

Musculoskeletal Occupational Injuries among Female Adult Reconstruction Surgeons

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Introduction

Occupational injuries are a prevalent and costly problem in healthcare in general and orthopaedics in particular. Orthopaedic surgery is a physically demanding surgical specialty that puts enormous pressure on the musculoskeletal system via forceful and repetitive maneuvers. A 1995 study by Mirbod et al. found a higher prevalence of subjective musculoskeletal complaints among orthopaedic surgeons compared to a similar cohort of general surgeons. Subspecialty-specific survey studies have been published on pediatric orthopaedic surgeons, spine surgeons, and orthopaedic trauma surgeons regarding occupational musculoskeletal injuries. Adult reconstruction is considered to be one of the more physically taxing orthopaedic subspecialties, and a 2016 study by Alqahtani et al. surveying adult reconstruction surgeons found that 66.1% reported having experienced a work-related injury. However, this study only included only 2% female respondents out of 183 total.

Because of the increased interest in diversifying the field of orthopaedic surgery combined with the relative lack of previously published occupational injury data including female surgeons, we sought to characterize occupational injuries in female adult reconstruction surgeons. We hypothesized that female adult reconstruction surgeons would have similar occupational injury rates compared with existing data in the literature including mostly male adult reconstruction surgeons.

Methods

This was a prospective study in which we used the occupational survey constructed by Alqahtani et al. as a framework, maintaining the same overall structure and specific questions regarding demographics, musculoskeletal complaint by region and injury treatment. The demographics section included age, practice type, number of years in practice, average number of cases per year, and hand dominance. The musculoskeletal regions were divided into neck, low back, shoulder, elbow, forearm/wrist/hand, hip and thigh, knee and lower leg, and foot and ankle. In each region, questions were asked regarding injury treatment (medical or surgical) as well as whether time off from work was taken as a result of the injury.

For our updated survey, we added questions regarding location of practice and orthopaedic subspecialty, a question as to whether an occupational injury required temporary modification of job performance, and a section regarding exacerbation of pregnancy-related musculoskeletal conditions.

A link of the anonymous, web-based survey was sent to female attending orthopaedic surgeon members of the American Association of Hip and Knee Surgeons (AAHKS) Women in Arthroplasty group, the Ruth Jackson Orthopaedic Society (RJOS), the Orthopaedic Women's Link (OWL, affiliated group of the Australian Orthopaedic Association), a Facebook group for female orthopaedic surgeons, and the authors' personal contacts. Survey respondents could only complete the survey once.

Injury Location by Number of Respondents

Injury Location	Total Respondents (%)
Anywhere	43 (68.3%)
Hand	34 (54%)
Shoulder	21 (33.3%)
Lower Back	19 (30.2%)
Neck	11 (17.5%)
Elbow	7 (11.1%)
Foot & Ankle	7 (11.1%)
Hip and Thigh	6 (9.5%)
Knee or Leg	5 (7.9%)

Table 1. Injury Location by Number and Percentage of Respondents: This shows that 68.3 percent of respondents reported an injury. The locations with the greatest number of injuries were the hand, shoulder and lower back.

