

# Repair technique predicts major and minor complications after Achilles tendon repair

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## INTRODUCTION:

Achilles tendon ruptures remain the most common tendon injury within the lower extremity. While the incidence continues to rise, changing immobilization protocols, techniques, and surgeon preferences have evolved over the past few decades. The purpose of this study was to characterize the major complication rate in acute Achilles tendon repair by 54 orthopedic surgeons in a heterogenous major metropolitan area.

## METHODS:

Achilles tendon repairs (CPT 27650) performed from January 2018 through December 2022 with a minimum two-month follow-up were identified. Patients were excluded if they had chronic tears that required reconstruction, underwent a revision repair/reconstruction, or were initially treated nonoperatively. 1036 Achilles tendon ruptures met inclusion criteria. The primary outcome measure was total major complication rate (reoperation, deep infection, tendon re-rupture, and loss of Achilles tension requiring re-operation). Minor complication rate (sural neuritis, superficial infection, delayed wound healing, heel pain, and loss of Achilles tension not requiring re-operation) was also documented. Complication rate by procedure type (open, percutaneous, suture anchor fixation), surgeon training, patient age, mechanism of injury, and rehabilitation protocol were recorded. Rehabilitation was considered expedited if patients were weight-bearing less than 4 weeks after surgery. Standard demographic data was noted. Descriptive statistics and multivariate regression were utilized.

## RESULTS:

The overall complication rate was 15.8%—with 3% (N=31) having major complications (Table 1). Patients were 4.0 and 2.2 times more likely, respectively, to experience a major ( $p=0.0152$ ) or minor complication ( $p=0.0039$ ) with suture anchor fixation compared to open technique. Suture anchor fixation patients were more likely to experience heel pain ( $p<0.01$ ). There were no differences in major or minor complication rates between patients who underwent an open or percutaneous fixation ( $p=0.6855$ ,  $p=0.1257$ ). There was no difference in complication rate (16.1% and 15.3%, respectively) between expedited and conservative rehabilitation protocols ( $P=0.738$ ). Smokers trended toward worse outcomes ( $OR=2.4$ ,  $p=0.0712$ ). Minor complication rate was higher amongst non-foot and ankle fellowship-trained surgeons ( $p=0.0314$ ), but not different for major complications ( $p=0.9760$ ).

## DISCUSSION AND CONCLUSION:

Acute Achilles tendon repair is associated with a major complication rate of 3% requiring reoperation. Patients undergoing suture anchor fixation of Achilles tendon injuries sustain major and minor complications at a significantly higher rate than percutaneous or open procedures. Heel pain is a significantly encountered complication in Achilles repair with suture anchor fixation. Expediting rehabilitation protocols continue to demonstrate similar results to conservative protocols encouraging physicians to advance patients weightbearing status within the first four weeks after surgery.

Ulcer/Amputation	1 (0.1%)
Deep Infection	1 (0.1%)
Tendon Rupture	1 (0.1%)
Reoperation	1 (0.1%)
Loss of Achilles Tension	1 (0.1%)
Superficial Infection	1 (0.1%)
Heel Pain	1 (0.1%)
Delayed Wound Healing	1 (0.1%)
Other	1 (0.1%)
Reoperation	1 (0.1%)
Deep Infection/Requiring Reoperation	1 (0.1%)
Tendon Rupture	1 (0.1%)
Reoperation/Loss of Achilles Tension	1 (0.1%)
Heel Pain	1 (0.1%)
Delayed Wound Healing	1 (0.1%)
Reoperation/Heel Pain	1 (0.1%)
Reoperation/Heel Pain	1 (0.1%)
Reoperation/Heel Pain	1 (0.1%)
Other	1 (0.1%)