

# Plantar Fasciitis

## Introduction

This is one of the most common ailments of the foot. It affects one in ten people at some stage of their lives. The plantar fascia is a broad band of connective tissue which spans from the heel into the forefoot. It acts to support the medial longitudinal arch and also acts as a dynamic shock absorber.

Normally this tissue can withstand very high loads however it can become irritated either acutely or chronically and in this way the condition has been described as either inflammatory or degenerative (similar to a tendonitis).

Inflammatory changes at the insertion of the plantar fascia into the plantar calcaneal tuberosity can be caused by macro or micro trauma, degenerative changes, or as a local manifestation of a systemic inflammatory process; i.e. rheumatoid arthritis, gout or seronegative spondyloarthropathy.



*The fascial attachment is highlighted by MRI at its insertion into the medial plantar calcaneal tubercle.*

## Etiology

Several risk factors have been identified in research with these being reduced ankle joint dorsiflexion, increased body weight, and prolonged weight bearing. Age also is a factor as this is more common in the 5<sup>th</sup> and 6<sup>th</sup> decades.

In athletes this condition can occur as a result of overuse and training error. Pronation or inward rolling of the foot can place additional strain on the fascia. There is a bowstring effect on the fascia as the arch lowers with weight bearing and pronation. Micro-tearing of the fascia at the calcaneal enthesis occurs with weight bearing.

A traction spur may also be present on the plantar calcaneus. Spurs are rarely painful; it is rather the disruption of the fascial attachment onto the spur that causes pain.

## Examination

Pain is usually very localised. Palpate the fascia plantomedially deep beneath the fibrofatty pad. Palpate the calcaneus medially as well. Performing this with slight ankle and hallux dorsiflexion is often much easier to elicit the pain.

## Treatment

Both calf and specific plantar fascial stretching have been shown to have good initial results. Patients are instructed to stretch in the morning by repeatedly holding the foot in a dorsiflexed position before weight bearing. This can reduce the initial weight bearing pain significantly. Heel cushioning often has mixed results. Orthoses usually however offer good symptom relief as they hold the arch in a supported position and can reduce both calcaneal plantar pressure and fascial tensile stress. Lateral forefoot wedging in orthotics has also proven effective in reducing pain and fascial strain.

Low Dye Taping can have very favourable and immediate results. This is usually applied in conjunction with other treatments. Regular ICE massage may also be beneficial. Cortisone is usually offered if previous treatments have proved unsuccessful. Research has shown this to be more effective if performed under ultrasound guidance.

Extracorporeal shockwave therapy has also been shown to provide reduction in pain and may be a good alternative for chronic fasciitis or failed cortisone treatment.

## Take home messages

- Pain on weightbearing in the morning or after rest
- Males > females aged 50-60 years
- Obesity is a common factor
- Decreased ankle joint dorsiflexion
- Palpable planto-medial calcaneal pain
- May be associated with excessive foot pronation
- Arch taping offers immediate temporary relief
- Orthotic therapy is nearly always indicated
- Hydrocortisone in recalcitrant cases
- Extracorporeal shockwave therapy