

Peroneal Tendon Repair with Retrofibular Groove Deepening is Associated with Decreased Rates of Revision Peroneal Tendon Repair Procedures Compared to Repair without Groove Deepening: A Propensity-Matched Analysis

Sean Sequeira, Mitchell Tarka, Walter Chad Hembree, Heath Gould¹

¹Medstar Orthopaedic Institute

INTRODUCTION:

Peroneal tendon injury is a common sequela of recurrent lateral ankle instability. Damage to the superior peroneal retinaculum may lead to subluxation or dislocation of the peroneal tendons, which often results in longitudinal split tears of the peroneus brevis tendon that may require operative intervention. Surgical repair of the peroneal tendons can be performed in isolation or concomitantly with a retrofibular groove deepening procedure. Although some prior studies with limited follow up have suggested a potential return-to-sport benefit associated with groove deepening, no previous study has evaluated the impact of retrofibular groove deepening on long-term reoperation rates. The purpose of this investigation was to compare reoperation rates among patients who underwent peroneal tendon repair with groove deepening versus without groove deepening.

METHODS:

A large, nationwide insurance database was retrospectively reviewed to identify all patients who underwent peroneal tendon repair with and without retrofibular groove deepening and from 2010 and 2019. Patients who underwent peroneal tendon repair without groove deepening were matched to patients who underwent repair with groove deepening using a propensity scoring algorithm. The rates of reoperation including revision peroneal tendon repair as well as progression to ankle arthrodesis and total ankle arthroplasty (TAA) were compared between groups.

RESULTS:

A total of 12,591 patients who underwent peroneal tendon repair with groove deepening were matched to 12,591 patients who underwent repair without groove deepening. Patients who underwent peroneal tendon repair without groove deepening had a significantly higher risk (OR: 16.20; $p < 0.001$) of requiring a revision peroneal tendon procedure within two years postoperatively. However, there was no difference between groups with regard to the comparative risk of subsequent TAA and ankle arthrodesis within ten years.

DISCUSSION AND CONCLUSION:

Patients who underwent peroneal tendon repair without retrofibular groove deepening were over 15 times more likely to require revision peroneal tendon surgery compared to their propensity-matched counterparts who underwent groove deepening at the time of the index peroneal tendon repair. Whereas surgeons commonly reserve the groove deepening procedure for patients with a convex retrofibular morphology, the results of this study suggest that the indications for groove deepening may be expanded to reduce the risk of reoperation following peroneal tendon repair.