)999-8550
Web: www.webtomed.com
Product Codes: FRST, PM, PP

Weigao Orthopaedic Device Co., Ltd. 5150
No. 26 Xiangjiang Road
Tourist Resorts
Weihai City, 264203
China
Phone: 86-6315788927
Web: www.wegortho.com
Product Codes: BB, FRST, I, SI

Westlake Plastics 1606
490 West Lenni Road
Lenni, PA 19052-0127
Phone: (484)843-2311
Web: www.westlakeplastics.com
Product Codes: BB

Whale Imaging 4039
No. 16 Office Building, Level 2, Hong Da North Road
YiZhuang Economic Development Zone
Beijing P.R., 100176
China
Phone: 86-01067892355
Web: www.whaleimaging.com
Product Codes: DE, DI, FRST

Whittemore Enterprises, Inc. 2103
11149 Arrow Route
Rancho Cucamonga, CA 91730
Phone: (909) 980-2452
Web: www.wemed1.com
Product Codes: AS, I, SI, SURG

Wright Medical Technology 812
5677 Airline Road
Arlington, TN 38002
Phone: (901) 867-9971
Web: www.wmt.com
Product Codes: ADVA, I, SI, T

Wynn Pharm 1613
28 Eaton Rd Ste 4
Eatontown, NJ 07724-2274
Phone: (732) 544-4080
Web: www.wynnpharm.com
Product Codes: PH

X

X-Spine Systems, Inc. 620
452 Alexandersville Rd
Miamisburg, OH 45342
Phone: (937)847-8400
Web: www.x-spine.com
Product Codes: I

Y

Your Practice Online, LLC 5226
18662 MacArthur Blvd
Suite 200
Irvine, CA 92612
Phone: (877)388-8569
Web: www.yourpracticeonline.net
Product Codes: BB, COM, EDU, PM, PP

Z

Zgrum Medical 4472
1321 E Starship Place
Oro Valley, AZ 85737
Phone: (520)247-4552
Web: www.ortho.zgrum.com
Product Codes: AS, FRST, I, SI, SURG

Ziehm Imaging 4029
6280 Hazeltine National Drive
Orlando, FL 32811
Phone: (407)615-8560
Web: www.ziehm.com
Product Codes: DE, SURG, XRAY

Zigg Design LLC 4951
1057 West 130 South
Suite 110
Logan, UT 84321
Phone: (435)757-4956
Web: www.ziggdesign.com
Product Codes: AS, BB, DEV, FRST, I, SI, SURG

Zimmer 529
1800 W Center Street
Warsaw, IN 46580
Phone: (574)267-6131
Web: www.zimmer.com
Product Codes: ADVA, BLD, BNE, DEV, EDU, I, IMG, MS, SG, SI, SURG

Ziptek LLC 4276
1250 S Tamiami Tr
Suite 303
Sarasota, FL 34239
Phone: (941)953-5509
Web: www.ziptekglobal.com
Product Codes: FRST, I

Exhibit Dates and Hours:

Wednesday, March 20	Thursday, March 21	Friday, March 22
9:00 AM – 5:00 PM	9:00 AM – 5:00 PM	9:00 AM – 4:00 PM

AdvaMed Member - ADVA

Acumed 3446
Aesculap Implant Systems 1024
ArthroCare 3902
Baxano, Inc. 3006
Breg 2235
Ceterix Orthopaedics 5259
Checkpoint Surgical, LLC 2904
Consensus Orthopedics 1839
Corin Group PLC 3212
Covidien 1642
Custom Orthopaedic Solutions 2274
Depuy Synthes Joint Reconstruction 1646
Exactech, Inc. 4612
G21 S.r.l. 4007
Game Ready 1204
Globus Medical 3049
Greatbatch Medical 4065
Integra 3465
K2M, Inc. 3650
MAQUET 3869
Medtronic 2443
OrthAlign, Inc. 3850
Orthofix 2812
OsteoMed 1460
Pega Medical, Inc. 2208
RTI Biologics, Inc. 3823
Siemens Medical Solutions USA, Inc. 3865
Small Bone Innovations, Inc. 1607
Smith & Nephew Inc. 1812
STERIS Corporation 1629
Stryker Instruments 3412
Stryker Orthopaedics 3412
TORNIER 2065
VQ OrthoCare 612
Wright Medical Technology 812
Zimmer 529

Allied Organization – AO

American Orthopaedic Society for Sports Medicine/STOP Sports Injuries Campaign 406B
American Society of Orthopaedic Physician's Assistants - ASOPA 505A
Asociacion Argentina de Ortopedia y Traumatologia 706B
Chinese Orthopaedic Association 604B
Eastern, Southern & Western Orthopaedic Associations 704A
European Federation of National Associations of Orthopaedic and Traumatology - EFORT 604A
Federacion de Sociedades de Ortopedia y Traumatologia de America Latina - SLAOT Federacion 705A
Indonesian Orthopaedic Association - IOA 506B
International Cartilage Repair Society - ICRS 606A
International Congress for Joint Reconstruction 406A
Mercy Ships 404A
National Association of Orthopaedic Technologists - NAOT 405B
Operation Walk USA 605B
Orthopaedic Research Society 706A
Orthopaedics Overseas 506A
SICOT 505B
SIGN Fracture Care International 504B
Sociedad Colombiana de Cirugia Ortopedica y Traumatolgia – Grupo Corporativo - SCCOT 605A
Sociedad Espanola de Cirugia Ortopedica y Traumatologia - SECOT 504A
Sociedade Brasileira de Ortopedia e Traumatologia - SBOT 404B
The Perry Initiative 606B
The Society of Military Orthopaedic Surgeons - SOMOS 704B
United States Bone and Joint Initiative 405A

Anatomical Model - AM

AccelLAB Inc. 2308
Bone Clones, Inc. 5059
CDC Design, Inc. 1414
Cleveland Clinic Foundation 5253
EOS Electro Optical Systems 461
GPI Prototype and Manufacturing Services Inc. 4454
Kilgore International Inc. 1426
Materialise 3710, 4357
Medical Modeling Inc. 1104
Models Plus LLC 4475
Sawbones/Pacific Research 2506
Simbionix USA Corporation 4875
Virtamed AG 4653

Arthroscopic Systems - AS

Advanced Endoscopy Devices, Inc. .. 1907
Allen Medical Systems 1020
AME/Orthotec International 3100
American Medical Endoscopy, Inc. .. 2652
Arthrex, Inc. 3453
ArthroPlastics, Inc. 1008
Case Medical 4509
Cayenne Medical 2006
Comerlat Enterprises LLC 4450
ConMed Linvatec 2029
Devicix, LLC 126
Flagship Surgical, LLC 1808
FMD LLC 4446
IMDS Innovative Medical Device Solutions 658
INEX Surgical Inc. 2906
Ionbond 4455
Karl Storz EndoscopyAmerica, Inc... 4224
Knee Creations, LLC 4575
Maramed Orthopedic Systems 3410
Orthopedic Sciences, Inc. 2035
Parcus Medical, LLC 3000
ProDex Inc. 4250
Razek Equipamentos Ltda. 3600
Richard Wolf Medical Instruments Corp. 1521
Sawbones/Pacific Research 2506
SH Medical Corp. 4272
Siemens Medical Solutions USA, Inc. 3865
Smith & Nephew Inc. 1812
Stryker Endoscopy 3412
Stryker Orthopaedics 3412
Symmetry Medical Inc. 1842
TekArtis 2100
TORNIER 2065
United Endoscopy 904
VisionScope Technologies 4337
Whittemore Enterprises, Inc. 2103
Zgrum Medical 4472
Zigg Design LLC 4951

Blood Products - BLD

Arthrex, Inc. 3453
Celling Biosciences 3602
Circle Biologics 4753
Cytonics Corporation 4776
Exactech, Inc. 4612
Haemonetics Corporation 2004
Harvest Technologies Corp. 1800
Ionbond 4455
KYOCERA Medical Corporation 2600
OHK Medical Devices 1108
Regen Lab 4469
Stryker Instruments 3412
Stryker Orthopaedics 3412
Zimmer 529

Bone Products - BNE

aap Implantate AG 1416
Advanced Biologics 143
AlloSource 3450
Amedica Corp. 1107
American Medical Endoscopy, Inc. .. 2652
Arcam AB 3909
Arzzt 4649
Bacterin International Holdings, Inc. . 409
Baxter Healthcare Corporation 616
Berkeley Advanced Biomaterials, Inc. 1406
Biocomposites 3046
Biologic Therapies, Inc. 132
Biomatlante 3508
BioMimetic Therapeutics 1260
BIOTECK S.p.A. 906
Brasseler USA 2000
CareFusion 3204
Celling Biosciences 3602
Cellright Technologies, LLC 5252
Cerapedics, Inc. 1005
Changzhou Waston Medical Appliance Co., Ltd. 1901
Circle Biologics 4753
Dallen Medical 137
Devicix, LLC 126
Etex Corporation 1307

