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Exploring the Effect of Extracorporeal Shockwave Therapy in Managing Chronic Ankle Instability and Achilles Tendinopathy: A Narrative Review

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ABSTRACT

Introduction: Chronic Ankle Instability (CAI), is characterised by recurring sprains and persisting symptoms following the injury, can result from ankle re-injuries, which occur at a rate of 28.3%. CAI has distinctive characteristics based on contributory variables, including mechanical and functional instability caused by trauma-induced laxity and by neuromuscular insufficiencies, muscle weakness, and proprioceptive shocks respectively.Ankle sprains are the most frequently persisting ankle injuries, accounting for around 80% of instances. However, only about 20% of ankle sprain patients develop CAI. The Achilles Tendon (AT) is a structure made up primarily of collagen fibers that are oriented in the direction of tensile stresses transmitted through the tendons. CAI, particularly affects functional capability, that can be triggered by ankle sprains. The prevalence of CAI would be higher and functional abilities would be lower in those with disorganised AT structure than in those with organised structure. Extracorporeal Shockwave Therapy (ESWT), a non-invasive treatment for musculoskeletal conditions, has shown success rates of 65% to 91% in improving discomfort and functionality in individuals with ankle joint soft tissue disorders. The treatment focusses on preserving dorsiflexion and avoiding excessive plantar flexion, enhancing blood flow, bone and tendon regeneration through biological responses like bone morphogenic proteins, nitric oxide synthesis, and neovascularisation and preventing recurring ankle sprains in CAI patients. Despite its growing clinical use, no comprehensive reviews currently analyse ESWT's effects on chronic ankle instability and Achilles tendinopathy. To bridge this gap, databases such as PubMed and PEDro were searched for studies published between 2014-2024. A total of 209 articles were retrieved out of which 87 duplicated were removed via Mendeley. The remaining 111 articles were screened and based on selection criteria only 4 articles were reviewed of full text English publication. The outcome measures were VAS for pain and ROM for ankle dorsiflexion function. The intervention period ranged between 3-24 weeks. The results shows that there was significant improvement in ROM and pain score VAS ($p<0.05$). To conclude ESWT is a effective measure for Achilles tendinopathy and ankle instability.

Keywords: Ankle pain, Neuromuscular insufficiencies, Propioceptive shocks.