

## **The pain in the heel: plantar fasciitis**

### **What is the plantar fascia?**

The plantar fascia is a tough fibrous structure, which forms a connection from the front of the foot to the heel. Towards the toes, the fascia divides into five digital slips and merges with the sheaths around the tendons of the toes as well as the toes. The fascia assists in the maintenance of the foot arch. During toe-off (the last part of walking when the foot is about to lift off the ground), the bending of the toes winds up and tightens the plantar fascia, restoring the medial arch in the foot.

### **What causes the heel pain?**

Plantar fasciitis is caused by overuse of the plantar fascia leading to minute tears and swelling at its attachment to the heel bone. Activities, which require extensive time on one's feet, for example golf, running and dancing, can result in plantar fasciitis. Occupations that require long periods of standing and walking can predispose to this condition too. Other predisposing factors including flat feet and tight calf muscles as these puts additional strain on the plantar fascia

### **How does plantar fasciitis feel like?**

The pain is often gradual in onset and is often present for a long time. The pain tends to be worse first thing in the morning with some improvement after warming up, only to get worse towards the end of the day after prolonged walking. There is also tenderness at the bottom of the heel more so at the inner edge of the heel. The pain made also be more obvious upon bending your toes upwards.

### **However, not all heel pain is due to plantar fasciitis.....**

Other causes of heel pain

#### **1) Fat pad contusion:**

- this can occur after a fall onto the heels or chronically from excessive pounding on the heel strike with shoes without adequate cushioning.

The point of maximal tenderness is often at the center of the heel rather than over the medial edge of the heel.

## 2) Heel fat pad syndrome

This occurs due to the degeneration of the fat pad at the bottom of the heel bone. With time, the resilience of this natural cushion decreases and this can result in pain on the edges of the heel with prolonged walking or standing

## 3) Stress fracture of the heel bone

- This rare condition causes insidious onset of pain worsened by weight bearing activities. Tenderness occurs over the medial and lateral aspects of the posterior edge of the heel with pain reproduced by pressing the sides of the heel

## Investigations

X-ray may show a calcaneal spur, which is not the direct cause of the pain. Ultrasound scans of the heel usually show thickening of the plantar fascia areas.

## Treatment

These include

- 1) Avoiding the aggravating activity
- 2) Icing and medication to control the pain
- 3) Correcting biomechanical problems
  - Stretching of calf muscles
  - Using shoes with adequate support and cushioning of the heel
  - Customized insoles to relieve the strain on the plantar fascia and reduce pressure on the tender spot
  - Night splints: These hold the plantar fascia and Achilles tendon in a stretched position. This can be particular benefit to reduce pain on the first few steps of the morning.
- 4) Injections of corticosteroids can relieve the pain but presents a risk of recurrence and plantar fascia ruptures
- 5) Physiotherapy: taping, transverse friction massage can help to control the pain of the heel
- 6) ESWT (extracorporeal shockwave therapy) provides an alternative to recalcitrant cases that have not responded to the above treatments. ESWT has been shown to decrease the pain and swelling of plantar fasciitis, probably by promoting healing of the injured part of the fascia
- 7) Surgery: for the most recalcitrant cases. Techniques include release of the fascia, heel spur excision, neurolysis and calcaneal osteotomy.

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