Business to Business/OEM - BB

Casting Supplies & Equipment - CS

Computer Hardware/ Software - COM

Devices - DEV

Diagnostic Equipment - DI

Education - Patient and Physician - EDU

Electronic Medical Records - EMR

Facility Planning and Design - FPD

Financial Planning/ Investments - FIN

First-Time Exhibitor - FRST

Image Guiding/Navigation - IMG

Implants - I

Market Research Services - MKT

Medical Supplies - MS

MRI - MRI

Orthoses - O

Other - OTH

Pharmaceuticals - PH

PhRMA Member - PHRM

Physician Recruitment - PR

Practice/Office Management - PM

Prosthesis - P

Publishers - PUB

Rehabilitation and Exercise Equipment - REHB

Shoes and Foot Supplies - SF

Soft Goods (Supports) - SG

Surgical Equipment - SURG

Surgical Instruments - SI

Tissue Products - T

XRAY - XRAY

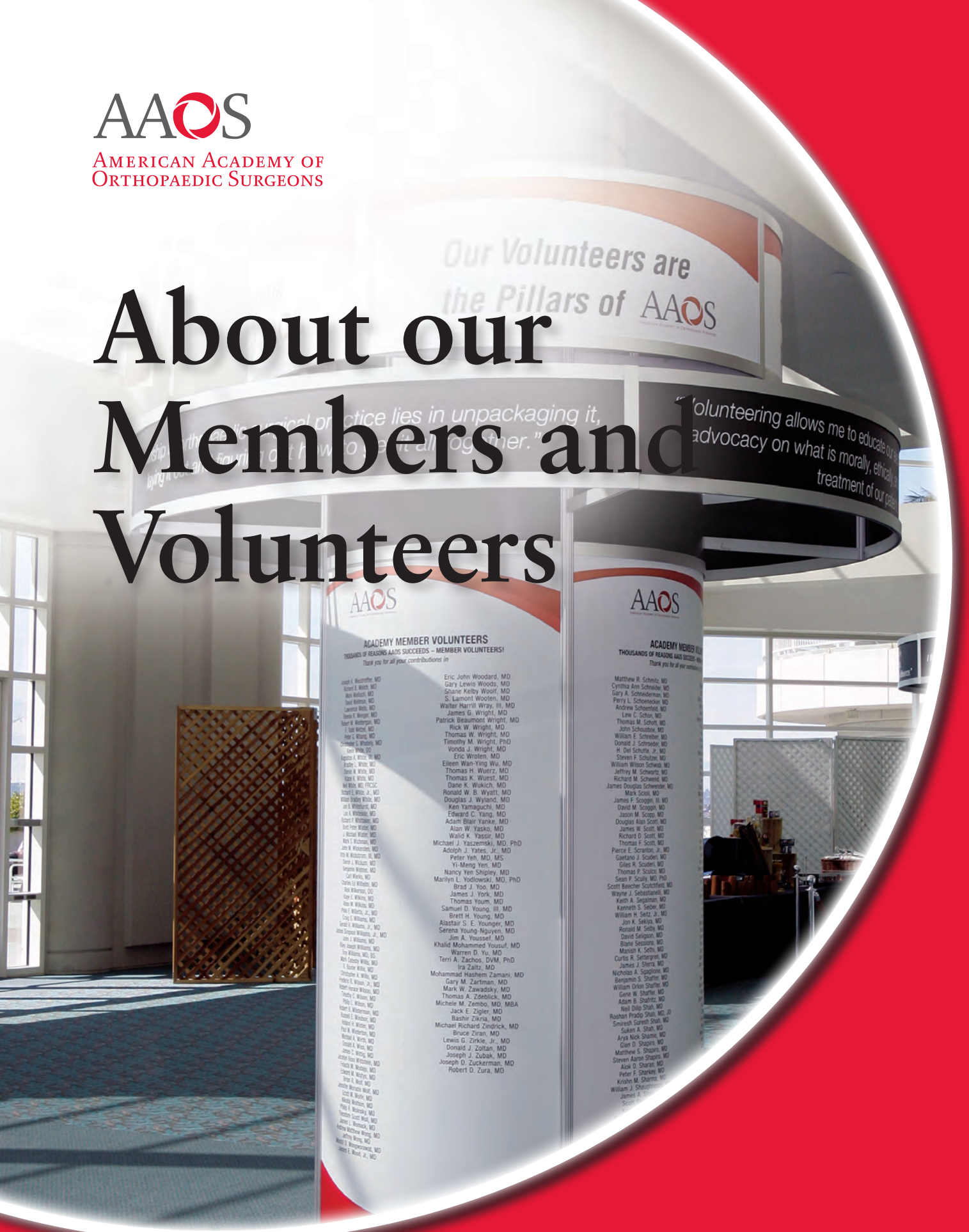
Exhibit Dates and Hours:

Wednesday, March 20	Thursday, March 21	Friday, March 22
9:00 AM – 5:00 PM	9:00 AM – 5:00 PM	9:00 AM – 4:00 PM

AAOS

American Academy of Orthopaedic Surgeons

About our Members and Volunteers



AAOS Communications Skills Mentoring Program, and TeamSTEPPS Project

Mentors Meeting	Wednesday, March 20 7:00 - 8:30 AM McCormick Place, Lakeside Room E253a

AAOS Exhibitors Advisory Council

Luncheon Meeting	Friday, March 22 11:30 AM - 1:30 PM McCormick Place Room S505a

AAOS Now Obesity Forum

Meeting	Monday, March 18 12:00 – 6:00 PM Hilton Chicago Wilford C

AAOS Program Committees

Meeting	Wednesday, March 20 7:00 - 7:45 AM McCormick Place Room S103bcd

AAOS/OTA/VR Hip Fracture Project Team

Meeting	Wednesday, March 20 8:00 – 10:00 AM McCormick Place, Lakeside Room E263

ABOS/AAOS/AOA Resident Curriculum Development Project

Meeting	Wednesday, March 20 3:30 – 5:30 PM McCormick Place, Lakeside Room E263

American Joint Replacement Registry

Board of Director's Meeting	Monday, March 18 8:00 AM - 4:30 PM Hilton Chicago Astoria

Annual Meeting Committee

Breakfast Meeting	Saturday, March 23 7:30 - 9:30 AM McCormick Place Room S505a

Biological Implants

Meeting	Thursday, March 21 6:00 - 8:00 AM McCormick Place, Lakeside Room E261

Biomedical Engineering Committee

Meeting	Wednesday, March 20 11:00 AM - 1:00 PM McCormick Place, Lakeside Room E253b

Board of Councilors

Executive Committee	Thursday, March 21 3:30 - 6:00 PM McCormick Place, Lakeside Room E262
Orientation Session	Wednesday, March 20 1:00 - 4:00 PM McCormick Place, Lakeside Room E353c
Economic Issues Committee	Thursday, March 21 9:00 – 11:00 AM McCormick Place, Lakeside Room E258
Business Meeting	Friday, March 22 7:00 - 11:30 AM McCormick Place, Lakeside Room E450a
BOC SOS Committee	Friday, March 22 1:30 - 3:30 PM McCormick Place, Lakeside Room E258
State Legislative & Regulatory Issues Committee	Friday, March 22 4:00 - 6:00 PM McCormick Place, Lakeside Room E258

Board of Specialty Societies

Match Committee	Wednesday, March 20 6:00 – 8:00 AM McCormick Place, Lakeside Room E253b
Orientation Meeting	Wednesday, March 20 7:00 - 8:00 AM McCormick Place, Lakeside Room E266
Education Committee	Thursday, March 21 6:00 - 8:00 AM McCormick Place, Lakeside Room E258
Health Policy Committee	Thursday, March 21 6:00 - 8:00 AM McCormick Place, Lakeside Room E255
Research Committee	Thursday, March 21 6:00 - 8:00 AM McCormick Place, Lakeside Room E257
Communications Committee	Thursday, March 21 6:30 - 7:30 AM McCormick Place, Lakeside Room E253b

Business Meeting	Friday, March 22 6:00 - 8:00 AM McCormick Place, Lakeside Room E450b

CAC Organizational Meeting

Meeting	Friday, March 22 2:00 - 3:30 PM McCormick Place, Lakeside Room E259

Candidate, Resident and Fellow Committee

Breakfast Meeting	Thursday, March 21 6:30 - 8:30 AM McCormick Place, Lakeside Room E256

Central Evaluation Committee

Business Meeting and Lunch	Thursday, March 21 12:00 - 1:30 PM McCormick Place, Lakeside Room E353c

Central Instructional Course Committee

Meeting	Saturday, March 23 11:45 AM - 1:00 PM McCormick Place Room S505a

Communications Cabinet

Meeting	Thursday, March 21 2:00 - 4:00 PM McCormick Place, Lakeside Room E271a

Diversity Advisory Board

Meeting	Thursday, March 21 3:30 - 5:30 PM Hilton Chicago Astoria
Awards Reception	Thursday, March 21 6:00 - 7:00 PM Hilton Chicago Boulevard bc

Education Research Work Group

Meeting	Thursday, March 21 6:00 - 8:00 AM McCormick Place, Lakeside Room E263

Evaluation Leadership

Meeting and Lunch	Wednesday, March 20 11:30 AM - 12:30 PM McCormick Place, Lakeside Room E253a

Evaluation New Member Orientation and Item Writing Workshop

Meeting	Wednesday, March 20 1:00 - 3:45 PM McCormick Place, Lakeside Room E253a

Executive Directors Luncheon

Luncheon	Friday, March 22 11:00 AM - 1:00 PM McCormick Place, Lakeside Room E255

Exhibits Committee

Meeting	Tuesday, March 19 4:00 - 6:00 PM McCormick Place Room S505a
Meeting	Wednesday, March 20 6:30 - 9:00 AM McCormick Place Room S505a

International Committee

Meeting	Thursday, March 21 12:00 - 2:00 PM McCormick Place, Lakeside Room E257

International Presidents' Breakfast and World Opinion Forum

Breakfast Meeting	Wednesday, March 20 6:30 - 9:30 AM McCormick Place, Lakeside Room E353ab

JAAOS Deputy Editors

Breakfast Meeting	Friday, March 22 7:00 – 8:00 AM McCormick Place, Lakeside Room E256

Leadership Development Committee

Luncheon Meeting	Friday, March 22 12:00 - 2:00 PM McCormick Place, Lakeside Room E256

Leadership Fellows Program

Graduation/Orientation	Friday, March 22 6:00 - 8:00 AM McCormick Place, Lakeside Room E265
Alumni Reception	Friday, March 22 6:00 - 7:00 PM Hyatt McCormick Regency A

Medical Liability Committee

Meeting	Wednesday, March 20 1:30 - 3:30 PM McCormick Place, Lakeside Room E256

Membership Committee

Meeting	Thursday, March 21 8:00 - 10:00 AM McCormick Place, Lakeside Room E267

Orthopaedic Learning Center

Board of Directors Meeting	Saturday, March 23 6:30 - 8:30 AM McCormick Place, Lakeside Room E256

OrthoInfo

Breakfast Meeting	Wednesday, March 20 7:00 – 9:00 AM McCormick Place, Lakeside Room E262

OTA/OrthoPortal

Meeting	Wednesday, March 20 11:00 AM – 12:00 PM Hyatt McCormick CC10A

PAC Luncheon

Luncheon	Wednesday, March 20 12:00 - 1:30 PM McCormick Place, Lakeside Room E353ab

Patient Education Committee

Breakfast Meeting	Friday, March 22 7:00 – 9:00 AM McCormick Place, Lakeside Room E262

Patient Safety Committee

Meeting	Friday, March 22 6:00 - 8:00 AM McCormick Place, Lakeside Room E261

Periodicals

Reception	Friday, March 22 6:00 – 8:00 PM Hilton Chicago Wilford A

Practice Management Committee

Meeting	Thursday, March 21 12:00 - 2:30 PM McCormick Place, Lakeside Room E253b

Resident Liaison Meeting

Meeting	Thursday, March 21 1:30 - 3:00 PM McCormick Place Room S101b

Technology Project Team

Meeting	Wednesday, March 20 7:30 - 9:30 AM McCormick Place, Lakeside Room E259

VR Shoulder Project Team

Meeting	Thursday, March 21 11:30 - 1:00 PM McCormick Place, Lakeside Room E267

Women's Health Issues Advisory Board

Luncheon Meeting	Wednesday, March 20 12:00 - 3:00 PM McCormick Place, Lakeside Room E261

Affiliate Committee Meeting Hotels

Chicago Marriott - Magnificent Mile
540 N. Michigan Avenue
Ph: 312-836-0100

Fairmont Chicago
200 N. Columbus Drive
Ph: 312-565-8000

Four Seasons Hotel Chicago
120 E. Delaware Place
Ph: 312-280-8800

Hilton Chicago Hotel & Towers
720 S. Michigan Avenue
Ph: 312-922-4400

Hyatt Regency Chicago
151 E. Wacker Drive
Ph: 312-565-1234

Hyatt Regency McCormick Place
2233 S. Martin L King Boulevard
Ph: 312-567-1234

InterContinental Chicago
505 N. Michigan Avenue
Ph: 312-944-4100

Omni Chicago
676 N. Michigan Avenue
Ph: 312-944-6664

Palmer House Hilton
17 E. Monroe Street
Ph: 312-726-7500

Peninsula Chicago
108 E. Superior Street
Ph: 312-337-2888

Renaissance Blackstone
636 S. Michigan Avenue
Ph: 312-447-0955

Ritz Carlton Chicago
160 E. Pearson Street
Ph: 312-266-1000

Sheraton Chicago Hotel & Towers
301 E. North Water Street
Ph: 312-464-1000

Westin Chicago River North
320 N. Dearborn Avenue
Ph: 312-744-1900

Albany Medical Center Hospital

Alumni Reception	Friday, March 22 6:00 - 8:00 PM Hyatt Regency Chicago Hong Kong

American Association of Hip and Knee Surgeons (AAHKS)

