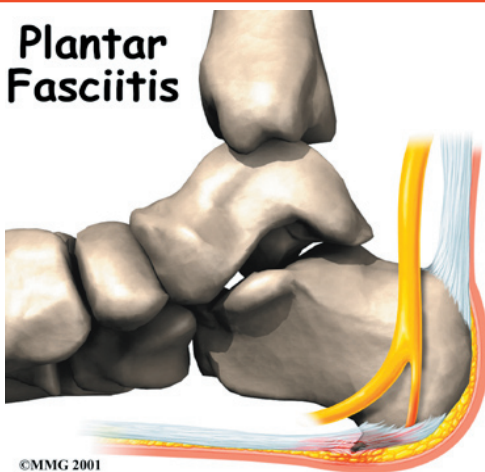


## Plantar Fasciitis



### Introduction

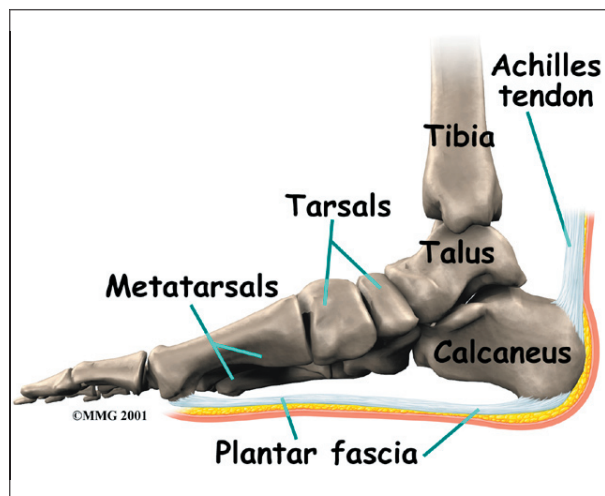
*Plantar fasciitis* is a painful condition affecting the bottom of the foot. It is a common cause of heel pain and is sometimes called a *heel spur*. Plantar fasciitis can come from a number of underlying causes. Finding the precise reason for the heel pain is sometimes difficult. Even so, several options are available for treatment.

This guide will help you understand

- how plantar fasciitis develops
- how the condition causes problems
- what can be done for your pain

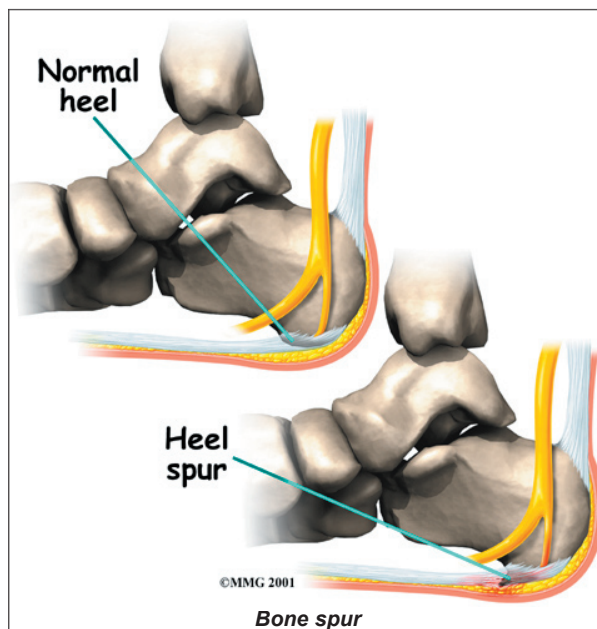
### Anatomy

Where is the plantar fascia, and what does it do?



The *plantar fascia* is a structure that runs from the front of the heelbone (*calcaneus*) to the ball of the foot. This dense strip of tissue helps support the arch of the foot by acting something like the string on an archer's bow.

As you can imagine, when the foot is on the ground a tremendous amount of force (the full weight of the body) is concentrated on the plantar fascia. This force stretches the plantar fascia as the arch of the foot tries to flatten from the weight of your body. This is just like the string on a bow is stretched by the force of the bow trying to straighten. This leads to stress on the plantar fascia where it attaches to the heelbone. Small tears of the fascia can result. These tears are normally repaired by the body.



As this process of injury and repair repeats itself over and over again, a *bone spur* (a pointed outgrowth of the bone) sometimes forms as the body's response to try to firmly attach the fascia to the heelbone. This appears on an X-ray of the foot as a heel spur.

### Causes

How does plantar fasciitis develop?

Heel pain probably comes from several causes. In some cases the heel spur can be so big it

causes pain itself, but this is rare. The chronic inflammation of the fascia itself may be the source of pain in many cases. (This condition is probably most accu-

ately called *plantar fasciitis*.) As we age, the very important **fat pad** that makes up the fleshy portion of the heel becomes thinner and degenerates. This can lead to inadequate padding on the heel and chronic pain in this area.

Some physicians feel that the small nerves that travel under the plantar fascia on their way to the forefoot become irritated and may contribute to the pain. In many cases, the actual source of the painful heel will never be clearly defined without doubt.

## Symptoms

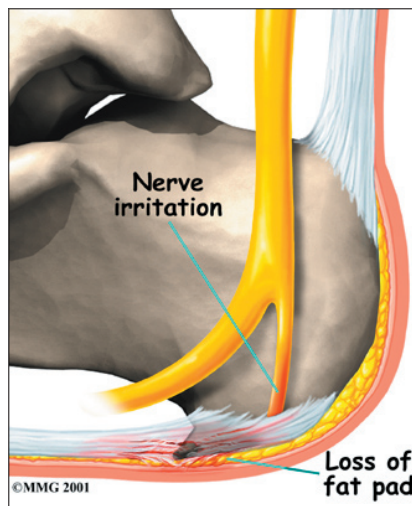
What does plantar fasciitis feel like?

