

GAIT ANALYSIS AFTER ACUTE ACHILLES TENDON RUPTURE MANAGEMENT: A SYSTEMATIC REVIEW

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Objective and aims

Gait analysis is a commonly used method for evaluating the biomechanics of walking. In the case of Achilles tendon rupture (ATR) management, gait analysis can be used to monitor recovery and identify any remaining deficits or abnormalities in the affected limb. A systematic review was conducted to investigate the effect of ATR treatment on gait.

Methods

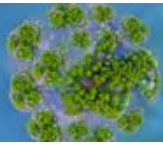
A comprehensive search of the literature was performed according to the PRISMA criteria in the MEDLINE, Embase, Web of Science, and Google Scholar databases, including studies published up to January 2023. Data pertaining to temporal, spatial, and kinematic outcomes were extracted and assessed.

Results

In total, 28 articles were included in our review. Patients who underwent surgical repair showed a tendency for improved gait mechanics compared to those who received conservative treatment, although they required longer rehabilitation phases to restore their previous ankle mobility. Minimally invasive techniques had similar results without any additional complications. Treatment with sutures and platelet-rich fibrin (PRF) could exhibit additional significant functional improvements and an increase in the effectiveness of muscle work.

Conclusions

The findings from this study may be used to inform clinical decision-making for patients with Achilles tendon ruptures. It should be noted that the current evidence is of moderate to low quality, and more studies of greater quality with larger sample sizes and longer follow-up periods are required to investigate the long-term effects of surgical and non-surgical management on gait mechanics and patient outcomes.



Aknowledgements

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References

- [1]. Tengman T, Riad J. Three-Dimensional Gait Analysis Following Achilles Tendon Rupture With Nonsurgical Treatment Reveals Long-Term Deficiencies in Muscle Strength and Function. *Orthop J Sports Med.* 2013 Sep 20;1(4):2325967113504734. doi: 10.1177/2325967113504734. PMID: 26535245; PMCID: PMC4555491.
- [2]. Aufwerber S, Naili JE, Grävare Silbernagel K, Ackermann PW. No effects of early functional mobilization on gait patterns after acute Achilles tendon rupture repair. *J Orthop Res.* 2022 Aug;40(8):1932-1942. doi: 10.1002/jor.25199. Epub 2021 Oct 28. PMID: 34674300.
- [3]. Agres AN, Duda GN, Gehlen TJ, Arampatzis A, Taylor WR, Manegold S. Increased unilateral tendon stiffness and its effect on gait 2-6 years after Achilles tendon rupture. *Scand J Med Sci Sports.* 2015 Dec;25(6):860-7. doi: 10.1111/sms.12456. Epub 2015 Apr 23. PMID: 25902929.

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References

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