Board of Directors Meeting	Wednesday, March 20 5:30 - 8:30 PM Hilton Chicago Waldorf
Publications Committee Meeting	Friday, March 22 6:00 - 8:00 AM Hyatt Regency McCormick Place CC10BC

American Association of Latino Orthopaedic Surgeons (AALOS)

Annual Meeting Luncheon	Friday, March 22 12:00 - 2:00 PM Hyatt Regency McCormick Place Regency A

American Orthopaedic Association (AOA)

Officer's Meeting	Tuesday, March 19 12:45 - 1:45 PM Hyatt Regency McCormick Place Boardroom 2
Development Committee	Tuesday, March 19 2:00 - 4:00 PM Hyatt Regency McCormick Place Boardroom 1
Own the Bone Committee	Tuesday, March 19 4:00 - 6:00 PM Hyatt Regency McCormick Place Boardroom 2
Orthopaedic IOM Council	Wednesday, March 20 6:30 - 8:00 AM Hyatt Regency McCormick Place Boardroom 1
CORD Governing Committee Meeting	Wednesday, March 20 10:30 AM - 12:30 PM Hyatt Regency McCormick Place Boardroom 1
Academic Leadership Committee Meeting	Wednesday, March 20 12:30 - 2:00 PM Hyatt Regency McCormick Place Regency D
Nominating Committee Meeting	Wednesday, March 20 4:15 - 5:45 PM Hyatt Regency McCormick Place Boardroom 2
Fellowships Alumni Reception	Wednesday, March 20 6:00 - 7:00 PM Hyatt Regency McCormick Place Regency E
Leadership Development Committee	Thursday, March 21 6:30 - 8:00 AM Hyatt Regency McCormick Place Boardroom 2
Finance Committee	Thursday, March 21 8:00 - 10:00 AM Hyatt Regency McCormick Place Regency D
Critical Issues Committee	Thursday, March 21 12:00 - 1:30 PM Hyatt Regency McCormick Place CC12B
Fellowships Coordinating Committee	Thursday, March 21 2:00 - 2:45 PM Hyatt Regency McCormick Place Boardroom 1
Executive Committee	Thursday, March 21 3:00 - 5:30 PM Hyatt Regency McCormick Place CC12B
CORD Conference	Friday, March 22 7:00 - 9:30 AM Hyatt Regency McCormick Place Regency AB
CORD Educational Programming Committee	Friday, March 22 12:00 - 1:30 PM Hyatt Regency McCormick Place Boardroom 1
OMeGA Board Meeting	Friday, March 22 2:00 - 6:00 PM Hyatt Regency McCormick Place Meeting Suite 1

American Orthopaedic Foot & Ankle Society (AOFAS)

IFFAS Council Meeting	Thursday, March 21 12:00 - 1:30 PM Hyatt Regency McCormick Place CC12C
FAI Managerial Board	Thursday, March 21 1:30 - 3:00 PM Hyatt Regency McCormick Place CC12C
Education Committee	Friday, March 22 7:00 - 8:00 AM Hyatt Regency McCormick Place CC12C

Public Education Committee	Friday, March 22 7:00 - 8:00 AM Hyatt Regency McCormick Place CC12B
Humanitarian Services Committee	Friday, March 22 8:15 - 9:30 AM Hyatt Regency McCormick Place CC12B
CPT/RUC Committee	Friday, March 22 9:45 - 10:45 AM Hyatt Regency McCormick Place CC12C
Post Graduate Education & Training Committee	Friday, March 22 9:45 - 10:45 AM Hyatt Regency McCormick Place CC12B
Research Committee	Friday, March 22 11:00 AM - 12:00 PM Hyatt Regency McCormick Place CC12B
OFAR Managerial Board	Friday, March 22 12:00 - 1:15 PM Hyatt Regency McCormick Place CC12C
FAI Reviewers Meeting	Friday, March 22 1:15 - 2:15 PM Hyatt Regency McCormick Place CC12B
Young Physicians Committee	Friday, March 22 2:15 - 3:15 PM Hyatt Regency McCormick Place CC12B
OEF Board Meeting	Friday, March 22 3:30 - 4:30 PM Hyatt Regency McCormick Place CC12C
Membership Committee	Friday, March 22 4:30 - 5:30 PM Hyatt Regency McCormick Place CC12B
Board Meeting	Friday, March 22 4:30 - 6:00 PM Hyatt Regency McCormick Place CC12C
F&A Fellowship Faculty Meeting	Saturday, March 23 6:00 - 7:00 AM McCormick Place Room E350
Member Reception	Saturday, March 23 5:00 - 8:00 PM McCormick Place Room N426

American Orthopaedic Society for Sports Medicine (AOSSM)

Publications Committee Meeting	Thursday, March 21 12:00 - 1:30 PM Hyatt Regency McCormick Place CC21C
Research Committee Meeting	Thursday, March 21 12:00 - 2:00 PM Hyatt Regency McCormick Place CC10D
Enduring Education Committee Meeting	Thursday, March 21 1:00 - 2:00 PM Hyatt Regency McCormick Place Meeting Suite 1
OKO Committee Meeting	Thursday, March 21 2:00 - 3:00 PM Hyatt Regency McCormick Place CC21B
Public Relations Committee Meeting	Thursday, March 21 2:00 - 3:00 PM Hyatt Regency McCormick Place CC23B
PI CME Committee Meeting	Thursday, March 21 3:00 - 4:00 PM Hyatt Regency McCormick Place CC22A
Education and Industry Relations Committee	Thursday, March 21 3:00 - 4:30 PM Hyatt Regency McCormick Place CC22C
History Committee Meeting	Thursday, March 21 3:30 - 4:30 PM Hyatt Regency McCormick Place CC22B
Traveling Fellowship Committee Meeting	Friday, March 22 8:00 - 10:00 AM Hyatt Regency McCormick Place Meeting Suite 3
Match Committee	Friday, March 22 9:00 - 10:00 AM Hyatt Regency McCormick Place CC22A
STOP Outreach Committee	Friday, March 22 10:00 - 11:30 AM Hyatt Regency McCormick Place C11A

Nominating Committee	Friday, March 22 10:15 - 11:30 AM Hyatt Regency McCormick Place CC22C
Fellowship Committee	Friday, March 22 10:30 - 11:30 AM Hyatt Regency McCormick Place CC23B
Education Committee	Friday, March 22 12:00 - 1:00 PM Hyatt Regency McCormick Place CC11A
Health Policy & Ethics Committee Meeting	Friday, March 22 12:00 - 1:00 PM Hyatt Regency McCormick Place CC23B
Technology Committee	Friday, March 22 12:00 - 1:00 PM Hyatt Regency McCormick Place CC11B
Fellowship Program Directors Meeting	Friday, March 22 12:00 - 1:30 PM Hyatt Regency McCormick Place CC10BC
Hall of Fame Committee	Friday, March 22 12:00 - 1:30 PM Hyatt Regency McCormick Place Meeting Suite 3
STOP Advisory Committee Meeting	Friday, March 22 12:00 - 2:00 PM Hyatt Regency McCormick Place Regency E
Council of Delegates Meeting	Friday, March 22 2:00 - 4:00 PM Hyatt Regency McCormick Place CC10A

American Society for Surgery of the Hand (ASSH)

ASSH - AAHS Presidential Reception	Friday, March 22 6:00 - 7:30 PM Hyatt Regency McCormick Place Regency E

American Sports Medicine Fellowship Society

Alumni Reception	Friday, March 22 6:00 - 8:00 PM Palmer House Hilton Monroe

Arthroscopy Association of North America (AANA)

International Committee	Thursday, March 21 12:00 - 2:00 PM Hyatt Regency McCormick Place Boardroom 2
MOC Task Force	Thursday, March 21 12:00 - 2:00 PM Hyatt Regency McCormick Place CC10A
Fellowship Committee	Friday, March 22 10:30 - 11:30 AM Hyatt Regency McCormick Place Meeting Suite 1
Archives Committee	Friday, March 22 12:00 - 2:00 PM Hyatt Regency McCormick Place CC22A
Reception	Saturday, March 23 6:00 - 8:00 PM Shearaton Chicago Towers Michigan

Association of Bone and Joint Surgeons (ABJS)

CORR Editorial Meeting	Wednesday, March 20 7:00 - 8:00 AM Hyatt Regency McCormick Place CC10B
CORR Publishers Meeting	Wednesday, March 20 8:30 AM - 2:30 PM Hyatt Regency McCormick Place Boardroom 2
ABJS Executive Committee/ CORR Board of Trustees	Thursday, March 21 11:30 AM - 5:00 PM Hyatt Regency McCormick Place CC11A
CORR Reception	Friday, March 22 7:00 - 10:00 PM Trump International Hotel & Tower

Association of Residency Coordinators in Orthopaedic Surgery (ARCOS)

TAGME Assessment Skills Test	Tuesday, March 19 8:00 AM - 2:00 PM Hyatt Regency Chicago Dusable
Reception	Tuesday, March 19 6:00 - 8:00 PM Hyatt Regency Chicago Wrigley

Annual Meeting	Wednesday, March 20 7:00 AM - 5:00 PM Hyatt Regency Chicago Crystal A-B
Annual Meeting	Thursday, March 21 7:00 AM - 5:00 PM Hyatt Regency Chicago Crystal A-B
Annual Meeting	Friday, March 22 7:00 AM - 5:00 PM Hyatt Regency Chicago Crystal A-B

Balboa Naval Hospital

Alumni Reception	Friday, March 22 6:00 - 9:00 PM Palmer House Hilton Hancock Parlor

Brown Medical School/Rhode Island Hospital Department of Orthopaedics

Alumni Reception	Thursday, March 21 6:00 PM - 9:00 PM Hyatt Regency McCormick Place Regency B

California Orthopaedic Association

Board of Directors Meeting	Thursday, March 21 6:30 - 10:00 AM Hyatt Regency McCormick Place CC10-A

Cervical Spine Research Society (CSRS)

Executive Committee Meeting	Friday, March 22 10:00 AM - 3:00 PM McCormick Place Lakeside, Room E253b

Cincinnati Sports Medicine Fellowship Alumni

Reception	Thursday, March 21 6:00 - 9:00 PM Hyatt Regency McCormick Place CC21-A

Cleveland Clinic

Alumni Reception	Friday, March 22 6:00 - 8:00 PM Hyatt Regency Chicago Addams

Clinical Orthopaedic Society

Board of Directors Meeting	Wednesday, March 20 12:00 - 2:00 PM Hyatt Regency McCormick Place CC12-A

Community Health System (CHS)

Reception	Wednesday, March 20 5:00 - 7:00 PM Omni Chicago Hotel 676 N. Michigan, 4th Floor (Picasso B)

