



MEDICAL DEVICE SURVEILLANCE AND ASSESSEMENT

Unit of Clinical Analysis

*Advancing surgical quality through data-driven insights, research,
and evidence-based best practices.*

Patient and Operative Risk Factors for Subsequent Knee Arthroplasty After Primary Anterior Cruciate Ligament Reconstruction

In a study published in *The American Journal of Sports Medicine*, Kaiser Permanente orthopedic surgeons and Medical Device Surveillance and Assessment researchers investigated the incidence of knee arthroplasty after ACLR, as well as identified patient and operative risk factors for knee arthroplasty after ACLR.

“As ACL reconstruction expands to older more active patients, this study emphasizes that arthroplasty risk is real and arrives earlier than many expect. The findings of this study can be used by sports surgeons to counsel patients on graft choice, expectations, and long-term joint preservation.” -- David Y. Ding, MD, Department of Orthopedic Surgery

Study Details

In a cohort of 52,222 primary ACL reconstructions, the 15-year incidence of knee arthroplasty was 1.6%, with arthroplasty occurring at a mean age of 56 years, about 12 years earlier than in the general population. Risk of knee arthroplasty increased with age and BMI and was influenced by several patient, injury, and surgical factors. Key findings included –

- Increasing age (≥ 40 years) and higher BMI were strong predictors of knee arthroplasty.
- Allograft use, female sex, trauma-related ACL injury, medical comorbidities, and chondral damage increased risk.
- During the follow up period, revision ACL surgery and subsequent ipsilateral or contralateral knee surgeries were associated with higher arthroplasty risk.

Practice Considerations

When counseling patients undergoing ACL reconstruction, physicians should recognize that increasing age is the strongest predictor of future knee arthroplasty. Allograft use is associated with approximately double the risk of subsequent knee arthroplasty compared with patellar tendon autograft, and this risk should be weighed alongside patient factors such as BMI, sex, comorbidities, injury mechanism, cartilage injury, and the likelihood of revision or additional knee surgery during long-term follow-up.

Link to Published Manuscript

Ding DY, Prentice HA, Reyes C, Paxton EW, Chen F, Maletis G (2025). **Patient and Operative Risk Factors for Subsequent Knee Arthroplasty After Primary Anterior Cruciate Ligament Reconstruction: A Cohort Study of 52,222 Patients** Am J Sports Med, 53 (10): 2370-2378.

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