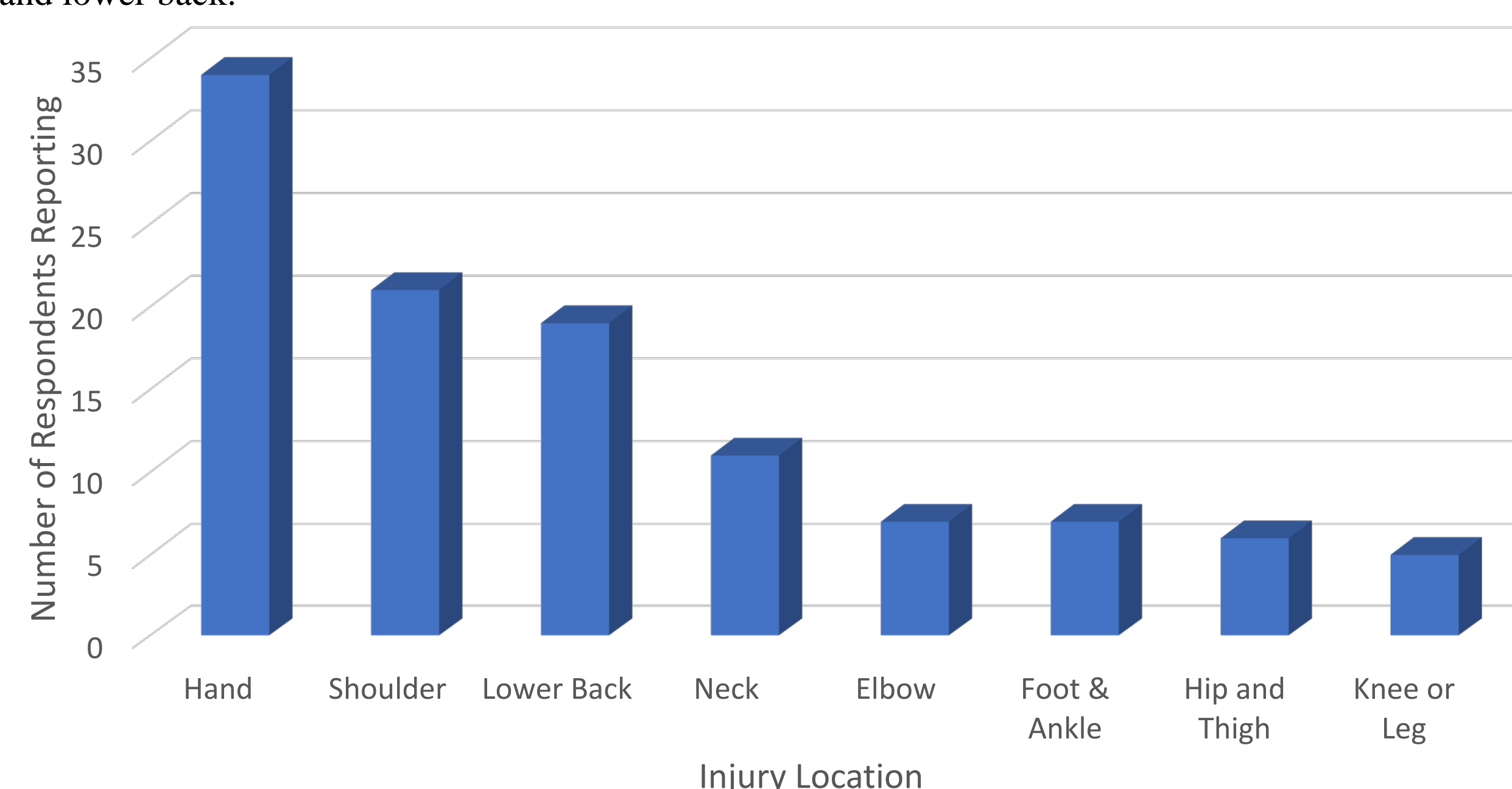


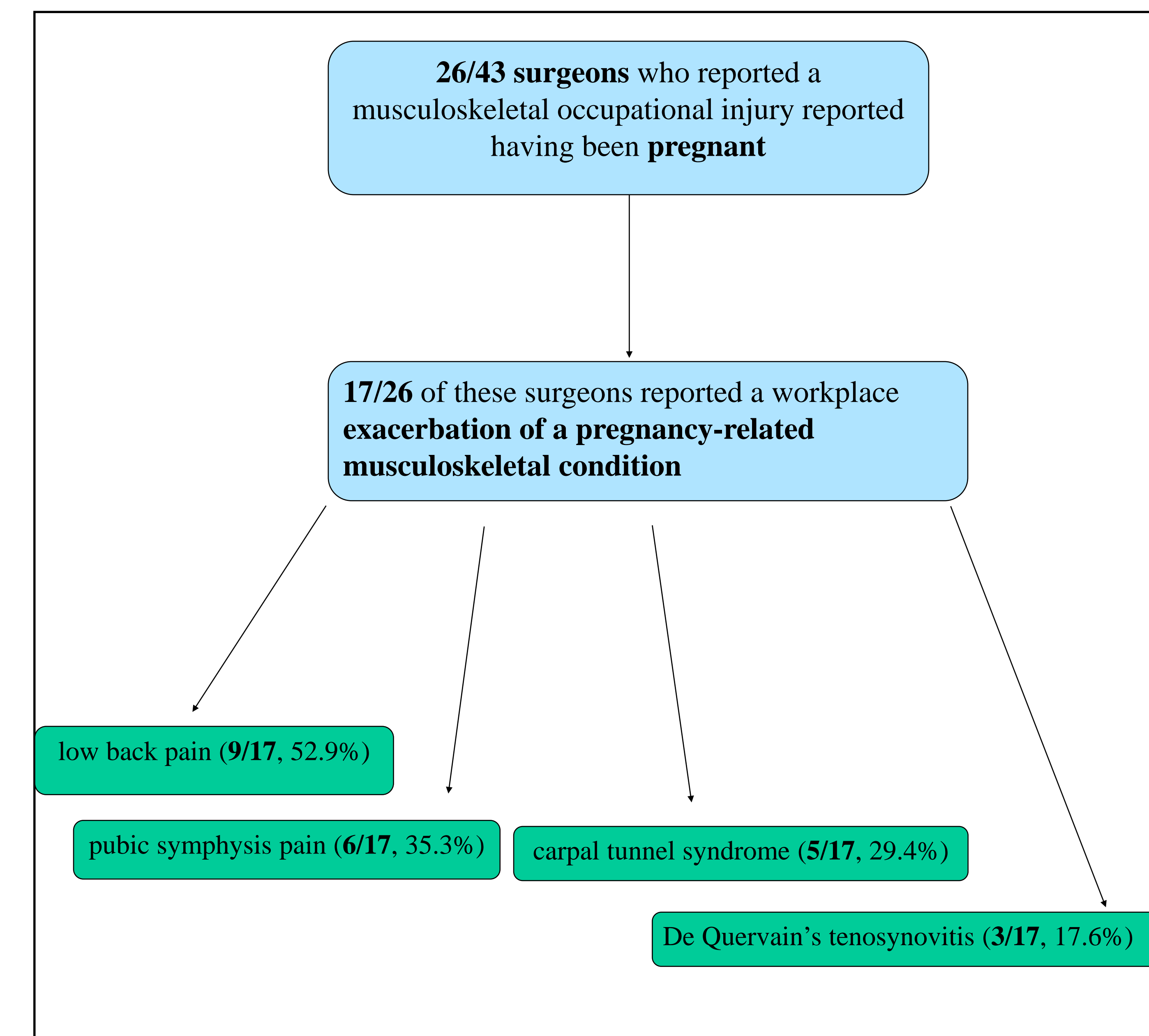
Figure 1: This figure shows the number of reported musculoskeletal injuries among surgeons with ≥1 Injury (%) by location: Hand, 34/43 (79.1%); Shoulder, 21/43 (48.8%); Lower Back, 19/43 (44.2%); Neck, 11/43 (25.6%); Elbow, 7/43 (16.3%); Foot and Ankle, 7/43 (16.3%); Hip and Thigh, 6/43 (14%); Knee or leg, 5/43 (11.6%).

Specific-Injuries by Number of Respondents

Specific Injury	Experienced Injury (%)
Shoulder Tendonitis/Impingement	14 (32.6%)
Carpal Tunnel Syndrome (non-pregnancy)	11 (25.6%)
Hand Osteoarthritis	10 (23.3%)
Lower Back Pain (non-pregnancy)	10 (23.3%)
Lower Back Pain (pregnancy)	10 (23.3%)
Radiating Neck Pain	9 (20.9%)
Sacroiliac Pain	8 (18.6%)
Lateral Epicondylitis	7 (16.3%)
Lumbar Disc Herniation	6 (14%)
Tendinitis of the Wrist/Forearm	6 (14%)
Pubic Symphysis Pain (pregnancy)	6 (14%)

Table 2. Specific injuries by Number and Percentage of Respondents: This shows that the most common injuries were shoulder tendonitis/impingement, carpal tunnel syndrome, hand osteoarthritis and lower back related to pregnancy and not related to pregnancy. This shows that the most common injuries were related to the upper extremity.

Pregnancy Related Injuries



Conclusions

Our survey of 63 female adult reconstruction surgeons found a 68.3% rate of musculoskeletal injury, similar to a previous study involving a mostly male group of adult reconstruction surgeons. However, the most commonly reported injury among our all female cohort involved forearm/wrist/hand injuries which we hypothesize is due to instrumentation size. Further studies should investigate the factors that contribute to these injuries and how they can be prevented.

References

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