Drew University

Alumni Reception	Friday, March 22 6:00 - 9:00 PM Hilton Chicago Astoria

Drexel University College of Medicine

Alumni Reception	Thursday, March 21 6:00 - 7:00 PM Palmer House Hilton Medinah

Einstein/Montefiore Orthopaedics

Alumni Reception	Thursday, March 21 6:00 - 9:00 PM Chicago Marriott Downtown 540 N Michigan Avenue Avenue Ballroom

Emory Orthopaedics/Kelly Society

Reception	Friday, March 22 6:00 - 8:00 PM Hilton Chicago Private Dining Room 4

Federation of Spine Associations (FOSA)

Executive Committee Meeting	Saturday, March 23 6:15 - 8:15 am McCormick Place Room S106b

Florida Orthopaedic Society

Board of Directors Meeting	Thursday, March 21 3:00 - 5:00 PM Hyatt Regency McCormick Place CC10-D

Foot Club

Luncheon	Saturday, March 23 12:00 - 1:00 PM Hyatt Regency McCormick Place Meeting Suite 1

Foundation for the Advancement in Research

12th Annual Board of Directors and Guest Luncheon	Thursday, March 21 11:30 AM - 1:30 PM Hyatt Regency McCormick Place Regency D

Alumni Reception	Friday, March 22 7:00 - 10:00 PM Hyatt Regency McCormick Place CC21-B

Freiberg Society

Reception	Thursday, March 21 6:30 - 9:00 PM Hyatt Regency Chicago Atlanta

George Washington University

Alumni Reception	Friday, March 22 6:30 - 8:30 PM Westin Chicago River North Executive

Growing Spine Foundation

Board of Directors Meeting	Tuesday, March 19 10:00 AM - 1:00 PM Sheraton Chicago Huron

Harvard Combined Orthopaedic Residency Program

Alumni Reception	Friday, March 22 6:00 - 8:00 PM Westin Chicago River North Grand Ballroom A

Henry Ford Orthopaedic Alumni Reception

Reception	Friday, March 22 6:00 - 8:00 PM Smith & Wollensky 318 N. State Street Flag/Clock Rooms

Herodicus Society

Reception	Friday, March 22 6:00 - 10:00 PM Union League Club of Chicago 65 W. Jackson Boulevard

Hospital for Special Surgery

Alumni Meeting	Thursday, March 21 11:00 - 3:00 PM Hyatt Regency McCormick Place CC21-A
Alumni Meeting	Friday, March 22 11:00 AM - 3:00 PM Hyatt Regency McCormick Place CC21-A
Alumni Reception	Friday, March 22 6:00 - 8:00 PM University Club of Chicago 76 E. Monroe Street
Special Friends of the Alumni Association Breakfast	Friday, March 22 7:00 - 9:00 AM Hyatt Regency McCormick Place Regency E

Hughston Society

Alumni Reception	Friday, March 22 6:00 - 8:00 PM Palmer House Hilton Monroe

Indiana University

Orthopaedic Reception	Thursday, March 21 6:00 - 8:00 PM Chicago Marriott Downtown 540 N Michigan Avenue

International Congress for Joint Reconstruction (ICJR)

Board of Directors Meeting	Thursday, March 21 9:00 AM - 5:00 PM Hyatt Regency McCormick Place Meeting Suite 4

International Society for Technology in Arthroplasty (ISTA)

Board of Directors Meeting	Wednesday, March 20 4:00 - 6:00 PM Hyatt Regency McCormick Place C22-A

International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS)

Executive Committee Meeting	Monday, March 18 8:00 AM - 5:00 PM Hilton Chicago Boulevard C
Committee Meeting	Tuesday, March 19 7:00 AM - 5:00 PM Hilton Chicago Boulevard A
Committee Meeting	Tuesday, March 19 7:00 AM - 5:00 PM Hilton Chicago Boulevard B
Committee Meeting	Tuesday, March 19 7:00 AM - 5:00 PM Hilton Chicago Boulevard C
Committee Meeting	Wednesday, March 20 7:00 AM - 5:00 PM Hilton Chicago Boulevard A-B
Committee Meeting	Thursday, March 21 7:00 AM - 5:00 PM Hilton Chicago Boulevard A

International Society of Orthopaedic Surgery & Traumatology (SICOT)

US Section Board Meeting	Friday, March 22 10:30 AM - 12:15 PM Hyatt Regency McCormick Place CC10D
US Section Luncheon	Friday, March 22 12:30 - 2:00 PM Hyatt Regency McCormick Place Regency B

Irish American Orthopaedic Society

Reception	Friday, March 22 6:00 - 9:00 PM Hyatt Regency McCormick Place Regency C

J. Robert Gladden Orthopaedic Society (JRGOS)

Board Meeting	Thursday, March 21 6:00 - 10:00 AM Hyatt Regency McCormick Place CC22
Annual Luncheon	Thursday, March 21 1:00 - 3:00 PM Hyatt Regency McCormick Place Regency AB
Medical Student Symposium Workshop	Thursday, March 21 3:00 - 6:00 PM Hyatt Regency McCormick Place CC10 BC
Medical Student Networking Reception	Thursday, March 21 6:00 - 7:30 PM Hyatt Regency McCormick Place Regency C
Trilogy Breakfast	Friday, March 22 9:00 - 10:30 AM Hyatt Regency McCormick Place Regency CD

Johns Hopkins Orthopaedic Surgeons

Alumni Reception	Thursday, March 21 6:00 - 9:00 PM Hyatt Regency McCormick Place CC10-A

Journal of Bone and Joint Surgery (JBJS)

Ad Sales Meeting	Tuesday, March 19 5:00 - 7:00 PM Hyatt Regency Chicago Atlanta
Newsletter Editors Meeting	Thursday, March 21 6:00 - 7:30 AM Hyatt Regency McCormick Place CC10-D
Deputy Editors Reception	Thursday, March 21 6:00 - 7:30 PM Hilton Chicago Normandie Lounge
Deputy Editors Breakfast	Friday, March 22 6:00 - 9:00 AM Hyatt Regency McCormick Place CC10-D

Lenox Hill Hospital Orthopaedics/Staff

Alumni Reception	Thursday, March 21 7:00 - 9:00 PM Hyatt Regency McCormick Place CC22-C

Limb Lengthening and Reconstruction Society (LLRS)

Executive Board Meeting	Thursday, March 21 5:30 - 9:00 PM Hilton Chicago Pullman

Loma Linda University, Orthopaedic Surgery

Reception	Thursday, March 21 6:00 - 8:30 PM Hyatt Regency Chicago Crystal C

Long Island Jewish Alumni Association

Reception	Friday, March 22 6:00 - 7:30 PM Sheraton Chicago Missouri

Loyola University Chicago, Sofield

Reception	Friday, March 22 6:00 – 9:00 PM Loyola University Museum of Art 820 N. Michigan Ave

LSU Health Shreveport, Department of Orthopaedic Surgery

Alumni Reception	Thursday, March 21 6:30 - 8:30 PM Hilton Chicago Joliet

LSU New Orleans Orthopaedic Alumni Association

Alumni Reception	Wednesday, March 20 6:30 - 8:30 PM Hyatt Regency Chicago Buckingham

Massachusetts General Hospital

ISAR Meeting	Thursday, March 21 4:00 - 7:00 PM Hilton Chicago Marquette

Mayo Clinic Orthopedic Alumni Association

Reception	Friday, March 22 5:00 - 8:00 PM Hilton Chicago Marquette

Medical College of Virginia

Alumni Reception	Thursday, March 21 6:00 - 8:00 PM Hyatt Regency Chicago New Orleans

Medical College of Wisconsin

Reception	Friday, March 22 6:00 - 8:00 PM Peninsula Chicago Water Tower Park I & II

Medical University of South Carolina

Alumni Reception	Friday, March 22 7:00 - 10:00 PM Hyatt Regency Chicago CC21-B

Meniscus Transplantation Study Group

Meeting	Thursday, March 21 1:00 - 3:30 PM Hyatt Regency McCormick Place Regency E

Mid-America Orthopaedic Association

Finance Committee Meeting	Friday, March 22 9:30 - 10:30 AM Hilton Chicago Joliet
Board of Directors Meeting	Friday, March 22 10:30 - 2:30 PM Hilton Chicago Joliet

Mount Sinai Orthopaedics

Alumni Reception	Thursday, March 21 6:30 - 8:30 PM Hyatt Regency McCormick Place CC23-B

Musculoskeletal Transplant Foundation (MTF)

Board of Directors Meeting	Friday, March 22 7:30 AM - 1:00 PM Fairmont Chicago Embassy

Musculoskeletal Tumor Society (MSTS)

Executive Committee Meeting	Friday, March 22 12:00 - 5:00 PM Hyatt Regency McCormick Place CC21-B

National Board of Certification of Orthopedic Physician Assistants (NBCOPA)

Business Meeting	Tuesday, March 19 7:30 AM - 4:30 PM Chicago Marriott Downtown 540 N. Michigan Avenue

Nth Dimensions

Reception	Wednesday, March 20 5:30 - 7:30 PM Hyatt Regency McCormick Place Meeting Suite 4

Northwestern University Orthopaedics

Alumni Reception	Friday, March 22 6:00 - 9:00 PM Robert H. Lurie Comprehensive Cancer Center 303 E. Superior Ryan Family Atrium

NYOH Alumni Association / Columbia Orthopaedics

Cocktail Reception	Friday, March 22 6:00 - 9:00 PM Hilton Chicago Grand Tradition

NYU Hospital for Joint Diseases

Alumni Reunion	Friday, March 22 6:00 - 9:00 PM Chicago Marriott Downtown 540 N. Michigan Avenue

NYU Langone Hospital for Joint Diseases

Alumni Reception	Friday, March 22 6:00 - 9:00 PM Omni Chicago Hotel 676 N. Michigan

Ohio State University Alumni/ Columbus Orthopaedic Society

Reception	Thursday, March 21 6:00 - 8:00 PM Hyatt Regency Chicago McCormick

Orthopaedic Laser Society of North America

Annual Meeting	Thursday, March 21 7:00 - 9:00 AM Hyatt Regency McCormick Place CC11-A

Orthopaedic Trauma Association (OTA)

Military Committee	Wednesday, March 20 7:00 - 8:00 AM Hyatt Regency McCormick Place Meeting Suite 4

