

## HEEL SPUR / PLANTAR FACIITIS

Dynamic fluid filled insoles typically provide immediate relief from heel pain associated with heel spurs. Combined with regular stretching exercises devices such as shoe insoles have been successful in playing a positive role in providing pain relief from plantar fasciitis. The shock absorbing and pressure equalizing features of dynamic fluid insoles are responsible for the relief.

Heel spurs and plantar fasciitis are described in detail in the clinical section of this brochure.

### HEEL PAIN—Heel Spurs and Plantar Fasciitis

The most common cause of heel pain is plantar fasciitis. Plantar fasciitis is a common, painful foot condition. Patients, and sometimes doctors often confuse the terms plantar fasciitis and heel spurs.

Plantar fascia is a broad band of fibrous tissue which runs along the bottom surface of the foot, from the heel to the toes. **Plantar fasciitis** refers to the syndrome of inflammation

of the band of tissue that runs from the heel along the arch of the foot; a **heel spur** is a hook of bone that can form on the heel bone (calcaneus). About 70% of patients with plantar fasciitis have been noted to have a heel spur that can be seen on X-Ray.

**This condition can be very painful and cause considerable amount of suffering. .**

A dull ache is felt most of the time with episodes of a sharp pain in the center of the heel or on the inside margin of the heel. Often the pain is worse on first rising in the morning and after rest. Long standing inflammation causes the deposition of calcium at the point where the plantar fascia inserts into the heel. This results in the appearance of a sharp thorn like heel spur on x-ray. The heel spur is a-symptomatic (not painful), the pain arises from the inflammation of the plantar fascia. Symptoms include a dull ache which is felt most of the time with episodes of a sharp pain in the center of the heel or on the inside margin of the heel. Often the pain is worse on **first rising in the morning** and **after rest** and is aggravated by prolonged weight bearing & thin soled shoes.



## **Who gets plantar fasciitis?**

Plantar fasciitis is most often seen in middle-aged men and women, but can be found in all age groups. Plantar fasciitis is diagnosed with the classic symptoms of pain well localized over the heel area of the bottom of the foot.

Plantar fasciitis is sometimes, but not always, associated with a rapid gain of weight. Plantar fasciitis is also sometimes seen in recreational athletes, especially runners. In these athletes, it is thought that the repetitive nature of the sports causes the damage to the fibrous tissue that forms the arch of the foot.

Plantar fasciitis occurs because of irritation to the thick ligaments (connective tissue) that runs from the heel bone to the ball of the foot. This strong and tight tissue contributes to maintaining the arch of the foot. It is also one of the major transmitters of weight across the foot as you walk or run. Therefore, the stress placed on the tissue is tremendous.

When a patient has plantar fasciitis, the connective tissue that forms the arch of the foot becomes inflamed (tendonitis) and degenerative (tendinosis)--these abnormalities cause plantar fasciitis and can make normal activities quite painful.

Symptoms of plantar fasciitis are typically worsened early in the morning after sleep. At that time, the arch tissue is tight and simple movements stretch the contracted tissue. As you begin to loosen the foot, the pain usually subsides, but often returns with prolonged standing or walking.

## **Could something other than plantar fasciitis cause this pain?**

Plantar fasciitis can be confused with a condition called tarsal tunnel syndrome. In tarsal tunnel syndrome, an important nerve in the foot, the tibial nerve, is trapped and pinched as it passes through the tarsal tunnel, a condition analogous to carpal tunnel syndrome in the wrist. This may cause symptoms similar to the pain of a plantar fasciitis.

There are also other less common problems such as nerve entrapments, stress fractures, and fat pad necrosis, all of which can cause foot pain. Finally, several rheumatologic conditions can cause heel pain. These syndromes such as Reiter's syndrome and ankylosing spondylitis can cause heel pain similar to plantar fasciitis. If your symptoms are not typical for plantar fasciitis, or if your symptoms do not resolve with treatment, your doctor will consider these possible diagnoses.

Excessive load on the foot from pregnancy and obesity is a major cause of plantar fasciitis which is why this condition is common in middle aged and over weight adults. A sudden increase in walking or a sporting activity can also be a contributing factor.

### **Tight plantar fascia (this is often caused by tight calf muscles).**

Excessive flattening of the arch upon weight bearing.

### **Biomechanical problems (walking abnormalities) are a major cause of plantar fasciitis.**

Different types of arthritis can also lead to this condition such as osteoarthritis and rheumatoid arthritis.

## What is the treatment of plantar fasciitis?

Treatment of plantar fasciitis is usually short-term rest and controlling the inflammation. Here are the steps patients may take in order to cure their plantar fasciitis:

### **Rest**

Avoiding the precipitating activity; for example, take a few day off jogging or prolonged standing/walking. Just resting usually helps to eliminate the most severe pain, and will allow the inflammation to begin to cool down.

**Reusable Hot and Cold Gel Packs-** Proven therapy for plantar fasciitis by alternating application of heat and cold coupled with massage works wonders to relieve pain, reduce swelling and promote healing. Use ice pack in morning and heat pack in the evening.

