



## Q/ Is nonoperative treatment effective for acute Achilles tendon rupture?

### EVIDENCE-BASED ANSWER

**A/ YES.** Nonoperative and open surgical interventions provide equal long-term functional outcomes of the affected Achilles tendon and ankle (strength of recommendation [SOR], **A**; based on 2 meta-analyses and a separate randomized controlled trial [RCT]). Although nonoperative management is associated with increased risk of re-rupture, it confers lower risk for complications including wound infection and nerve injury (SOR, **A**; based on meta-analysis and separate RCT).

Select individuals—high-performing athletes or those who otherwise require near-baseline strength and function of their Achilles tendon—would likely benefit from surgical intervention (SOR, **A**; based on meta-analysis and consensus recommendations).

Patients with comorbid conditions that would put them at greater risk for postoperative complications should be advised to consider nonoperative treatment of acute Achilles tendon rupture (SOR, **C**; based on consensus opinion).

### Evidence summary

#### Surgical repair: Re-injury risk goes down, complications risk goes up

A 2021 network meta-analysis including 38 RCTs (N = 2480) reported outcomes in patients ages 18 and older with acute Achilles tendon rupture (AATR) and 3 or more months of follow-up.<sup>1</sup> A significant increase in re-rupture rate was shown in patients who underwent nonoperative vs open repair (risk ratio [RR] = 2.41; 95% CI, 1.12-5.18). There was a significant decrease in wound-related complications in nonoperative vs open-repair patients (RR = 0.23; 95% CI, 0.06-0.88). There was also a significant difference in incidence of sural nerve injury in nonoperative vs open repair (RR = 0.27; 95% CI, 0.08-0.94). There were no significant differences in return to sport between open repair and nonoperative repair (RR = 0.62; 95% CI, 0.22-1.77). Insufficient data were reported to calculate the number needed to treat (NNT) and number needed to harm (NNH) for these outcomes.

Additionally, the authors looked at tra-

ditional standard rehabilitation and accelerated functional rehabilitation in both the operative and the nonoperative setting. The type of rehabilitation program did not have a significant impact on complications of re-rupture, wound, or sural nerve injury.

The included studies had an overall low risk of publication bias based on Begg's funnel plot test ( $P > |z| = 0.86$ ). The highest risk was performance bias, as neither the participants nor personnel were blinded to treatment in 71% of the studies.

#### Functional outcomes are similar for surgical vs nonoperative repair

In a 2019 meta-analysis of 9 RCTs (N = 822), adults ages 18 and older with AATR and a minimum of 12 months' follow-up were randomized to either operative or nonoperative repair. There was a decreased rate of rupture with surgical repair and an associated increased rate of complications (ie, superficial wound infections and nerve injury). However, there was no significant difference in

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doi: 10.12788/fjp.0419

➤ **Large data sets with consistent results show that nonoperative treatment of Achilles tendon rupture is an excellent option.**

Physical Activity Scale (PAS) score between the 2 groups (mean difference,  $-0.05$ ; 95% CI,  $-0.37$  to  $0.27$ ).<sup>2</sup> With surgical intervention, the NNT for Achilles tendon re-rupture was 15, and the NNH for superficial wound infection and nerve injury, respectively, were 22 and 28. Limitations of the study included different operative techniques and rehab protocols, which may have affected the results of the included studies.

A third meta-analysis consisted of 10 RCTs and 19 observational studies ( $N = 15,862$ ) with patients ages 16 years and older treated operatively vs nonoperatively. Function and return-to-activity rates in both the short term ( $\leq 1$  year) and long term ( $> 1$  year) were evaluated using the Achilles tendon Total Rupture Score (ATRS).<sup>3</sup> Surgical management was associated with decreased re-rupture rates but increased complication rates. However, when the analysis was limited to studies using accelerated functional rehabilitation programs, there was no significant difference in re-rupture rate (RR =  $0.26$  to  $1.37$ ;  $P = .23$ ). Only 1 observational study found a statistically significant difference in short-term functional outcomes favoring operative management, and no studies found a significant difference in long-term functional outcomes. These functional outcomes were not pooled for statistical analysis due to high interrater variability of the ATRS.

### **An RCT showed equal “customer satisfaction”**

One RCT randomized 61 patients to either surgical or nonsurgical management and followed them for a mean of 15.7 years.<sup>4</sup> Patient-reported outcomes of function, symptoms, and impact on daily life were measured using various surveys. There was no statistically significant difference in the function and impact on daily life after treatment according to the Short Musculoskeletal Function Assessment or the ATRS ( $P = .289$  and  $.313$ , respectively). When assessed using the Net Promoter Score (a single-question metric used in consumer industry to assess whether an individual would recommend the product to others), there was no statistical significance for the patients to recommend one treatment over

another: 79% of operatively managed patients vs 87% of nonoperatively managed patients would recommend their treatment to others ( $P = .225$ ).

### **Recommendations from others**

The American College of Foot and Ankle Surgeons consensus statement finds no difference between operative and nonoperative management with regard to complications, functional outcome, and return to activity long term, when looking at available Level 1 evidence.<sup>5</sup> They do acknowledge that although some Level III studies suggest operative intervention will return high-functioning patients to full activity sooner, there should be discussion regarding the risks and complications of both operative and nonoperative management. Patients with increased risk factors for postoperative complications (diabetes, obesity, cigarette smoking) should have special considerations regarding the decision to operate.

### **Editor’s takeaway**

Large data sets with consistent results show that nonoperative treatment of Achilles tendon rupture is an excellent option. However, we cannot say if it is better or worse than operative treatment, because both options have advantages and disadvantages. One must weigh the alternatives with individual patient preferences and circumstances. **JFP**

### **References**

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