Classification and Open Fracture	Wednesday, March 20 8:00 - 11:00 AM Hyatt Regency McCormick Place Meeting Suite 3
Research Committee	Wednesday, March 20 11:00 AM - 1:00 PM Hyatt Regency McCormick Place CC10C
Education Committee	Wednesday, March 20 12:00 - 2:00 PM Hyatt Regency McCormick Place CC10A
Fund Development Committee	Wednesday, March 20 1:00 - 2:00 PM Hyatt Regency McCormick Place Meeting Suite 2
Board of Directors Meeting	Wednesday, March 20 6:00 - 10:00 PM Hyatt Regency McCormick Place Regency B
Practice Management Committee	Thursday, March 21 7:00 - 8:00 AM Hyatt Regency McCormick Place Meeting Suite 4
Disaster Management Committee	Thursday, March 21 8:00 -9:00 AM Hyatt Regency McCormick Place Meeting Suite 3
Fellowship Directors Meeting	Thursday, March 21 11:00 AM - 12:00 PM Hyatt Regency McCormick Place CC10BC
HWB Meeting	Thursday, March 21 11:00 AM - 2:30 PM Hyatt Regency McCormick Place Regency C
COTA Meeting	Thursday, March 21 11:30 AM - 2:00 PM Hyatt Regency McCormick Place CC22C
Fellowship Committee	Thursday, March 21 12:00 - 1:00 PM Hyatt Regency McCormick Place CC10BC
Membership Committee	Thursday, March 21 12:00 - 1:00 PM Hyatt Regency McCormick Place Meeting Suite 2
Public Relations Committee	Thursday, March 21 2:30 - 3:30 PM Hyatt Regency McCormick Place Meeting Suite 2
Basic Science Focus Forum Committee	Friday, March 22 7:30 -8:30 AM Hyatt Regency McCormick Place CC23B
International Relations Committee	Friday, March 22 8:00 - 9:00 AM Hyatt Regency McCormick Place CC23A
Health Policy Committee	Friday, March 22 1:00 - 2:00 PM Hyatt Regency McCormick Place Meeting Suite 4

Orthopaedics Overseas Program

Directors Council Meeting	Thursday, March 21 5:00 - 6:30 PM Palmer House Hilton Wrigley Parlor
Annual Luncheon	Friday, March 22 12:00 - 2:00 PM Palmer House Hilton Adams

Pediatric Orthopaedic Society of North America (POSNA)

Board of Directors Meeting	Wednesday, March 20 9:30 AM - 3:30 PM Hyatt Regency McCormick Place CC21

Penn State College of Medicine

Alumni & Friends Reception	Friday, March 22 6:30 - 8:30 PM Palmer House Hilton Medinah Parlor

Piedmont Orthopedic Society

Mid-Winter Meeting	Friday, March 22 6:30 - 8:30 PM Sheraton Chicago Michigan

Puerto Rico Orthopedic Society (SPOT) Alumni Night

Alumni Reception	Thursday, March 21 7:00 - 10:00 PM Hilton Chicago Conference Room 4A

Rush University Medical Center - Orthopaedic Alumni Association

Cocktail Reception	Friday, March 22 6:00 - 9:00 PM Midwest Orthopaedics at Rush 1611 W. Harrison Street

Ruth Jackson Orthopaedic Society (RJOS)

Board of Directors Meeting	Tuesday, March 19 12:00 - 3:30 PM Palmer House Hilton Spire Room
2013 Annual Meeting	Tuesday, March 19 5:00 - 9:00 PM Palmer House Hilton Monroe
2013 Breakfast Meeting	Wednesday, March 20 6:30 - 10:00 AM Hyatt Regency McCormick Place Regency A
2013 Resident/Student Workshop	Wednesday, March 20 10:00 AM - 2:00 PM Hyatt Regency McCormick Place CC22

Saint Louis University School of Medicine

Alumni Reception	Friday, March 22 6:00 - 9:00 PM Sheraton Chicago Huron

Sandia Orthopaedic Alumni Society

Alumni Reception	Friday, March 22 6:30 - 8:30 PM Fairmont Chicago Ambassador

Scripps LER Fellows

Reunion	Thursday, March 21 5:30 - 8:00 PM Hyatt Regency McCormick Place CC20-C

SFORP 47th Annual Alumni Reception

Alumni Reception	Friday, March 22 6:00 - 9:00 PM Hyatt Regency Chicago New Orleans

SIROT Executive Committee Meeting

Dinner	Thursday, March 21 6:00 - 9:00 PM Fairmont Chicago Diplomat

Society of Military Orthopaedic Surgeons

Board of Directors Meeting	Thursday, March 21 3:00 - 7:00 PM Hyatt Regency McCormick Place CC12-A
Reception	Thursday, March 21 7:00 - 10:00 PM Hyatt Regency McCormick Place Regency A

Southern California Orthopedic Institute (SCOI)

Sports Medicine Fellowship Reception	Friday, March 22 8:00 - 11:00 PM Hyatt Regency Chicago Acapulco

St. Luke's Roosevelt Orthopaedics

Alumni Reception	Friday, March 22 7:00 - 9:00 PM Fairmont Chicago Royal

SUMMA/Akron City Hospital

Alumni Reception	Thursday, March 21 6:00 - 9:00 PM Hyatt Regency Chicago Burnham

SUNY Stony Brook Department of Orthopaedics

Alumni Reception	Friday, March 22 6:00 - 8:00 PM Hyatt Regency Chicago Field

Tufts Medical Center & New England Baptist Orthopaedics

Alumni Reception	Friday, March 22 6:00 - 8:00 PM Westin Chicago River North Promenade A-B

UAMS Alumni & Arkansas Orthopaedic Society

Reception	Thursday, March 21 6:30 - 8:30 PM Hyatt Regency Chicago Wrigley

UC San Diego Orthopaedic Surgery

Alumni Reception	Thursday, March 21 6:00 - 9:00 PM John Hancock Building The Signature Room at the 95th 875 N. Michigan Avenue

UCLA Orthopaedic Surgery

Alumni Reception	Friday, March 22 6:00 - 8:00 PM Hyatt Regency Chicago Buckingham

UCSF Alumni/Abbott Society

Reception
Thursday, March 21
6:00 - 9:00 PM
Fairmont Chicago
Regal

UMDNJ - Robert Wood Johnson Medical School

Alumni Reception
Friday, March 22
5:00 - 7:00 PM
Chicago Marriott Downtown
540 N Michigan Avenue

University of Chicago

Alumni Reception
Friday, March 22
6:30 - 8:30 PM
Palmer House Hilton
Grant Park Parlor

University of Connecticut Health Center

Alumni Reception
Thursday, March 21
6:00 - 8:00 PM
Hyatt Regency McCormick Place
CC22-A

University of Florida - Department of Orthopaedics

Alumni Reception
Friday, March 22
6:30 - 9:30 PM
John Hancock Building
The Signature Room at the 95th
875 N. Michigan Avenue

University of Illinois at Chicago

Alumni Reception
Thursday, March 21
7:00 - 8:30 PM
Hyatt Regency McCormick Place
Regency E

University of Iowa

Alumni Reception
Friday, March 22
6:00 - 8:00 PM
Ritz Carlton Hotel
160 East Pearson Street
Concorde Room

University of Kansas Medical Center - Kansas City

Alumni Reception/Dinner
Thursday, March 21
6:30 - 9:00 PM
Mike Ditka's Chicago
100 E. Chesnut

University of Kansas-Wichita Orthopaedic Residency Program

Alumni Reception
Thursday, March 21
6.30 - 8.00 PM
Hyatt Regency Chicago
Dusable

University of Louisville

Alumni Reception
Thursday, March 21
4:00 - 6:00 PM
Hyatt Regency McCormick Place
Meeting Suite 3

University of Maryland

Alumni Reception
Thursday, March 21
7:00 - 10:00 PM
Palmer House Hilton
Water Tower Parlor

University of Massachusetts Medical School

Alumni Reception
Friday, March 22
6:00 - 9:00 PM
Hyatt Regency McCormick Place
CC21-A

University of Miami

Alumni Reception
Friday, March 22
6:00 - 8:00 PM
Hilton Chicago
Boulevard B

University of Michigan

Alumni Reception
Thursday, March 21
6:00 - 9:00 PM
Fairmont Chicago
200 N. Columbus
Chancellor Room

University of Minnesota Residency

Alumni Reception
Friday, March 22
6:00 - 8:00 PM
Palmer House Hilton
Water Tower

University of Missouri Orthopedic Association

Annual Reception
Thursday, March 21
6:30 - 8:30 PM
Hyatt Regency Chicago
Field

University of Pennsylvania

Alumni Reception
Friday, March 22
6:00 - 9:00 PM
Westin Chicago River North
Grand Ballroom C

University of Rochester

Alumni Reception
Friday, March 22
7:00 - 11:00 PM
Fairmont Chicago
Embassy

University of Texas Medical Branch, Department of Orthopaedic Surgery & Rehabilitation

Alumni Reception	Thursday, March 21 6:00 - 8:00 PM Four Seasons Hotel Chicago LaSalle Room

University of Toronto

Alumni Reception	Thursday, March 21 6:00 - 9:30 PM Fairmont Chicago Embassy

University of Utah

Alumni Reception	Friday, March 22 6:30 - 9:30 PM Sheraton Chicago Ohio

University of Virginia

Alumni Reception	Thursday, March 21 7:00 - 9:00 PM Hyatt Regency McCormick Place CC10-D

University of Wisconsin Orthopedics

Alumni Reception	Thursday, March 21 6:00 - 8:00 PM Fairmont Chicago Ambassador

Vanderbilt Orthopaedic Society Alumni and Friends

Alumni Reception	Friday, March 22 6:00 - 8:30 PM Hyatt Regency McCormick Place Regency B

Washington University/J. Albert Key Society

Alumni Reception	Friday, March 22 6:30 - 8:30 PM Fairmont Chicago Chancellor

Wayne State University Orthopaedic Surgery

Alumni Reception	Thursday, March 21 6:00 - 9:00 PM Hyatt Regency McCormick Place C11-B

West Virginia University

Alumni Reception	Friday, March 22 5:30 - 7:00 PM Hilton Chicago Private Dining Room 1

Willis C. Campbell Club

Alumni Reception	Friday, March 22 6:30 - 8:30 PM Hilton Chicago Boulevard A

WMU School of Medicine Orthopaedic Program

Reception	Thursday, March 21 5:00 - 7:00 PM Hyatt Regency Chicago San Francisco

Wright State

Alumni Reception	Friday, March 22 7:00 - 11:00 PM Palmer House Hilton Millennium

Yale Orthopedic Association

Reception	Thursday, March 21 6:00 - 8:00 PM Palmer House Hilton Grant Park Parlor

Active Fellows

A

Kristopher J. Aalderink, MD
Brian Abell, DO
Scott Marvin Abraham, MD
Mark S. Adickes, MD
Stephen E. Adolfsen, MD
Gurpal Singh Ahluwalia, MD
Sonya Sayed Ahmed, MD
Jaimo Ahn, MD, PhD
Tamara Alexandrov, MD
Richard Todd Allen, MD
Pamela G. Allen, MD
Abigail K. Allen, MD
Gilberto Jose Alvarado, MD
Mohana Amirtharajah, MD
Kane L. Anderson, MD
Rebecca L. Bennett Anderson, MD
Terrence Damon Anderson, MD
Shannon Antekeier, MD
Paul T. Appleton, MD
Nicole Louise Arcand, MD
Frank Michael Armocida, MD
Amarpal S. Arora, MD
Nomaan Ashraf, MD
Samer Attar, MD
Joshua D. Auerbach, MD
Raffi Stephen Avedian, MD
Steven A. Aviles, MD
Darin Awaya, MD

