

## Plantar Fasciitis

### Plantar fascia

### Anatomy

The Plantar Fascia or arch tendon can be found underneath the foot, it forms a broad thick band of tissue stretching from the base of the heel bone to the toes. When overused the base of the foot can become very painful.

Plantar fasciitis is traditionally thought to be an inflammatory condition but this is now believed to be incorrect due to the absence of inflammatory cells within the fascia. The cause of pain and dysfunction is now thought to be degeneration of the collagen fibres (make-up of tissue) close to the attachment to the heel bone.

Because of this absence of inflammatory cells heels spurs can develop. A heel spur is a bony growth that occurs at the attachment of the plantar fascia to the heel bone (calcaneus). However a heel spur can be present (through repetitive pulling of the plantar fascia) on a foot with no symptoms at all and a painful heel does not always have a heel spur present



Symptoms can include;

- Heel pain, under the heel and usually on the inside, at the origin of the attachment of the fascia.
- Pain when pressing on the inside of the heel and sometimes along the arch
- Pain is usually worse first thing in the morning as the fascia tightens up overnight. After a few minutes it eases as the foot gets warmed up
- As the condition becomes more severe the pain can get worse throughout the day.
- Stretching the plantar fascia may be painful.
- Sometimes there may also be pain along the outside border of the heel. This may occur due to the offloading the painful side of the heel by walking on the outside border of the foot. It may also be associated with the high impact of landing on the outside of the heel if you have high arched feet.

### What Causes Plantar Fasciitis?

The most common cause of plantar fasciitis is very tight calf muscles, which leads to prolonged and / or high velocity pronation of the foot. This in turn produces repetitive over-stretching of the plantar fascia leading to possible inflammation and thickening of the tendon. As the fascia thickens it loses flexibility and strength. Excessive walking in footwear which does not provide adequate arch support has been attributed to plantar fasciitis. In addition, overweight individuals are more at risk of developing the condition due to the excess weight impacting on the foot.

### Plantar Fasciitis Treatment

Rest is advised but it can be very difficult to rest the foot as most people will be on their feet during the day for work. By walking on the painful foot you are continually aggravating the injury and increasing inflammation. Rest as much as possible and stop any unnecessary activities which place additional stress on the fascia. Cross train with swimming or cycling.

- A good plantar fasciitis taping technique can help the foot get the rest it needs by supporting the plantar fascia. Tape is applied in strips across the plantar fascia taking the stress off the foot which healing to take place.
- Apply ice or cold therapy to help reduce pain and inflammation. Cold therapy can be applied regularly until symptoms have resolved. Some will roll a cold can under the foot
- Stretching the plantar fascia is an important part of treatment and prevention. Simply reducing pain and inflammation alone is unlikely to result in long term recovery. The plantar fascia tightens up making the origin at the heel more susceptible to stress.
- Having a gait analysis to determine if you overpronate or oversupinate would be recommended. This may then lead to prescribed orthotics or insoles. An insole can restore normal foot biomechanics if overpronation is a problem.
- Sports massage techniques can be used to reduce the tension in the plantar fascia and also stretch the calf muscles.
- If the symptoms don't resolve within a month then an X ray maybe needed to see if there is any bone growth (calcification). An X-ray may be able to show bone growth which may be a cause of pain but research has shown that the presence of a bony growth does not necessarily mean the athlete will feel pain. Bony growth can worsen even after symptoms have completely resolved.
- Operate if symptoms do not resolve. This is more common for patients with a rigid high arch where the plantar fascia has shortened to benefit from surgery.
- Make sure you are wearing the right running shoes for your running gait.