The symptoms of plantar fasciitis include pain in the center of the heel when weight is placed on the foot. This is usually most pronounced in the morning when the foot is first placed on the floor.

## Diagnosis

How do doctors diagnose the condition?

The diagnosis of plantar fasciitis is generally made during the history and physical examination. There are several conditions that can cause heel pain, and plantar fasciitis must be distinguished from these conditions.



An X-ray may be ordered to rule out a stress fracture of the heel bone and to see if a bone spur is present that is large enough to cause problems. Laboratory investigation may be necessary in some cases to rule out a *systemic illness* causing the heel pain, such as rheumatoid arthritis, Reiter's syndrome, or ankylosing spondylitis. These are diseases that affect the entire body but may show up at first as pain in the heel.

## Treatment

What can be done for my pain?

### Nonsurgical Treatment

Most patients get better with the help of nonsurgical treatments. Stretches for the calf muscles on the back of the lower leg take tension off the plantar fascia.

A *night splint* can be worn while you sleep. The night splint keeps your foot from bending downward, and it places a mild stretch on the calf muscles and the plantar fascia. People seem to get better more quickly when using a night splint, and they report having less heel pain when placing their sore foot on the ground in the morning.

Supporting the arch with a well fitted arch support, or *orthotic*, may also help reduce pressure on the plantar fascia. Also, placing a special type of insert into the shoe, called a *heel cup*, can reduce the pressure on the sore area and add padding to a heel that has lost some of the fat pad through degeneration.

*Shock wave therapy* is a newer form of nonsurgical treatment. It uses a machine to generate shock wave pulses to the sore area. Patients generally receive the treatment once each week for up to three weeks. It is not known exactly why it works for plantar fasciitis, but recent studies indicate that this form of treatment can help ease pain, while improving range of motion and function.

Anti-inflammatory medications are sometimes used to decrease the inflammation in the fascia and reduce your pain. An injection of cortisone into the area of the fascia is effective. Cortisone should be used sparingly since it may contribute to the process of degeneration of the fat pad, actually making the problem worse.

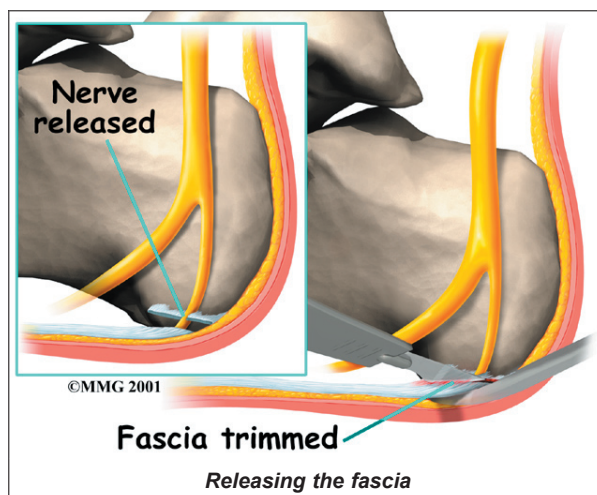
### Surgery

Surgery is a last resort in the treatment of heel pain. Physicians have developed many procedures in the last 100 years to try to cure heel pain. Most procedures that are commonly used today focus on several areas:

- remove the bone spur (if one is present)
- release the plantar fascia
- release pressure on the small nerves in the area

Usually the procedure is done through a small incision on the inside edge of the foot, although some surgeons now perform this type of surgery using an *endoscope*. An endoscope is a small TV camera that can be inserted into a joint or under the skin to allow the surgeon to see the structures involved in the surgery. By using the endoscope, a surgeon can complete the surgery with a smaller incision and presumably less damage to normal tissues. It is unclear whether an endoscopic procedure for this condition is better than the traditional small incision.

Surgery usually involves identifying the area where the plantar fascia attaches to the



heel and **releasing the fascia** partially from the bone. If a **small spur is present this is removed**. The small nerves that travel under the plantar fascia are identified and released from anything that seems to be causing pressure on the nerves. This surgery can usually be done on an outpatient basis,



meaning you can leave the hospital the same day.

### Rehabilitation

What should I expect following treatment?

#### Nonsurgical Rehabilitation

Patients with plantar fasciitis are commonly prescribed physical therapy. Therapists design exercises to improve flexibility in the calf muscles and the plantar fascia.

Treatments directed to the painful area help control pain and swelling. Examples include ultrasound, ice packs, and soft-tissue massage. Therapy sessions sometimes include *iontophoresis*, which uses a mild electrical current to push anti-inflammatory medicine to the sore area.

A customized foot orthotic may be designed to support the arch of the foot and to help cushion the heel. Or your therapist may recommend you use a heel cup.

Ideas are offered for you to use at home, such as doing your stretches for the calf muscles and the plantar fascia. You may also be fit with a night splint to wear while you sleep. As mentioned earlier, the night splint is designed

to put a gentle stretch on the calf muscles and plantar fascia as you sleep.

### **After Surgery**

It will take several weeks before the tissues are well healed. The incision is protected with a bandage or dressing for about one week after surgery. You will probably use crutches briefly, and a physical therapist may be consulted to help you learn to use your crutches.

The stitches are generally removed in 10 to 14 days. However, if your surgeon used sutures that dissolve, you won't need to have the stitches taken out. You should be released to full activity in about six weeks.