B

Dov A. Bader, MD
Ramin Bagheri, MD
Michael S. Bahk, MD
James Douglas Baker, MD
Gregory P. Ballard, MD
Larry S. Bankston Jr, MD
Wahid M. Baqaie, MD
Matthew Daniel Barber, MD
Aaron A. Bare, MD
Ted Marcus Barnett, MD
Jason A. Barry, MD
Aaron Michael Bates, MD
Stacy Gerald Beaty, MD
C. Dustin Bechtold, MD
Asheesh Bedi, MD
Jerome M. Benavides, MD
Miguel Arturo Berastain Jr, MD
Ryan Kirkhus Bergeson, MD
Patrick M. Birmingham, MD
Gary Takashiro Blum, MD
Cale Walter Bonds, MD
Herman G. Botero, DO
Torey Paul Botti, MD
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Timothy C. Bowlin, MD
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James William Boyle, MD
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Daniel Gabe Branham, MD
Joanna Garnas Branstetter, MD
James Louis Brezina Jr, MD
Glenn A. Brien, MD
Brian K. Brighton, MD
Sean Joseph Brimacombe, MD
Brian T. Brislin, MD
Ouida Lynna Brown, MD
Michael H. Brown, MD
Brandon Thomas Bruce, MD
Lance Michael Brunton, MD
Daniel Bullock, MD
Chadler Ryan Burgoyne, MD
Mohammad Umar Burney, MD
Michael W. Burris, MD
Jeffrey L. Bush, MD
Matthew Donald Bush, MD
Brandon Dubose Bushnell, MD
Jonathan E. Buzzell, MD
Joseph B. Byrne, MD

C

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Winfield Campbell Jr, MD
David R. Capiola, MD
Kendall E. Carll, MD
Sam Carter, MD
Jason D. Carter, MD
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Michael Su Chang, MD
Seth A. Cheatham, MD
Ryan Chen, MD
Ankur Chhadia, MD
Tony J. Choi, MD
Joseph Young Choi, MD, PhD
Cory G. Christiansen, MD
Benjamin I. Chu, MD
Angelo Ciminiello, MD
Jonathan James Clabeaux, MD
William C. Clark Jr, MD
Clifford Dana Clark, MD
Russell Jay Clark, MD
Avnish Neil Clerk, MD
Mark VanDuser Clough, MD
David Alan Coats, MD
Danielle Conaway, MD
Christopher Mark Cook, MD
Alfred Cook, MD
Minton Truitt Cooper, MD
Nicola Shamsey Corbett, MD
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Wesley K. Cox, MD
Michael Joseph Cox, MD
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Marcis A. Craig, MD
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Juan Esteban Cuartas, MD
Mary Rose Anne Cunningham-Bonan, MD

D

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D. Nicole Deal, MD
Michael DeFranco, MD
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Robert Corwin Detch, MD
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Robert C. Dews, MD
David Brian Dickerson, MD
Matthew V. Diltz, MD
Paul T. Dinh, MD
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Matthew J. DiPaola, MD
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Christopher Dodson, MD
Christopher M. Dolan, MD
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Christopher T. Donaldson, MD
Raymond Robert Drabicki, MD
Michael Duffy, MD
Naven Duggal, MD

E

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William Enright, MD
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Jason David Eubanks, MD
Andrea Evenski, MD

F

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G

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Catherine Eliazabeth Johnson, MD
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R

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Roman A. Sibel, MD
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Jonathan R. Snyder, MD
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Bradley Sparks, MD
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David Howard Strothman, MD
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Eric S. Stuffmann, MD
Jinsil Sung, MD
Justin Browing Swan, MD
Matthew Jay Swick, MD

T

Sascha Darius Taghizadeh, MD
Neil Arif Tayyab, MD
Cary R. Templin, MD
Richard Justin Thoms, MD
Thomas Ward Throckmorton, MD
Jason Christopher Tinley, MD
Stephen Leonard Tocci, MD
Albert Tom, MD
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Kimberly K. Tucker, MD
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Jonathan L. Tueting, MD
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Wakenda K. Tyler, MD
Max Tyorkin, MD

U

Christopher William Uggen, MD
Aniefiok Uyoe, MD

V

Jeffrey Jahan Vakil, MD
Christopher Sean Vara, MD
Amit B. Varma, MD
David A. Vasconcellos, MD
Michael A. Vazquez, MD
Oscar Vazquez, MD
Eleanor Fisher von Stade, MD

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Matthew Robert Wagner, MD
Chad Alan Waits, MD
Aaron J. Wallace, MD
Tony Wanich, MD
Christina M. Ward, MD
Russell A. Ward, MD
Brett Thomas Weinzapfel, MD, PhD
Lori Weiser, MD
Douglas Robert Weiss, MD
Glenn D. Wera, MD
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Sharese M. White, MD
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John J. Wild III, MD
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Benjamin S. Wilson, MD
Michael Allen Wind, MD
Bret Ryan Winter, MD
Gregory Paul Witkowski, MD
Grace E. Wong, MD
Corey A. Wulf, MD
Theresa O. Wyrick, MD

Y

Gautam P. Yagnik, MD
Shiraz Ahmad Younas, MD
Charles Robert Young, MD

Z

Jeremy P. Zebroski, MD

Associate Member – Osteopathic

Jeffrey Abbott, DO
Tracy Lee Bigelow, DO
Troy H. Caron, DO
Jeffrey John Carroll, DO
Brent Michael Damer, DO
Ariana DeMers, DO
Jason P. Dieterle, DO
Gregory N. Drake, DO
Jason Cecil Eck, DO
Jonathan W. Evans, DO
Randolph Joseph Grierson, DO
Patrick Guerrero, DO
Brent Scott Hines, DO
James Huddleston, DO
Eric K. Jepson, DO
Eric M. Lindvall, DO
Edward J. Lis, DO
Rohn Tyler McKee, DO
Michael A. Miranda, DO
Aaron Geoffrey Osborne, DO
Ronald J. Quam, DO
Adam Rosen, DO
William E. Saar, DO
John Schlechter, DO
Steven B. Shamash, DO
Michael Slimack, DO
Matthew Patrick Smith, DO
Aaron Leigh Sop, DO
Kalle Stidham, DO
Daniel J. Terpstra, DO
John Toth, DO
Jeffrey M. Vaughn, DO

Associate Member – Orthopaedic

Naftaly Attias, MD
Shahram Bozorgnia, MD
Nileshkumar Chaudhari, MD
Apostolos Dimitroulias, MD
Purushottam Arjun Gholve, MD
Viral Virenda Jain, MD
Gautam Kakade, FRCS, MD
Young-Min Kwon, MD, PhD
Val Lyons, MD
Irvin Oh, MD
Nata Zwi Parnes, MD
Shafic A. Sraj, MD
Mihir Thacker, MD
Yuji Umeda, MD
Madhusudhan R. Yakkanti, MD

Associate Member – Allied Specialty

Stacy Frye, MD
Nancy Marie Major, MD

Associate Member – Basic Science

M. Russell Giveans, PhD
Chunfeng Zhao, PhD

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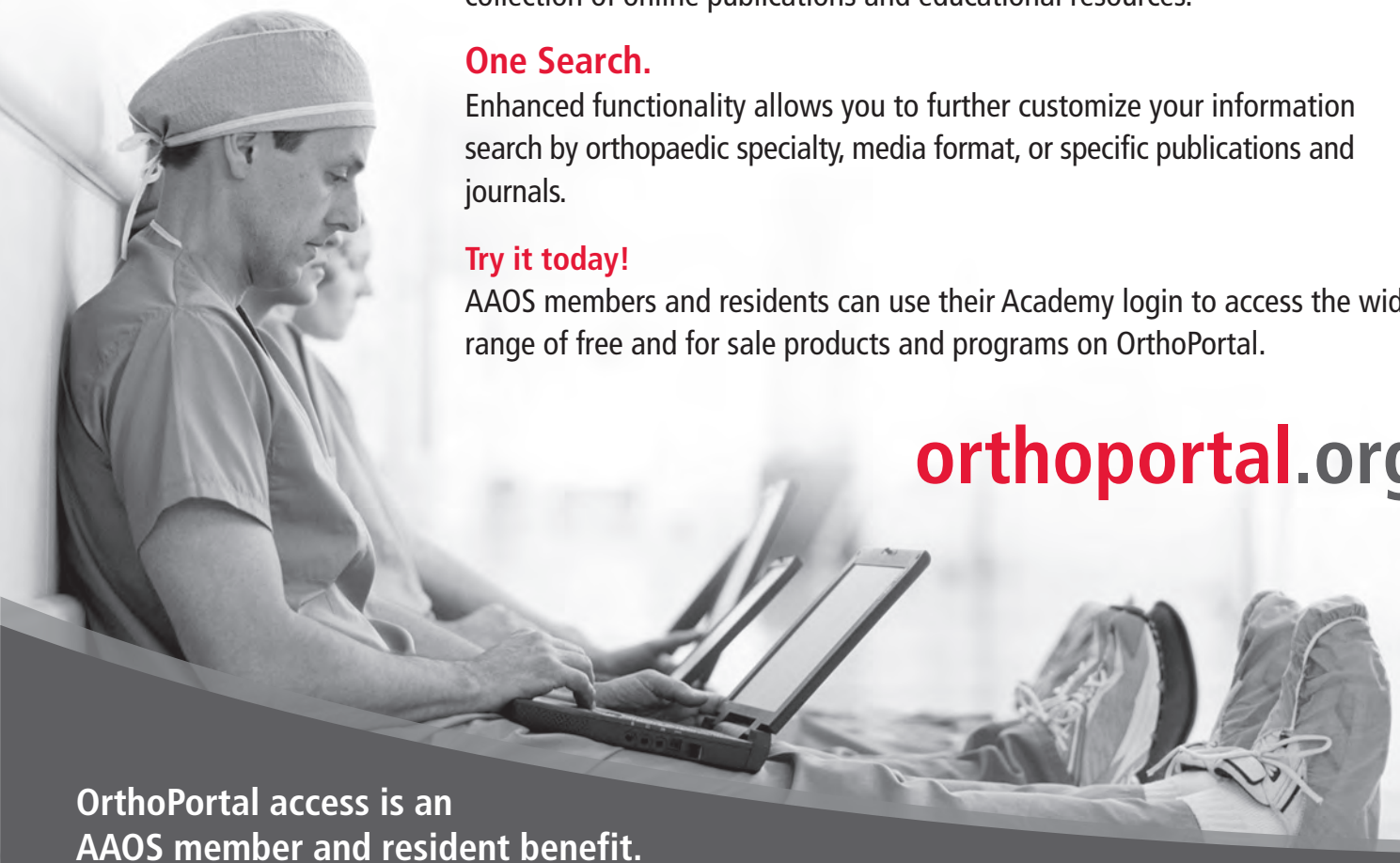

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Michele M. Zembo, MD, MBA
Alan Zhang, MD
Chunfeng Zhao, MD
Jacob Rothschild Zide, MD
Bashir A. Zikria, MD, MSc
Debra A. Zillmer, MD
Ryan M. Zimmerman, MD
Daniel Marc Zinar, MD
Bruce Ziran, MD
Lewis G. Zirkle Jr, MD
Dan Ariel Zlotolow, MD
Joseph D. Zuckerman, MD
David Zukor, MD
Robert D. Zura, MD
Marc Alan Zussman, MD
Gregory A. Zych, DO
Michael G. Zywiel, MD

