South Shore Hospital

Orthopedic, Spine and Sports Therapy

Plantar Fasciitis

Anatomy and Biomechanics

The plantar fascia is a thick band of connective tissue that starts at the front of your calcanues (heel bone) and then connects to each of your phalanges (toe bones). The function of the plantar fascia is to enhance the mechanics of the foot. As you walk the plantar fascia gives support to the arch of your foot and improves the efficiency of the muscles.

Generally speaking, plantar fasciitis is a painful condition that results from extra stress put through the bottom of the foot. There are a number of different reasons as to why you may have developed your symptoms and typically there are a number of factors involved. The most common risk factors associated with plantar fasciitis are:

- Tightness or weakness of the calf muscles
- Low or fallen arches (pes planus) or high arches (pes cavus)
- Sudden gain in weight or obesity
- Sudden increase in exercise intensity or duration
- Change in walking or running surface (going from a treadmill to trail running)
- Occupations involving prolonged standing
- Shoes with poor cushioning/support
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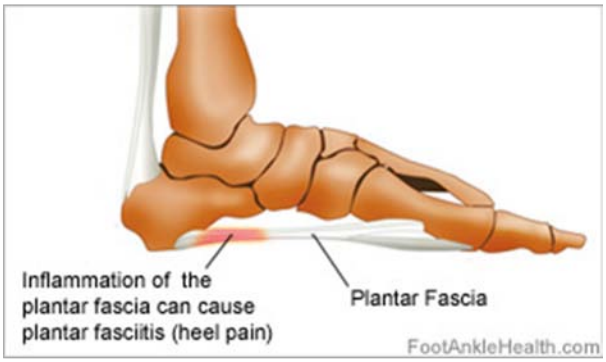

http://www.footanklehealth.com/heel/plantar-fasciitis.html

The symptoms of plantar fasciitis can come on suddenly, but typically they will gradually worsen with time. Symptoms include:

- Heel pain especially with first few steps in the morning or after being sedentary for a while
- Tenderness to pressure at the sole of your foot or heel
- Pain when standing on your tiptoes

You may have had an x-ray that showed you have a heel or bone spur. Although it could be giving you some symptoms, it is not always the reason for the pain with plantar fasciitis.

Treatment Options

Due to the multi-factorial nature of plantar fasciitis, the treatment options will vary and are very much patient specific after an evaluation by a medical professional. This treatment may include a course of physical therapy, anti-inflammatory medications, ice, night splints, rest and activity modification, change in foot wear and over the counter or custom orthotics. If symptoms do not resolve, then your physician may decide to give you a corticosteroid injection. With more chronic cases, a treatment called extracorporeal shockwave therapy may be recommended by your physician. In more extreme cases where all conservative treatment fails, surgery to release the tight fascia can be performed.

Rehabilitation Philosophy

Your physical therapist will perform a detailed examination to assess the strength and flexibility of your legs. The goal of rehabilitation of plantar fasciitis is to decrease the stress on the tissues by restoring the normal mechanics of the foot and leg. This is key for a full return to function and to minimize the chances of your symptoms returning.

Treatment may include (this list is not meant to be all inclusive or exclusive. Your treating physical therapist will set an appropriate treatment plan based on your specific impairments/findings):

Rest/Activity Modification: Your therapist may ask you to stop or modify any activity that is causing you pain or discomfort. This is to allow the irritated tissues to heal and to stop further aggravation of the tissue.

Stretching: Stretching the lower extremity muscles with a focus on the gastrocnemious/soleus (calf muscle) complex.

Strengthening: You will be instructed in a personalized exercise program based on the initial evaluation findings. Strengthening typically is focused on the ankle/foot muscles (posterior tibialis and foot intrinsic) and the core musculature (abdominals, low back and hip muscles).

Modalities: Several adjunctive therapies could be used during your treatment by the physical therapist. These include ultrasound, laser therapy or iontophoresis.

Massage: Massaging of the plantar fascia can be performed to help lengthen the tissue and to help break up any scar tissue that may have formed.

Taping: Different taping techniques could be utilized to assist in restoring normal mechanics in the foot and to help prevent new inflammation from occurring.

Night Splints: Night splints are either a hard or soft splint that is worn during the night while sleeping to keep the calf muscles stretched out and to limit the amount of muscle tightening that occurs from the foot being held in a shortened position at night.

Change in Footwear/Orthotics: Depending on your foot posture, your therapist may have you try a different type of shoe (motion control vs shock absorption) to improve the mechanics in your foot. If the mechanics cannot be controlled with a change in footwear, orthotics may be recommended. Due to cost, it is typical to try over the counter orthotics prior to having custom orthotics made (if symptoms continue).

Your therapist will give you a home exercise program which may include the stretching, strengthening and self-massage techniques. You should attempt to limit any activity that makes your pain worse and use ice to help with any pain/inflammation that you may experience from everyday activity. About 80-90% of all people who experience plantar fasciitis will have complete resolution of their symptoms.

***Reviewed by Michael Geary, MD**