

Extensor Mechanism Injuries of the Knee: Patient Demographics and Comorbidities from a Review of 726 Patients

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Purpose: Extensor mechanism injuries of the knee are common injuries. The purpose of this study was to describe and compare extensor mechanism injuries with regard to age, gender, body mass index (BMI), and medical comorbidities.

Methods: Patients undergoing surgical management of extensor mechanism injuries were queried at two separate institutions from 1986-2012. Data included age at time of surgery, gender, height, weight, and the presence of medical comorbidities. Chronic disruptions of the quadriceps or patellar tendon, those undergoing revision surgery, and injuries in the setting of total knee arthroplasty were excluded.

Results: 726 patients were included: 427 (58.8%) patella fractures (OTA classification 34 A-C), 210 (28.9%) quadriceps ruptures, and 89 (12.3%) patellar tendon ruptures. 67% of patella fractures were in females while 91% of quadriceps tendon and 95.5% of patellar tendon ruptures occurred in men ($P < 0.001$, Fig. 1). Age distribution was significantly different between the groups with quadriceps tendon ruptures averaging 61 ± 13.06 years (range, 20-92), patella fractures averaging 56.3 ± 17.4 years (range, 16-91), and patellar tendon ruptures averaging 39.5 ± 12.2 years (range, 18-72). Patella fractures showed a bimodal distribution with regard to both age and gender: the median age of females was 62 years (16-91) and the median age of males was 47 years (16-91), $P < 0.001$. BMI varied significantly between cohorts with patella fractures averaging 25 ± 5.2 kg/m², patellar tendon ruptures averaging 28.7 ± 4.97 kg/m², and quadriceps tendon ruptures averaging 30 ± 6.05 kg/m² ($P < 0.001$). 96% of females with quadriceps or patellar tendon injuries had an underlying medical comorbidity compared with 68% of males ($P = 0.008$). Of these comorbidities, 61% were considered to be risk factors for tendinopathy in the female cohort compared to only 34% in males ($P = 0.008$).

Conclusion: Our series of extensor mechanism injuries, the largest in the current literature, reveals striking demographic patterns. Females with extensor mechanism injuries are more likely to be older and to sustain patella fractures compared to men. Young males are more likely to sustain patellar fractures or patellar tendon ruptures; however, 43% of patients with patellar tendon ruptures were over the age of 40 years. Medical comorbidities are common in patients with tendon ruptures, but significantly more common in females when compared to males.

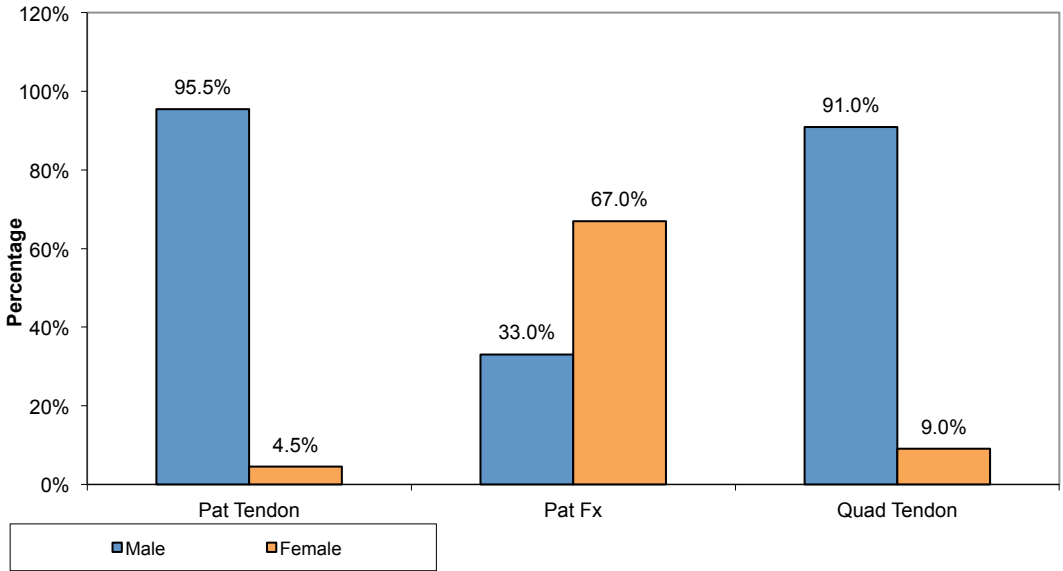


Figure 1: Percentage of male and female patients divided by injury type.