Member Name	Date of Death	City, State
Joseph M. Abell Jr, MD	Unknown	Austin, TX
Robert G. Addison, MD	Unknown	Chicago, IL
Borden Bachynski, MD	7/7/2010	Regina, SK
Mahmoud Elnokrashi Ibrahim Bakr, MD	10/12/2012	Cairo, Egypt
Thomas J. Banton Jr, MD	12/25/2011	Joplin, MO
Alberto S. Barretto, MD	3/29/2012	Lady Lake, FL
Terry Lee Bartolet, MD	3/3/2012	Easton, PA
William R. Barton, MD	11/4/2012	Wheeling, WV
J. Gordon Bateman, MD	Unknown	Long Beach, CA
Paul J. Benca, MD	June 2011	Mercer Island, WA
William F. Benson, MD	8/11/2011	Prairie Village, KS
Ivar W. Birkeland Jr, MD	6/24/2012	Seattle, WA
Donald W. Blair, MD	6/29/2012	Des Moines, IA
Donald G. Bliss, MD	2/10/2012	Bremerton, WA
Bryant Allen Bloss, MD	9/30/2012	Newburgh, IN
Davis S. Boling, MD	8/4/2012	Tampa, FL
Jaren Douglas Bombach, MD	12/26/2011	Blacklick, OH
Charles E. Boring Jr, MD	10/24/2011	Sarasota, FL
George M. Boswell Jr, MD	12/5/2011	Dallas, TX
James B. Brooks, MD	3/18/2012	Owings Mills, MD
James S. Broome, MD	Unknown	Marion, MA
S. Pearce Browning III, MD	1/14/2010	Norwich, CT
Frank W. Budd, MD	7/5/2011	Duluth, MN
Irvin Cahen, MD	August 1993	Sun Valley, ID
William J. Callison, MD	5/11/2008	Asheville, NC
Thomas Campanella, MD	October 2007	Baton Rouge, LA
Edward D. Campbell Jr, MD	4/21/2012	Phoenix, AZ
Nathan Canter, MD	Unknown	Rochester, NY
Neal C. Capel, MD	2/4/2011	Bountiful, UT
Milton R. Carlson, MD	3/29/2007	Champaign, IL
Robert C. Carnahan, MD	1/8/2012	Casper, WY
James B. Carr, MD	12/31/2011	Roanoke, VA
Howard L. Cherry, MD	Unknown	Portland, OR
Paul K. F. Choi, MD	9/6/2011	Huntington Station, NY
Michael G. Clarke, MD	12/28/2011	Beaufort, SC
John M. Clough, MD	Unknown	Cleveland, OH
John E. Cobb, MD	12/4/2011	Lafayette, LA
Arthur M. Compton, MD	Unknown	Seattle, WA
Louis A. Coulson, MD	Unknown	Waterford, CT
Frank W. Cunningham, MD	10/7/2010	Rancho Palos Verdes, CA
James B. Dalton Jr, MD	Unknown	Richmond, VA
D. Bud Dickson, MD	8/10/2010	Magnolia, AR
Michael A. Di Cosola, MD	7/9/2009	Boca Raton, FL
A. N. Diodene, MD	7/18/2012	Plaquemine, LA
John L. Doherty Jr, MD	2/5/2012	Needham, MA
John A. Dolan, MD	7/24/2011	Hilton Head Island, SC
Richard W. Donaldson, MD	Unknown	Hixson, TN
Frank J. Dracos, MD	1/11/2012	Buck Hill Falls, PA
Marvin H. Dubansky, MD	5/16/2007	Cumming, IA
James J. Elting, MD	8/10/2012	Oneonta, NY
E. Burke Evans, MD	4/12/2012	Galveston, TX
Larry G. Ferachi, MD	10/19/2012	Baton Rouge, LA
M. Craig Ferrell, MD	5/28/2012	Franklin, TN
Howard E. Fishel, MD	1/11/2011	Newberg, OR
Samuel H. Fraerman, MD	6/2/2012	Highland Park, IL
Zachary B. Friedenberg, MD	1/27/2011	Philadelphia, PA
Scot J. Frost, MD	Unknown	Houston, TX
Clayton R. Gabbert, MD	7/22/2011	Ogden, UT
Bijan Ghovanlou, MD	9/22/2010	Potomac, MD
Alois E. Gibson, MD	9/9/2012	Indianapolis, IN
Joseph Hubert Giesen, MD	Unknown	Oakland, ME
Samuel F. Gill, MD	2/26/2012	Portland, OR
Paul H. Gislason, MD	9/10/2012	Kasota, MN
David M. Glazer, MD	11/1/2006	Highland Beach, FL
John W. Goodfellow, FRCS	August 2011	Oxford
William A. Grana, MD, MPH	2/1/2013	Tucson, AZ
Harold E. Halvorson, MD	10/11/2012	Reno, NV
William R. Hanna, MD	1/23/2011	Lima, OH
Herbert W. Harris, MD	1992	Tampa, FL
William L. Hassler, MD	7/8/2004	Elyria, OH
Cyril H. Hauser, MD	6/1/2012	Glenview, IL
Melvin M. K. W. Hayashi, MD	3/11/2012	Thousand Oaks, CA
Robert E. Heeter, MD	7/19/2012	Waconia, MN
Robert S. Heidt Sr, MD	May 2011	Cincinnati, OH
Robert K. Heineman, Jr MD	4/15/2012	Delmar, NY
Donald K. Hester, MD	1/8/2012	Long Beach, CA
Ernest B. Hidvegi, MD	9/8/2012	Atlanta, GA
Ivanhoe B. Higgins, MD	5/3/2012	Portland, OR
John T. Hocker, MD	2/25/2012	Jacksonville, FL
John Robert Huey, MD	2003	Okoboji, IA
William E. Hummel, MD	Unknown	Everett, WA
Munir T. Jabbur, MD	5/11/2012	Albany, NY
James Gibson Jackson III, MD	4/12/2008	New Smyrna Beach, FL
Edward L. Johnson, MD	Unknown	Seattle, WA
Herbert H. Joseph, MD	8/1/2011	Silver Spring, MD
John W. Jowsey, MD	9/23/2012	Calgary, AB
Hideo Paul Kageyama, MD	2011	Tucson, AZ
Bernard Kahn, MD	4/17/2011	Bluffton, SC
Thomas M. Kain III, MD	April 2012	Bryn Mawr, PA
Abel Kenin, MD	5/25/2012	Palm Beach, FL
William L. Kermond, MD	2/18/2012	Winchester, MA

Member Name	Date of Death	City, State
Alan R. Kightlinger, MD	8/22/2010	Cincinnati, OH
Richard E. King, MD	Unknown	Atlanta, GA
Edwin J. Kingsley, MD	2012	Carmel, CA
Clarence A. Klasinski, MD	6/6/2011	Stevens Point, WI
Duane M. Kline Jr, MD	11/27/2011	Cheyenne, WY
Harry H. Kretzler Jr, MD	2010	Seattle, WA
Patrick G. Laing, MD	3/28/2012	Pittsburgh, PA
John R. Lang, MD	2/1/2012	Walnut Creek, CA
Arlan P. Larson, MD	Unknown	Red Oak, TX
John W. Lee, MD	August 2008	Tustin, CA
Jack Levine, MD	Unknown	Pleasantville, NY
George Lim, MD	7/31/2011	New Hartford, NY
Ronald L. Linscheid, MD	6/10/2012	Rochester, MN
Norman D. Logan, MD	11/6/2011	Portland, OR
Joel W. Lubin, MD	3/1/2012	Davis, CA
Andrew M. Luh, MD	Unknown	Saint Louis, MO
John A. Lynch, MD	2/6/2012	Topeka, KS
William A. Mahon, MD	5/28/2012	Oswego, NY
Anthony J. Marano, MD	Unknown	Charlottesville, VA
Robert N. Margolis, MD	9/21/2011	Woodbridge, CT
Jeffrey Leonard Marxen, MD	2/23/2012	La Mesa, CA
Harold A. Mattson, MD	12/27/2010	Richardson, TX
E. Reid McAuley, MD	12/23/2011	Jacksonville, FL
Frank C. McCue III, MD	7/8/2012	Charlottesville, VA
Hugh Carroll McLeod III, MD	9/30/2011	Marietta, GA
William Meltzer, MD	10/27/2012	Highland Park, IL
James S. Miles, MD	4/13/2012	Amelia Island, FL
William A. Miller, MD	1/5/2012	Gainesville, FL
Robert E. Miller, MD	Unknown	Charlotte, NC
Tillman M. Moore, MD	6/30/2012	Bellingham, WA
Martin L. Morris, MD	7/11/2012	San Diego, CA
Daniel L. Morrison, DO	3/6/2012	Garden City, MI
Herman M. Nachman, MD	2/19/2005	Richmond, VA
Eugene A. Nutley, MD	2010	Santa Cruz, CA
James J. O'Connor, MD	7/15/2011	Mendota Heights, MN
Richard T. Okumura, MD	2/4/2012	San Jose, CA
Robert M. Palmer, MD	12/26/2010	Delaware, OH
Robert M. Patek, MD	9/30/2012	Morton Grove, IL
Robert F. Patterson Jr, MD	Unknown	Knoxville, TN
Hubert S. Pearlman, MD	4/16/2010	Saint George, ME
Lowell F. A. Peterson, MD	5/28/2012	Rochester, MN
George D. Picetti, MD	3/19/2010	Orinda, CA
Lumir C. Proshek, MD	5/31/2012	Excelsior, MN
Thomas J. Radley, MD	4/16/2011	Cincinnati, OH
James R. Ramey, MD	8/2/2010	Montgomery, AL
Premkumar Rangala, MD	8/26/2011	New Brunswick, NJ

Member Name	Date of Death	City, State
Edward J. Resnick, MD	10/25/2011	Bala Cynwyd, PA
Jordan M. Rhodes, MD	2009	Redondo Beach, CA
W. John Robb, MD	11/10/2011	Steamboat Springs, CO
Don R. Roberts, MD	2006	Saint Simons Island, GA
Frederick W. Rook, MD	June 2012	Springfield, VA
Ronald J. Rooney, MD	9/14/2012	New Orleans, LA
David L. Roter, MD	6/18/2012	Boulder, CO
Fred W. Sanders, MD	Unknown	Bellaire, TX
Subroto Sapardan, MD	7/10/2011	Jakarta Pusat, Indonesia
Gerhard Schmeisser Jr, MD	9/23/2012	Baltimore, MD
William Francis Schrantz, MD	5/13/2012	Stafford, VA
Thomas D. Sellers, MD	2004	Colorado Springs, CO
Henry H. Sherk, MD	4/9/2012	Philadelphia, PA
James E. Simpson, MD	Unknown	Williston, VT
Norman F. Sokoloff, MD	10/29/2005	Los Altos Hills, CA
William B. Stanton, MD	Unknown	Rockledge, FL
David Q. Steele, MD	6/27/2012	Wilcox, PA
Edwin S. Stempler, MD	8/5/2011	Palm Desert, CA
Marcus D. Stephanides, MD	8/26/2011	Salisbury, MD
George D. Stilwill, MD	1/23/2012	East Lansing, MI
Carl A. Stolberg, MD	3/11/2007	Pentwater, MI
William Stratford, MD	Unknown	Clarksville, TN
Charles M. Swindler, MD	10/2008	Ogden, UT
Joseph M. Tambornino, MD	1/31/2012	Minneapolis, MN
Albert H. Tannin, MD	1/1/2011	Redondo Beach, CA
Edward F. Thomas, MD	Unknown	Amarillo, TX
William H. Thomas, MD	11/18/2011	Chestnut Hill, MA
Steven Douglas Thompson, MD	10/7/2012	Houston, TX
Frank B. Throop, MD	2010	Indianapolis, IN
Samuel P. Todd Jr, MD	11/4/2011	Cincinnati, OH
Walter K. Urs, MD	10/10/2012	Edison, NJ
Gerald C. Vanden Bosch, MD	10/27/2012	Wilson, NC
Paul H. White, MD	Unknown	Port Isabel, TX
Jean-Pierre Williams, MD	2/20/2011	San Jose, CA
George G. Willis, MD	7/3/2009	Framingham, MA
Albert Willner, MD	11/17/2011	Coral Springs, FL
Albert A. Wilson, MD	9/2/2011	Tampa, FL
Richard N. Wrenn	Unknown	Charlotte, NC
Howard A. Wright, MD	Unknown	Horse Shoe, NC
Paul M. H. Yen, MD	7/5/2012	Thousand Oaks, CA
Wayne W. Zimmerman, MD	October 2011	Manchaca, TX

