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Plantar Fasciitis

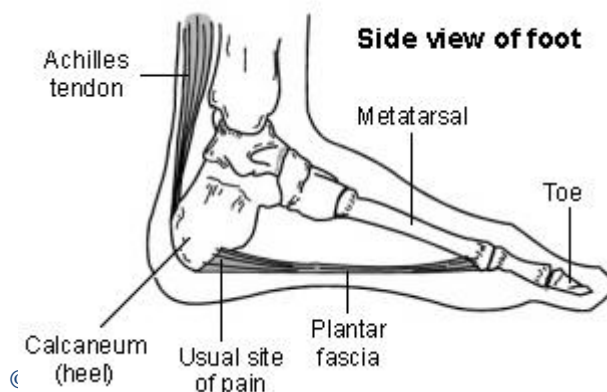
Introduction

Plantar fasciitis is a condition which causes pain under the heel. It is related to the amount of cushioning in the shoes worn. The condition may spontaneously settle but is helped by treatment. Simple measures include use of cushioned insoles or training shoes, NSAID's and reducing the amount of walking undertaken. A steroid injection or surgery may be used in more severe cases

The Anatomy of Plantar fasciitis?

Plantar fasciitis means inflammation of the plantar fascia. The plantar fascia is a strong band of fibrous tissue that stretches from the heel to the base of the toes. It supports the arch of the foot.

The fascia helps with the mechanics of walking. When in the "toe off" phase of the gait cycle the heel is raised and the toes bent the fascia is tightened which raises the longitudinal plantar arch which helps to efficiently transfer the power exerted by the calf muscles to the forefoot and toes which and powers the body forwards. Plantar fascitiis is the condition in which the fascia and its attachments become inflamed probably as a result of overuse, ageing or trauma. The pain and inflammation within the fascia inhibits the transfer of the muscle pull normally and affects the normal walking gait.



Injuries to the plantar fascia can result from a poorly padded pair of shoes. Leather soled traditional formal shoes are particularly bad in this respect. Alternately a fall or unusually long walk can cause inflammation and precipitate the characteristic symptoms. The area of inflammation is usually in the heel where the plantar fascia attaches to the calcaneum or heel bone.

Symptoms

Pain is the main symptom. This can be felt anywhere on the underside of the heel. Commonly one spot is found as the main source of pain. This is often immediately in front of the heel prominence within the sole of the foot. This area is usually tender to touch. The pain usually eases on resting the foot, but is often worst when first walking in the morning. Gentle exercise may then ease things a little as the day goes by, but a long walk often makes the pain worse. Sudden stretching of the sole of the foot may also make the pain worse, for example, walking up stairs or standing on tip-toes. Radiographs or X-rays of the heel may show a characteristic bony spur or traction osteophyte at the point at which the plantar fascia inserts into the heel bone or calcaneum.

Plantar fasciitis is quite a common condition. It mainly affects people over 40 and is more common in women. It is also common in athletes. Other situations where the condition may occur include:

- Unusually prolonged activity such as; walking, running, or standing.
- Wearing shoes with poor cushioning.
- Sudden gains in weight or being overweight will put extra strain on the heel.
- Overuse or sudden stretching of the sole. For example: athletes who increase their running intensity or distance..
- Tightness of the Achilles tendon (at the bottom of the calf muscles above the heel).
- Stiffness of the toes.
- Diabetes.

Often there is no apparent cause, particularly in older people. A common wrong belief is that the pain is due to the bony growth or 'spur' coming from the heel bone although the bony spur is commonly associated with the condition it is not the cause.

Treatment

Usually the inflammation and pain will ease in time. Although the condition may take several months or more to go. However, the following measures may help alleviate the condition:

- **Rest the foot** as much as possible. Avoid running, excess walking or standing. Gentle walking and exercises are fine.
- **Footwear.** Do not walk barefoot, choose shoes with cushioned heels and a good arch support. A laced training shoe usually provide the best shaped sole incorporating cushioning and a bevel at the back of the sole. Avoid old or worn out shoes.
- **Heel pads.** You can buy various types of orthotics, insoles, or pads to cushion the heel. These work best if you put them in your shoes at all times. Soft materials work

best. The aim is to raise the heel a little and to provide a soft cushion under the tender part of the heel. If the heel is very tender, then a heel pad with a hole cut out under the heel takes weight off the tender area.

- **Painkillers** such as Paracetamol will often ease the pain. Anti-inflammatory drugs such as ibuprofen and Diclofenac are useful. These are painkillers but also have an effect to reduce the inflammation and may be more effective. NSAID cream or gel rubbed into the heel may also help but commonly is less effective than tablets.
- **Stretching exercises.** The condition produces a tightening of the calf muscle and plantar fascia with poor mobility of these muscles. Walking in discomfort often exacerbates this. Regular gentle stretching of the calf muscle, Achilles tendon and the plantar fascia will help ease the symptoms. Stretching the calf and Achilles tendon can be achieved by leaning against a wall, or standing with the heel over the edge of a step. Bending the toes whilst leaning forwards stretches out the plantar fascia. If this is undertaken gently and slowly the discomfort is usually not restrictive. The calf, tendon and fascia also tends to tighten overnight whilst sleeping, producing pain first thing in the morning.

Stretching exercises:

1. Stand 2-3 feet away from a wall. Keeping the knees straight and feet and heels on the ground, lean onto the wall. You should feel the calf muscles and the Achilles tendon tighten. Keep this position for several seconds then relax. Do this about 10 times. Repeat this routine five or six times a day.
2. After a while as this exercise becomes easier it should be modified so as a second stretching exercise the knee is bent as you lean. This has the added effect of stretching the soleus muscle.
3. The third modification which should be added is where the heel is raised whilst stretching allowing the toes to bend. This has the effect of stretching the plantar fascia.
4. Sit in a chair with the knees bent at right angles and the feet and heels flat on the floor. Now lift the foot upwards with the heel kept on the floor. Again you should feel the calf muscles and Achilles tendon tighten. This exercise uses a slightly different set of muscles to the above. Again, keep the position for several seconds then relax. Again, do about 10 times, five or six times a day.

The aim of the exercises is to gently loosen up the tendons and fascia above and below the heel.

Foot massage may also help if undertaken regularly with slow and firm deep slow massage of the sole of the foot and heel.

- **Injections.** A steroid or cortisone injection is sometimes advised if the pain remains significant despite rest, stretching, NSAID's and physiotherapy. It may relieve the pain for 6 or more weeks, or even cure the problem. It is not always successful and may be uncomfortable. Steroids work by reducing local inflammation, allowing healing to take place. Sometimes 2 or 3 injections are tried over a period of months if the first is not successful. Generally if there has been no response after three then further injections may be ill advised.

- **Other treatments.** Some people benefit from wearing a special splint overnight to keep the Achilles tendon and plantar fascia slightly stretched. The aim is to prevent the plantar fascia from tightening up overnight. Athletes may find ice massage of the heel before and after exercise helpful.
- **Surgery** may be considered in difficult or resistant cases. This is usually advised if the pain has not eased after several weeks and at least one injection. Surgery is often of great benefit. However it is not always successful, and in a small proportion of cases, surgery make leave the heel permanently sore.

The surgical procedure involves detaching the proximal insertion of the fascia from the calcaneum or heel bone. This then usually relieves the pain. Although detachment of the fascia theoretically reduces the mechanical advantage of the effect of the calf musculature being transferred to the toes for walking. In patients with chronic symptoms this is of little consequence.

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