

## Subspecialty Rotation: Orthopedics

### Faculty:

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**GOAL:** Prevention and Screening (Orthopedics). Understand the pediatrician's role in preventing and screening for orthopedic injury, disease and dysfunction.

Screen for developmental dysplasia of the hip in the newborn nursery and at appropriate health maintenance visits:

1. Use competent physical examination techniques.
2. Use radiographs and ultrasonography appropriately.
3. Educate parents about the rationale for screening and referral.
4. Refer when indicated.
5. Introduce parents to the management options that the orthopedist may offer.

Screen for scoliosis on routine examinations (by exam and scoliometer) and refer as needed.

Describe school-based scoliosis screening programs and the benefits and inherent limitations of such strategies.

Screen for occult dysraphism.

Counsel families regarding risks and prevention of orthopedic injuries sustained from play near motor vehicles, lawn mowers, snow blowers, farm equipment, bicycles, snowmobiles, motorbikes and all-terrain vehicles.

Advise families about optimal weight and style of backpacks in order to prevent back injury.

**GOAL: Normal vs. Abnormal (Orthopedics). Differentiate normal variants from pathologic orthopedic conditions.**

Distinguish normal variations in foot, knee and leg development.

Distinguish normal variations in gait and posture.

Order and interpret (with the assistance of the radiologist) common diagnostic imaging procedures when evaluating and managing patients with orthopedic conditions: plain radiographs, body MRI, CT scan, radionuclide bone scans.

**GOAL: Undifferentiated Signs and Symptoms (Orthopedics). Evaluate and appropriately treat or refer presenting orthopedic signs and symptoms.**

Create a strategy to determine if the following presenting signs and symptoms are caused by an orthopedic condition, and if so, treat or refer appropriately:

1. Limp
2. Musculoskeletal pain
3. Refusal to walk or gait disturbance
4. Refusal to use a limb
5. Swollen or painful joint
6. Bowed legs or knock-knees
7. In-toeing or out-toeing

**GOAL: Common Conditions Not Referred (Orthopedics). Diagnose and manage common orthopedic conditions that generally do not require referral to an orthopedist.**

Recognize and manage the following conditions, with appropriate referral for physical therapy services for rehabilitation when indicated:

1. Calcaneal apophysitis
2. Clavicular fracture
3. Annular ligament subluxation/nursemaid's elbow
4. Elbow medial epicondyle apophysitis/little league elbow
5. Erb's palsy or Klumpke's palsy
6. Femoral anteversion and retroversion
7. Pes planus (flat feet)
8. Internal and external tibial torsion
9. Low back strain
10. Metatarsus adductus
11. Muscle strains
12. Non-displaced finger and toe fractures
13. Tibial tuberosity apophysitis (Osgood-Schlatter disease)

14. Overuse syndromes
15. Patellofemoral syndrome
16. Inversion/eversion ankle sprains
17. Thrower's shoulder/epiphysiolysis
18. Soft tissue contusion
19. Subluxation of the patella or shoulder
20. Rotator cuff injury/tendonitis

**GOAL: Conditions Generally Referred (Orthopedics). Recognize, provide initial management, and refer appropriately conditions that usually require orthopedic referral.**

Recognize, provide initial management of and refer appropriately the following conditions:

1. Avascular necrosis of the femoral head/Legg-Calve-Perthes disease
2. Signs of child abuse
3. Cervical spine injury
4. Compartment syndromes
5. Talipes equinovarus
6. Developmental dysplasia of the hip
7. Fractures and dislocations not listed above, including stress fractures
8. Knee ligament and meniscal tears or disruptions
9. Limb length discrepancies
10. Osteochondritis dissecans
11. Osteomyelitis
12. Scoliosis with >20 degree curve
13. Septic joint
14. Slipped capital femoral epiphysis
15. Spondylolysis or spondylolisthesis
16. Subluxation of the knee or shoulder
17. Benign and malignant bone tumors

Identify the role and general scope of practice of pediatric orthopedists; recognize situations where children benefit from the skills of specialists training in care of children; and work effectively with these professionals in the care of children with orthopedic conditions.

**GOAL: Therapeutic Procedures (Orthopedics). Acquire recommended proficiencies in orthopedic therapeutic procedures.**

Develop the expected level of proficiency in the following procedures:

1. Immobilization techniques for common fractures and sprains
2. Reduction of nursemaid's elbow
3. Cervical spine immobilization
4. Reduction of phalangeal dislocation

## **Procedures**

**GOAL: Technical and therapeutic procedures.** Describe the following procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.

Arthrocentesis

Immobilization techniques for common fractures & sprains

Reduction of nursemaid elbow

Reduction/splinting of simple dislocation

**GOAL: Diagnostic and screening procedures.** Describe the following tests or procedures, including how they work and when they should be used; competently perform those commonly used by the pediatrician in practice.

Radiologic interpretation: cervical spine X-ray

Radiologic interpretation: extremity X-ray

Radiologic interpretation: skeletal X-ray (incl. abuse)

Scoliosis, scoliometer

## **Source**

Kittredge, D., Baldwin, C. D., Bar-on, M. E., Beach, P. S., Trimm, R. F. (Eds.). (2004). APA Educational Guidelines for Pediatric

Residency. Ambulatory Pediatric Association Website. Available online: [www.ambpeds.org/egweb](http://www.ambpeds.org/egweb). [Accessed 03/03/2005]. Project to develop this website was funded by the Josiah Macy, Jr. Foundation 2002-2005.