STANDARDS OF PROFESSIONALISM

Orthopaedic Surgeon-Industry Relationships

Adopted April 18, 2007; Amended April 23, 2012

AAOS Standards of Professionalism (SOPs) establish the minimum standards of acceptable conduct for orthopaedic surgeons. Violations of any SOP may result in professional compliance actions against an AAOS Fellow or Member found in violation. Not prepared using a systematic review, SOPs are developed through a consensus process and are ultimately adopted as official AAOS statements by the two-thirds vote of the AAOS Fellowship casting ballots.

The primary focus of the orthopaedic profession is care of the patient. As part of their lifetime commitment to patients, orthopaedic surgeons must maintain specialized knowledge and skills through participation in continuing medical education (CME) programs, seminars, and professional meetings. Often, these professional functions are sponsored by the manufacturers of medical devices, biologics, drugs and other items use in the care of the patient (Product). These businesses play an important role in the support of CME events and the development of new technologies. This collaborative effort ensures that patients have the best outcomes through the invention and testing of new technology, research and evaluation of existing technology, and continued education of orthopaedic surgeons.

Cooperative relationships between orthopaedic surgeons and industry benefit patients. Orthopaedic surgeons are best qualified to provide innovative ideas and feedback, conduct research trials, serve on scientific advisory boards, and serve as faculty to teach the use of new technology. Orthopaedic surgeons, in an effort to improve patient care, rely on industry to bring their creative ideas to fruition. A collaborative relationship between orthopaedic surgeons and industry is necessary to improve patient care, but must be carefully scrutinized to avoid pitfalls of improper inducements, whether real or perceived.

A potential conflict of interest exists when professional judgment concerning the well being of the patient has a reasonable chance of being influenced by other interests of the physician. Disclosure of a conflict of interest is required in communications to patients, the public and colleagues. Orthopaedic surgeons, like all physicians, have an ethical obligation to present themselves and the services they provide to patients in a clear and accurate manner.

When faced with a potential conflict of interest that cannot be resolved, an orthopaedic surgeon should consult with colleagues or an institutional ethics committee to determine whether there is an actual or potential conflict of interest and how to address it.

These Standards of Professionalism draw from the aspirational *Code of Medical Ethics and Professionalism for Orthopaedic Surgeons* that appears in bold italics. The statements that follow the **aspirational** *Code* establish the **mandatory** minimum standards of acceptable conduct for orthopaedic surgeons when engaged in relationships with industry. Violations of these minimum standards may serve as grounds for a formal complaint to and action by the AAOS as outlined in the AAOS Bylaws Article VIII.

The Standards of Professionalism on Orthopaedic Surgeon - Industry Relationships apply to all AAOS Fellows and Members. Only an AAOS Fellow or Member may file complaints of an alleged violation of these Standards of Professionalism regarding another AAOS Fellow or Member.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, I.A.:

The orthopaedic profession exists for the primary purpose of caring for the patient. The physician-patient relationship is the central focus of all ethical concerns.

Mandatory Standards:

1. An orthopaedic surgeon shall, while caring for and treating a patient, regard his or her responsibility to the patient as paramount.
2. An orthopaedic surgeon shall prescribe products or other treatments primarily on the basis of medical considerations and patient needs, regardless of any direct or indirect interests in or benefit from industry.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, II. C.:

The orthopaedic surgeon should obey all laws, uphold the dignity and honor of the profession, and accept the profession's self-imposed discipline. Within legal and other constraints, if the orthopaedic surgeon has a reasonable basis for believing that a physician or other health care provider has been involved in any unethical or illegal activity, he or she should attempt to prevent the continuation of this activity by communicating with that person and/or identifying that person to a duly-constituted peer review authority or the appropriate regulatory agency. In addition, the orthopaedic surgeon should cooperate with peer review and other authorities in their professional and legal efforts to prevent the continuation of unethical or illegal conduct.

Mandatory Standard:

3. An orthopaedic surgeon shall comply with all relevant federal and state conflict of interest and fraud and abuse laws.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, III.A.:

The practice of medicine inherently presents potential conflicts of interest. When a conflict of interest arises, it must be resolved in the best interest of the patient. The orthopaedic surgeon should exercise all reasonable alternatives to ensure that the most appropriate care is provided to the patient. If the conflict of interest cannot be resolved, the orthopaedic surgeon should notify the patient of his or her intention to withdraw from the relationship.

Mandatory Standards:

4. An orthopaedic surgeon shall, when treating a patient, resolve conflicts of interest in accordance with the best interest of the patient, respecting a patient's autonomy to make health care decisions.
5. An orthopaedic surgeon shall notify the patient of his or her intention to withdraw from the patient-physician relationship, in a manner consistent with state law, if a conflict of interest cannot be resolved in the best interest of the patient.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, III.C.:
When an orthopaedic surgeon receives anything of significant value from industry, a potential conflict exists which should be disclosed to the patient. When an orthopaedic surgeon receives inventor royalties from industry, the orthopaedic surgeon should disclose this fact to the patient if such royalties relate to the patient's treatment. It is unethical for an orthopaedic surgeon to receive compensation of any kind from industry for using a particular product. Fair market reimbursement for reasonable administrative costs in conducting or participating in a scientifically sound research clinical trial is acceptable.

Mandatory Standards:

6. An orthopaedic surgeon shall decline subsidies or other financial support from industry, except that an orthopaedic surgeon may accept non-monetary items which benefit patients or serve an educational function and which have a fair market value of less than $100.
7. An orthopaedic surgeon who has influence in selecting a particular product or service for an entity shall disclose any relationship with industry to colleagues, the institution and other affected entities.
8. An orthopaedic surgeon shall disclose to the patient any financial arrangements with industry that relate to the patient's treatment, including the receipt of inventor royalties, stock options or paid consulting arrangements with industry.
9. An orthopaedic surgeon shall accept no direct financial inducements from industry for utilizing a particular product or for switching from one manufacturer's product to another.
10. An orthopaedic surgeon shall enter into consulting agreements with industry only when such arrangements are established in advance and in writing to include evidence:
    - That there is an actual need for the service;
    - That the provision of the service will be verified;
    - That the compensation for services provided by the orthopaedic surgeon is based on fair market value;
    - That the compensation for services provided by the orthopaedic surgeon is not based on the volume or value of business he or she generates; and
    - That reimbursement for reasonable and actual expenses, such as modest meals, travel and lodging, incurred by the orthopaedic surgeon is based on appropriate need and accurate documentation.
11. An orthopaedic surgeon shall consult at only those meetings that are conducted in clinical, educational, or conference settings conducive to the effective exchange of basic science and/or clinical information.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, IV.A.:
The orthopaedic surgeon continually should strive to maintain and improve medical knowledge and skill and should make available to patients and colleagues the benefits of his or her professional attainments. Each orthopaedic surgeon should participate in continuing medical educational activities.

Mandatory Standards:

12. An orthopaedic surgeon shall accept no financial support from industry to attend industry-related social functions where there is no educational element.
13. An orthopaedic surgeon who is attending a CME event shall accept no industry financial support for attendance at a CME event. Residents and orthopaedists-in-training may accept an industry grant to attend a CME event if they are selected by their training institution or CME sponsor and the payment is made by the training program or CME sponsor. The industry entity funding the grant shall have no influence in the selection of the individual recipients. *Bona fide* faculty members at a CME event may accept industry-supported reasonable honoraria, travel expenses, lodging and modest meals from the conference sponsors.
14. An orthopaedic surgeon, when attending an industry-sponsored non-CME educational event, shall accept only tuition, travel and modest hospitality, including meals and receptions. The time and focus of the event must be for the presentation of *bona fide* scientific, educational or business information or training.
15. An orthopaedic surgeon, when attending an industry-sponsored non-CME educational event, shall accept no financial support for meals, hospitality, travel, or other expenses for his or her guests or for any other person who does not have a *bona fide* professional interest in the information being shared at the meeting.

Aspirational: AAOS Code of Medical Ethics and Professionalism for Orthopaedic Surgeons, III.D.:
An orthopaedic surgeon reporting on clinical research or experience with a given procedure or product must disclose any financial interest in that procedure or product if the orthopaedic surgeon or any institution with which that orthopaedic surgeon is connected has received anything of value from its inventor or manufacturer.

Mandatory Standards:

16. An orthopaedic surgeon, when reporting on clinical research or experience with a given procedure or product, shall disclose any financial interest in that procedure or product if he or she or any institution with which he or she is connected has received anything of value from its inventor, manufacturer, or distributor.
17. An orthopaedic surgeon who is an investigator shall make his or her best efforts to ensure at the completion of an industry-sponsored study that relevant research results are reported and reported truthfully and honestly with no bias or influence from funding sources, regardless of positive or negative findings.

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Saturday:	7:00 AM – 5:30 PM

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- Single session - $35 each
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Tuesday	8:00 AM – 6:00 PM
Wednesday – Friday	7:00 AM – 6:00 PM
Saturday	7:00 AM – 5:30 PM

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Share your research with orthopaedic surgeons from around the world at the **2014 Annual Meeting**. Nowhere else will your discoveries reach such a wide-ranging orthopaedic audience.

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Present your research to its best advantage on our user-friendly website.

ATTENTION SUBMITTERS: **DISCLOSURE RULES**

Submissions due June 1, 2013

All presenters and co-authors must disclose financial relationships in the AAOS Orthopaedic Disclosure Program. The disclosure must be entered or updated as of April 1, 2013. Abstracts will not be graded without all disclosures.

2014 Annual Meeting

March 11 - 15

New Orleans, LA

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Participants Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Index

Call For Abstracts

Contribute to the advancement of orthopaedic science and practice

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2014 Annual Meeting

March 11 - 15

New Orleans, LA

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American Academy of Orthopaedic Surgeons

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2014 Annual Meeting
March 11 – 15
New Orleans, LA

2015 Annual Meeting
March 24 – 28
Las Vegas, NV

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American Academy of Orthopaedic Surgeons

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