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 Functional outcome of early weight bearing for acute Achilles tendon
 East Kent Hospital, UK
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 41 patients

Functional outcome of early weight bearing for acute Achilles tendon rupture treated conservatively in a weight-bearing orthosis

Background

- Recent studies have shown good results and low complications in the conservative treatment of Achilles tendon ruptures which may be related with the introduction of a functional weight-bearing orthosis.
- However there are no results for complete TA ruptures.

Objective

- This study aims to evaluate the functional outcomes of early weight bearing in a functional orthosis for conservatively managed, complete AT ruptures.

Method & Measurement

- 41 patients with Ultrasound diagnosed complete AT ruptures, with a gap less than 5 cm
- Conservative treatment in a functional weight-bearing orthosis (VACOPed) for 9 weeks
- Early weight-bearing following a specific treatment protocol followed by rehabilitation with a trained physiotherapist.
- All patients received a final follow-up at 1 year post injury with measurements on each leg: calf girth, single leg heel raise height, single leg heel raise repetitions and the ATRS score

Treatment week	Treatment process	
Week 1	Boot fixed on 30° and wedge sole	Patient seen in A&E out of hours Equinus POP
Week 2	Weight bearing as advised	
Week 3	Boot fixed on 30° and wedge sole	
Week 4	Weight bearing as pain allows Physiotherapy	
Week 5	Boot set on range of movement 15° to 30° and wedge sole	
Week 6	Weight bearing as pain allows Physiotherapy	
Week 7	Boot set on range of movement 0° to 30° and flat sole	
Week 8	Weight bearing as pain allows Physiotherapy	
Week 9	Start using personal footwear indoors, but keep using boot outdoors	
Week 10	Physiotherapy	
Week 11	Out of boot	
Week 12	Can gradually go back to swimming, walking, and cycling Continue physiotherapy	

Table 1: Treatment program for Achilles tendon ruptures treated conservatively, Naskar R, Oliver L, Velazquez-Ruta P, Dhinsa B, Southgate C. Functional outcome of early weight bearing for acute Achilles tendon rupture treated conservatively in a weight-bearing orthosis. Foot Ankle Surg. 2021 Jul 2:S1268-7731(21)00138-7. doi: 10.1016/j.fas.2021.06.008. Epub ahead of print. PMID: 34301483.

Results

- The mean ATRS score was 82.1 at 1 year follow-up
- Re-rupture rate of only 2% (1 patient), no other complications recorded
- Significant difference in calf bulk difference (1.6 cm), Average single leg heel raise height (1.8 cm) and single leg heel raise repetition (6)
- Excellent patient satisfaction
- Excellent functional results: 79% of patients reporting a return to pre-morbid functional, recreational or sporting activities, whilst 21% reported a partial return to pre-morbid levels of activity. Fun fact: Both marathon runners reported successful completion of half marathons by the 12-month follow up

Conclusion

- Early weight-bearing in a functional orthosis provides excellent functional outcomes for conservatively managed, complete AT ruptures and is associated with very low re-rupture rates. However, a multidisciplinary approach with a guided rehabilitation programme is essential for optimising functional outcome.
- Favourable results for VACOped immobilising the foot in a near equinus position of 48° compared to a fixed angle walking boot with wedges (28°) when the tibiotalar angle was assessed (Phil Ellison)
- The major difference between this orthosis and its predecessors is its ease of use and dynamic weight-bearing, as it allows about 30° range of motion within the brace.

Limitations

- This study is non-randomised and non-comparative (no control group)
- Small sample size of patients however based on an 80% power calculation, the study met the minimum sample size required to demonstrate statistically significant results.
- The current findings are generalisable to a middle aged, more active population, however they do convey some
- insight into the potential benefits of conservatively managed TA ruptures with early functional weight bearing in a younger, sportier population.

Full Text Link

- DOI-Link: doi.org/10.1016/j.fas.2021.06.008