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Conservative Treatment for an Achilles Rupture

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Abstract

The aim of this research is to illustrate a protocol of non-operative treatment of an Achilles rupture and discover the best practices for the rehabilitation process.

The sources of the literature search included the following databases: SAGE and BioMed Central

A complete Achilles rupture is a condition that may affect athletes as well as the general population. A majority of these injuries occur during a combination of exaggerated dorsiflexion of the ankle and forceful plantarflexion. Evidence has shown that overuse injuries such as chronic inflammation or other tendinopathies correlate to this injury. It's common to get the Achilles tendon surgically repaired, however, there is no consensus on what the best method of treatment is. The focus of this research is Conservative treatment, which includes ice, elevation, bracing/immobilization at 20° of plantar flexion for a short period of time, and immediate weight bearing with an early introduction of range of motion (ROM) exercises and strengthening. Research shows that the rehab process is limited by the response of the injured tissues and the length of recovery changing from patient to patient.

In conclusion, the idea is that recovery could essentially be hastened by completely avoiding surgery altogether, allowing an athlete to get back on the field or court sooner.

Introduction

The Achilles is a vitally important tendon that connects the gastrocnemius to the calcaneus bone of the foot. It functions as a lever arm for plantar flexion at the ankle. There are many causes of a Achilles rupture, but the most common mechanisms of injury are forceful plantarflexion of the ankle, sudden dorsiflexion of the ankle or sudden dorsiflexion of a plantarflexed ankle.(Stickles) Until recently an Achilles rupture has been largely treated with surgical reconstruction, but studies have been discovering that there are more conservative/ non operative options available. Ideally a patient will return to sport with as close to 100% strength and no complications throughout the treatment and rehab.

Purpose

The purpose of this literature review is to establish the protocol of conservative Achilles rupture treatment and determine if it is a viable option for people suffering from an Achilles rupture.



Figure 1. Cast & equinus boot. Initial immobilization of treatment. (Pictures in article.)

Non Operative Protocol

Week 1-6: Casted with 20° plantar flexion and in boot (5cm heel lift). Physical Therapy (PT) (In boot)= Level walking, single leg stance, isometric strengthening and stationary bike.

Week 7-8: Cast was removed and boot's heel elevation was decreased by 2cm. PT (In boot)= ROM exercises added.

Week 8-12: Still wear boot w/ 1cm heel lift. PT (In boot)= Increase calf strengthening intensity.

Week 12-16: PT= Add running/ jumping on level ground and single leg heel raises without boot, but shoes should have 6-8 mm heel lift.

Week 16: Sport specific movements introduced. Restrictions included sports with high potential for uncontrolled ankle movement till 6 month mark.

Figure 2. Department of Orthopaedic Surgery, University of Bern, Inselspital, Bern, Switzerland. Nonoperative protocol used in study.