### **Apply Ice Packs**

Icing will help to diminish some of the symptoms and control the heel pain. Icing is especially helpful after an acute exacerbation of symptoms. Icing an injured body part is an important part of treatment. Icing injuries can be effective for sprains, strains, overuse injuries and bruises. Learn how to properly ice your injury.

### **Here's How:**

#### **Get the ice on quickly.**

Icing is most effective in the immediate period following an injury. The effect of icing diminishes significantly after about 48 hours. Perform an "ice massage" by applying ice directly to the injury. Move the ice frequently, not allowing it to sit in one spot.

#### **Don't forget to elevate.**

Keep the injured body part elevated above the heart while icing -- this will further help reduce swelling.

#### **CAUTION: Watch the clock.**

Ice for 15-20 minutes, but never longer. You can cause further damage to the tissues, including frostbite, by icing for too long. Either continually move the ice (see "ice massage") or use a thin towel between the ice and skin. Allow area to warm for at least 45 minutes or an hour before beginning the icing routine again.

#### **Repeat as desired.**

Ice as frequently as you wish, so long as the area is warm to touch and has normal sensation before repeating.

#### **Ice Option 1 -- Traditional:**

*Use a Ziploc bag with ice cubes or crushed ice. Add a little water to the ice bag so it will conform to your body.*

#### **Ice Option 2 -- Practical:**

*Get some 12 or 16 oz plastic water bottles (Aquifina, Dasani, whatever you choose). Place water bottles in freezer. Once frozen, roll the bottle under your foot for 10-15 minutes. Refreeze the bottle for your next treatment*

#### **Ice Option 3 -- Best:**

*Keep paper cups filled with water in your freezer. Peel the top of the cup away and massage the ice-cup over the injury in a circular pattern allowing the ice to melt away.*

#### **Ice Option 4 -- Creative:**

*Use a bag of frozen peas or corn from the frozen goods section. This option provides a reusable treatment method that is also edible.*

## EXERCISES, STRETCHES AND MASSAGE

- Exercises and stretches are designed to relax the tissues that surround the heel bone.

### Stretching exercises for plantar fascia and Achilles tendon.

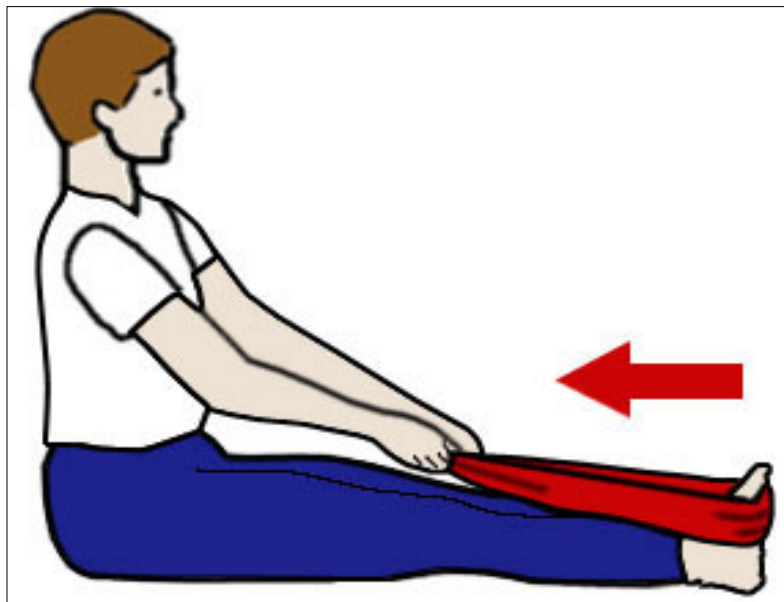
- Routine stretching is very important to healing plantar fasciitis. Most of those affected by plantar fasciitis have decreased flexibility and tight Achilles Tendons.
- Some simple exercises, performed in the morning and evening, often help patients feel better quickly.

## PLANTAR FASCIITIS STRETCHING EXERCISES

### Towel Stretch

Achilles tendon and plantar fascia stretch

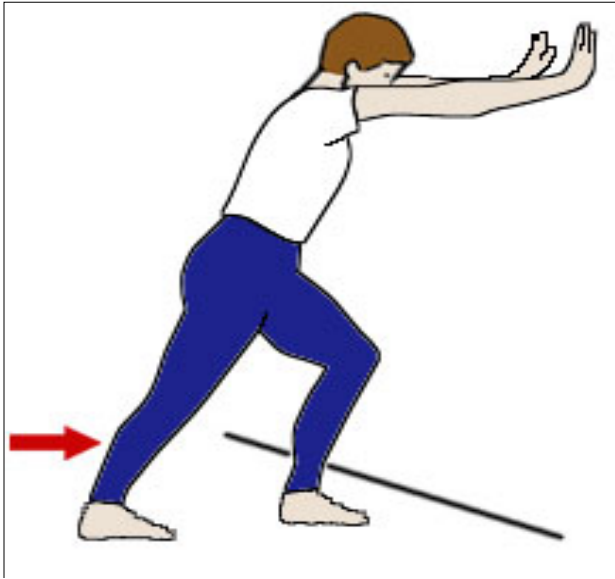
Sit on the floor with your legs stretched out in front of you. Loop a towel around the top of the injured foot. Slowly pull the towel towards to keeping your body straight. Hold for 15 to 30 seconds then relax. Repeat 10 times.



