

**Plantar fasciitis and calcaneal spur – treatment modalities**Yogesh R. Badwe\*<sup>1</sup>, Bharat Rokade<sup>2</sup>, Amit Paliwal<sup>3</sup>

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**Abstract**

Plantar Fasciitis is a painful condition caused by overuse of the plantar fascia or arch tendon of the foot. The Plantar Fascia is a broad, thick band of tissue that runs from under the heel to the front of the foot. Plantar fasciitis refers to an inflammation of the plantar fascia. The inflammation in the tissue is the result of some type of injury to the plantar fascia. Typically, plantar fasciitis results from repeated trauma to the tissue where it attaches to the calcaneus.

Plantar fasciitis is traditionally thought to be an inflammatory condition. 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 fibers close to the attachment to the calcaneus (heel bone). Pathology and

treatment modalities will be discussed in full paper.

**Key words** – Planter fasciitis, Calcaneal spur, Treatment.

**Introduction**

Plantar Fasciitis is a painful condition caused by overuse of the plantar fascia or arch tendon of the foot. The Plantar Fascia is a broad, thick band of tissue that runs from under the heel to the front of the foot.

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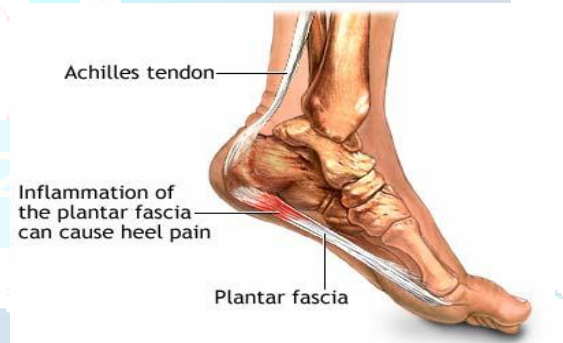
If there is significant injury to the plantar fascia, the inflammatory reaction of the heel bone may produce spike-like projections of new bone called heel spurs. The spurs are not the cause of the initial pain of plantar fasciitis, but they are the result of the problem. Most heel spurs are painless. Occasionally, they are associated with pain and discomfort and require medical treatment or even surgical removal

### Signs and symptoms<sup>1,2,3</sup>

1. Heel pain, under the heel and usually on the inside, at the origin of the attachment of the fascia.
2. Pain when pressing on the inside of the heel and sometimes along the arch.
3. Pain is usually worse first thing in the morning as the fascia tightens up overnight.
4. As the condition becomes more severe the pain can get worse throughout the day if activity continues.
5. Stretching the plantar fascia may be painful.
6. 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. (Typical complaint) Slowly after taking a few steps, with difficulty, the pain gradually disappears.

7. Plantar fasciitis or heel spurs are common in sports which involve running, dancing or jumping. Runners who overpronate (feet rolling in or flattening) are particularly at risk as the biomechanics of the foot pronating causes additional stretching of the plantar fascia.



### Causes<sup>4</sup>

❖ **Tight calf muscles:** The most common cause of plantar fasciitis is very tight calf muscles which lead to prolonged and / or high velocity pronating of the foot. This in turn produces repetitive overstretching of the plantar fascia leading to possible inflammation and thickening of

the tendon. As the fascia thickens it loses flexibility and strength.

- ❖ High arch or low arch feet (pes cavus / planus)
- ❖ Poor arch support in shoes: 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.
- ❖ Overweight persons.

#### **Investigation<sup>5</sup>**

X-Ray of the Heel is a simple and most effective way of detecting that extra growth of bone beneath your heel. However X-ray is not useful in diagnosing plantar fasciitis.

#### **Treatment<sup>6,7,8</sup>**

- ❖ Rest- it is advised in very painful condition. 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.

- ❖ 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.

- ❖ Heel support: designed to treat heel pain and inflammatory problems of the heel. Gel pads help stabilize the ankle and help limit lateral and medial movement. Support provides soothing compression and helps absorb the shock from heel strike.



#### **Few heel and arch supports**

- ❖ Roll a ball under your foot- take tennis ball or a soft ball or even a rolling pin and roll your foot over it to help stretch out

the plantar fascia. This should not cause pain. Discontinue if it cause pain.



### Rolling of ball

❖ Apply ice or cold therapy to help reduce pain and inflammation. Cold therapy can be applied regularly until symptoms have resolved.

❖ A plantar fasciitis night splint is an excellent product which is worn overnight and gently stretches the calf muscles and plantar fascia preventing it from tightening up overnight



❖ Stretching the plantar fascia is an important part of the treatment. NIGHT SPLINT

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.

❖ To relieve pain and inflammation, nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin and ibuprofen are often used but are of limited benefit.

❖ Local injection of corticosteroids often gives temporary or permanent relief, but may be painful repeated steroid injections may result in rupture of the plantar fascia. While this may actually improve pain initially, it has deleterious long-term consequences.

### Surgery<sup>9</sup>

Surgery carries the risk of nerve injury, infection, rupture of the plantar fascia, and failure of the pain to improve. Surgical procedures, such as plantar fascia release, are a last resort, and often lead to further complications such as a lowering of the arch and pain in the supero-lateral side of the foot due to compression of the cuboid bone. An ultrasound guided needle fasciotomy can be used as a minimally invasive surgical intervention for plantar fasciitis. A needle is inserted into the plantar fascia and moved back and forth to disrupt the fibrous tissue.

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