



Association Between Drilling Techniques and Meniscal Reoperation Risk Following Anterior Cruciate Ligament Reconstruction

In a 2022 study published in *The American Journal of Sports Medicine*, MDSA researchers and KP orthopedic surgeons investigated whether there is a meniscal protective effect when using an anteromedial portal (AMP) versus transtibial (TT) femoral tunnel drilling technique. From 2009 to 2018, there were 2,711 TT and 5,172 AMP drilling primary isolated anterior cruciate ligament reconstruction (ACLR) procedures without concomitant meniscal pathology. Meniscal reoperation risk was evaluated with multivariable Cox regression.

AMP drilling for the femoral tunnel has been shown in some studies to have a higher revision rate. One hypothesis is that AMP drilling leads to more anatomic graft placement and thus more normal graft forces, as well as greater rotational stability. In this study we used subsequent meniscal surgery as an indirect way of evaluating postoperative stability. Surprisingly, the AMP technique only had a meniscal protective effect when used by a more experienced surgeon, indicating that the technique allows for better tunnel placement but does not, by itself, ensure better tunnel placement and meniscal protection.

Brent R. Davis MD, Department of Orthopaedic Surgery
Southern California Permanente Medical Group, Orange County, CA | Study Author

Study Results

- At 9-years follow-up the crude cumulative meniscal reoperation probability was 7.8% for AMP technique and 5.9% for TT technique.
- Surgeon experience with AMP was observed to modify the association between tunnel drilling technique and meniscal reoperation risk.
 - The direction of the association was toward a higher risk for AMP compared to TT for procedures performed by surgeons with less AMP experience (<10 previous AMP ACLR).
 - While the direction of the association was toward a lower meniscal reoperation risk for AMP compared to TT for procedures performed by more experienced surgeons (≥10 previous AMP ACLR).
 - A significantly lower reoperation risk was observed once a surgeon had ≥40 previous AMP ACLR (hazard ratio=0.34, 95% confidence interval=0.13-0.92).

Practice Considerations

There appears to be a learning curve associated with AMP drilling of the femoral tunnel for ACL surgery. One can expect improved results as experience with AMP drilling increases. Surgeons transitioning from a TT drilling to AMP drilling technique may benefit from assistance of a colleague with experience in the technique for their initial cases.

[Link to Full Publication](#)

Davis BR, Chang RN, Prentice HA, Tejwani SG, Morris AJ, Maletis GB (2022). **Association Between Anteromedial Portal versus Tibial Tunnel Drilling and Meniscal Reoperation Risk Following Anterior Cruciate Ligament Reconstruction: A Cohort Study** *Am J Sports Med*, 50 (9): 2374-2380.