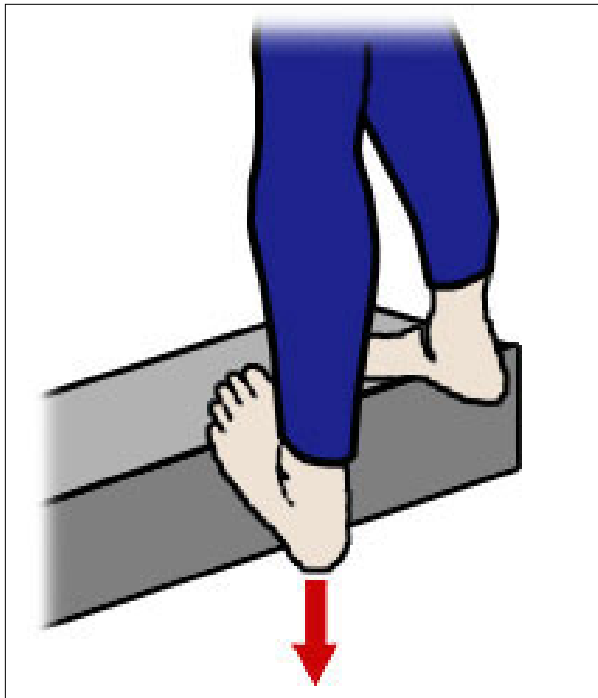
### WALL PUSH-UPS OR STRETCHES FOR ACHILLES TENDON

The Achilles tendon comes from the muscles at the back of your thigh and your calf muscles. These exercises need to be performed first with the knee straight and then with the knee bent in order to stretch both parts of the Achilles tendon. Twice a day do the following wall push-ups or stretches: (a) Face the wall, put both hands on the wall at shoulder height, and stagger the feet (one foot in front of the other).

The front foot should be approximately 30 cm (12 inches) from the wall. With the front knee bent and the back knee straight, lean into the stretch (i.e. towards the wall) until a tightening is felt in the calf of the back leg, and then ease off. Repeat 10 times. (b) Now repeat this exercise but bring the back foot forward a little so that the back knee is slightly bent. Repeat the push-ups 10 times.



### STAIR STRETCHES FOR ACHILLES TENDON AND PLANTAR FASCIA



Holding the stair-rail for support, with legs slightly apart, position the feet so that both heels are off the end of the step. Lower the heels, keeping the knees straight, until a tightening is felt in the calf. Hold this position for 20-60 seconds and then raise the heels back to neutral. Repeat 6 times, at least twice a day.

## Toe Stretch

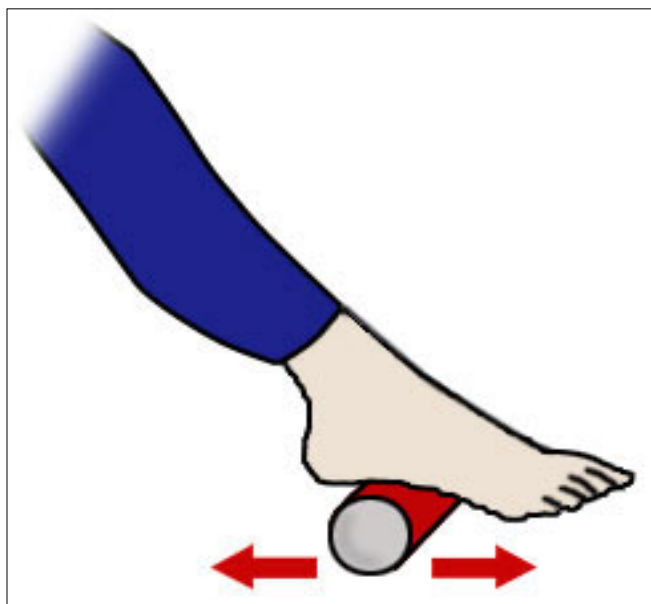
Sit on the floor with knee bent. Pull the toes back on the injured foot until stretch across the arch is felt. Hold and repeat.



## Dynamic stretches for plantar fascia

This involves rolling the arch of the foot over a tennis ball or a heel pain massager etc, while either standing (holding the back of a chair for support) or sitting. Allow the foot and ankle to move in all directions over the object. This can be done for a few minutes until there is some discomfort. Repeat this exercise at least twice a day. The discomfort can be relieved by rolling the foot on a cool drinks can from the fridge.

An alternative exercise is the **Frozen can roll**. Roll your bare injured foot back and forth from the tip of the toes to the heel over a frozen juice can. This is a good exercise after activity because not only stretches the plantar fascia but provides cold therapy to the injured area.



## Massage