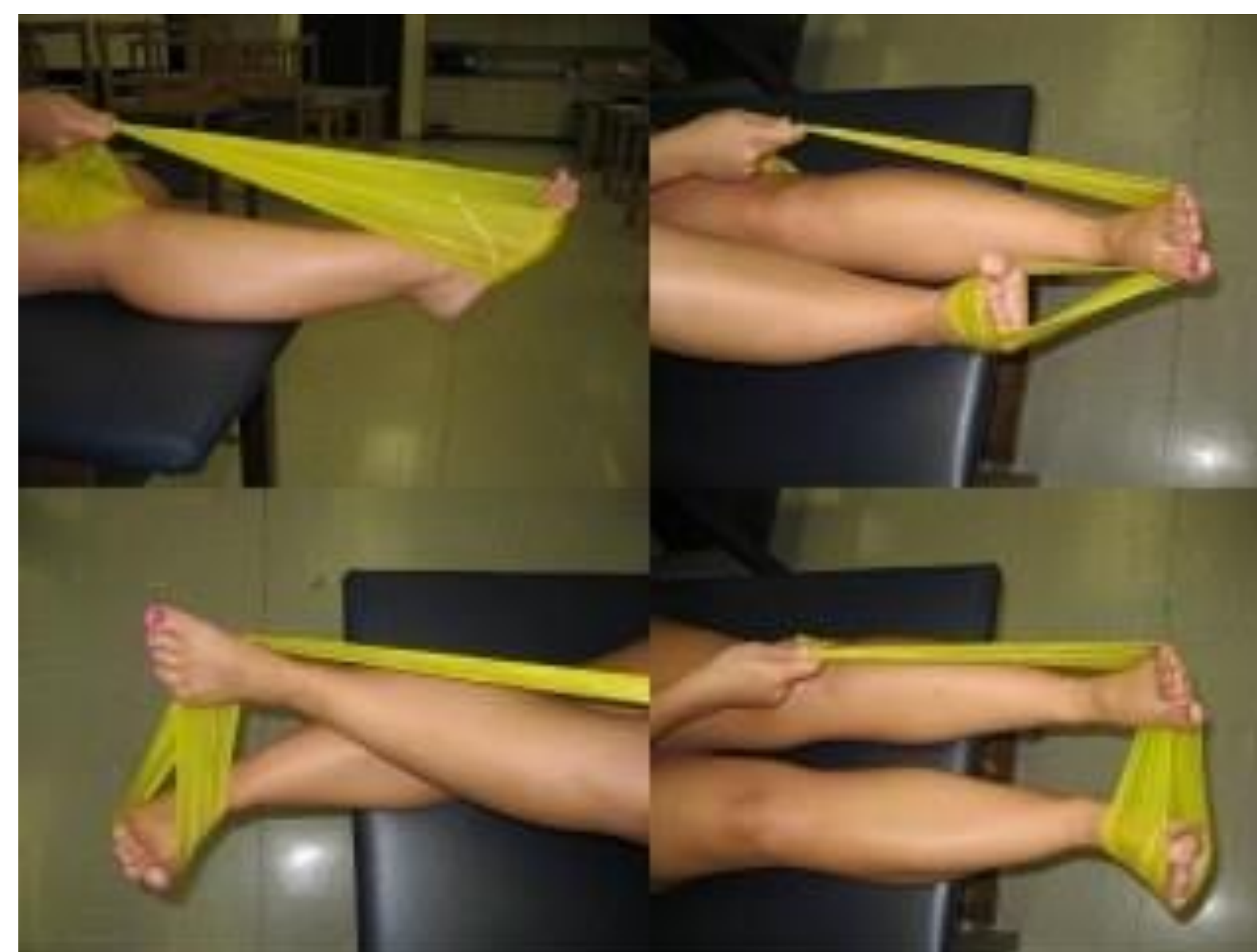


Figure 3. ROM Exercises. ¹

Results

While some studies showed results of operative and nonoperative treatment were equivalent⁶, others debated that there was a longer time for recovery and higher chance of re-rupture. However, unlike the other studies, University of Bern's study used a standard rehab protocol for both groups to determine the true validity of their recoveries. As you can see in figure 2 the protocol encourages weight bearing immediately with the cast and boot on, but the surgical group was unable to weight bear because of pain and wound healing. Immediately once weight bearing was allow/ tolerated the physical therapy began just like the non operative group. Although other studies state that the re-rupture rate is higher they also had a significantly higher rate of deep infections, non-cosmetic scar complaints, and sural nerve dysfunctions.⁷

Conclusions/Next Steps

In regards to conservative treatment, the studies show that it may be a viable option for patients with an Achilles rupture. Though studies battle about the time for return to play, re-rupture rates, infection concerns or efferent nerve issues, patients should have the option to make the decision based on their situation. There needs to be more research to verify that with the same rehab protocol there is no difference in functional strength or range of motion (ROM). Development of the early weight bearing, ROM, and strengthening exercises protocol is the key to assuring that whatever the patient chooses, surgical or conservative, they will have an equal chance of functional return to activity.

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