

## Patellofemoral Arthritis after Lateral Patellar Dislocation: A Matched Population-Based Analysis

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### Summary:

Patellar dislocation is a significant risk factor for patellofemoral arthritis as nearly half of patients have symptoms and radiographic changes consistent with arthritis at 25 years following lateral patellar dislocation.

### Abstract:

Background: The rate of patellofemoral arthritis after lateral patellar dislocation is unknown. Purpose/Hypothesis: The purpose of this study was to compare the risk of patellofemoral arthritis and knee arthroplasty between patients who experienced a lateral patellar dislocation and matched individuals without a patellar dislocation. Additionally, factors predictive of arthritis after patellar dislocation were examined. The hypothesis was that the rate of arthritis is likely higher among patients who experience a patellar dislocation compared with those who do not.

### STUDY DESIGN:

Cohort study; Level of evidence, 3.

### METHODS:

In this study, 609 patients who had a first-time lateral patellar dislocation between 1990 and 2010 were compared with an age- and sex-matched cohort of patients who did not have a patellar dislocation. Medical records were reviewed to collect information related to the initial injury, recurrent dislocation, treatment, and progression to clinically significant patellofemoral arthritis (defined as symptoms with degenerative changes on patellar sunrise radiographs). Factors associated with arthritis (age, sex, recurrence, osteochondral injury, trochlear dysplasia) were examined.

### RESULTS:

At a mean follow-up of  $12.3 \pm 6.5$  years from initial dislocation, 58 patients (9.5%) in the dislocation cohort were diagnosed with patellofemoral arthritis, corresponding to a cumulative incidence of arthritis of 1.2% at 5 years, 2.7% at 10 years, 8.1% at 15 years, 14.8% at 20 years, and 48.9% at 25 years. In the control cohort, 8 patients (1.3%) were diagnosed with arthritis, corresponding to a cumulative incidence of arthritis of 0% at 5 years, 0% at 10 years, 1.3% at 15 years, 2.9% at 20 years, and 8.3% at 25 years. Therefore, patients who experienced a lateral patellar dislocation had a significantly higher risk of developing arthritis (hazard ratio [HR], 7.8; 95% CI, 3.9-17.6;  $P < .001$ ) than individuals without a patellar dislocation. However, the risk of knee arthroplasty was similar between groups (HR, 2.8; 95% CI, 0.6-19.7;  $P = .2$ ). Recurrent patellar dislocations (HR, 4.5; 95% CI, 1.6-12.6), osteochondral injury (HR, 11.3; 95% CI, 5.0-26.6), and trochlear dysplasia (HR, 3.6; 95% CI, 1.3-10.0) were associated with arthritis after patellar dislocation.

### CONCLUSION:

Patellar dislocation is a significant risk factor for patellofemoral arthritis, as nearly half of patients have symptoms and radiographic changes consistent with arthritis at 25 years after lateral patellar dislocation. Osteochondral injury, recurrent patellar instability, and trochlear dysplasia are associated with the development of arthritis.