

# **Planting the Pain in Your Foot What Causes Plantar Fasciitis and How to Deal with It**

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[\*\*Taping Your Foot for Plantar Fasciitis\*\*](#)

**by Brian Fullem, D.P.M.**

In October of 1998, Ray Pugsley continued his improvement towards the elite distance runners in the U.S. by running 49:12 to finish second in the Army 10 Miler. It was the longest race that the 5K specialist had ever run in racing flats. During the next few weeks Ray experienced heel pain his first steps in the morning and pain during the start of runs that seemed to go away after he warmed up. When he described his symptoms to a fellow runner, she replied that it sounded like plantar fasciitis. Pugsley continued to have symptoms intermittently for the next eight months, but it didn't prevent him from finishing third at the USATF Cross Country Club Nationals, or from running 13:51 for 5K on the track. Finally, however, at the USATF Track Championships he suffered the uncommon injury of rupturing his plantar fascia.

## **Sources and Symptoms**

Plantar fasciitis is one of the more common running related injuries. It is an acute inflammation of the band of tissue that supports the arch. Plantar is medical nomenclature for the bottom of the foot, and the plantar fascia is a rope-like band of tissue with almost no elastic properties that stretches along the bottom of the foot. If the arch is overstressed the fascia will not stretch, instead it will pull away from the attachment site at the calcaneus (heel bone) where the arch meets the heel. The classic symptoms of this injury are more pain with the first steps in the morning and when you first stand after sitting for an extended period of time, or at the beginning of a run. During the initial stages the pain subsides after warming up but in the chronic cases the pain can progress beyond the initial steps of a run to a constant ache or sharp pain. One common misconception is that a bone spur in the heel causes the pain. A spur may be noted on an x-ray, but plantar fasciitis is strictly a soft tissue inflammation.

One of the more common causes of plantar fasciitis is tight calf muscles. If there is not enough motion in the ankle joint due to a lack of flexibility then there will be extra strain on the fascia which may lead to this injury. Foot type and how the foot functions can also play a significant role in this injury. The two extreme foot types—flat feet and high arched feet—are most commonly implicated in fasciitis. Improper training shoe selection along with extended wear in racing flats or spikes can also lead to the initial onset of symptoms, as was the case with Pugsley.

## **Treatment Techniques**

Treating the cause of the injury, along with the symptoms, is the key to curing this malady. If there is a lack of flexibility in the gastroc-soleus (the two calf muscles which

combine to form the Achilles tendon) complex then the most important aspect of treatment centers on stretching both muscle groups three times a day. The calves should be stretched both with the knee locked and knee bent. Knee locked isolates the gastroc muscles and knee bent isolates the soleus muscle. Hold each stretch for 30 seconds, relax for a few seconds and repeat the stretch five times, three different times during the day. In some cases tight hamstring muscles may play a part, therefore stretching this muscle group is also a good idea.

In chronic cases people may benefit from the use of a night splint. It is a device worn on the foot and leg that holds the foot in a stretched position while you sleep. The best night splints are adjustable to provide a better stretch as muscle flexibility improves.

Ice plays an important part in the treatment of most injuries. It will help to reduce the inflammation to the area, which in turn can reduce the pain. One excellent way to ice the bottom of the foot is to freeze a water bottle and roll your foot over it for at least fifteen minutes per day, preferably at the end of the day.

Non-steroidal anti-inflammatory medicines (NSAIDs) such as ibuprofen or aspirin and cortisone injections can very effectively reduce inflammation but should be used judiciously. Long term use of NSAIDs can lead to a stomach ulceration, although the newer class of these drugs known as Cox II inhibitors are reportedly safer in this regard. One cortisone injection in the plantar fascial area is typically very safe, but more than one injection in the same area over a short period of time may lead to weakening of the tissue. Ray Pugsley received one injection into his plantar fascial area, but it is doubtful in my opinion that this led to his rupture. He competes at a very high level and was doing his track workouts in spikes, in addition to racing in them, and that was probably the main factor leading to his rupture.

In chronic cases, physical therapy to reduce the inflammation with modalities and exercises to strengthen the foot muscles can help cure the injury. Massage to the area to break up scar tissue and restore the suppleness of the fascia can also be added to the treatment in chronic non-healing cases. Self-massage can effectively be accomplished by rolling your foot over a tennis ball. When the pain level is lower you can progress to rolling over a golf ball. I advise my patients to put the golf ball in the freezer next to the water bottle between treatments.

Taping the foot to support the fascia and reduce the traction forces that are causing the inflammation is another excellent treatment tool. If the foot feels better when it is taped then this helps to confirm the diagnosis of plantar fasciitis. [Click here](#) for a series of photographs and step-by-step instructions of this taping technique. Over the counter arch supports can also help to reduce the stress on the fascia.

Custom orthotic devices can be a very effective treatment if there is a biomechanical abnormality or with an extreme foot type. Your local sports medicine Podiatrist can perform a complete examination including a gait exam to determine if these inserts are necessary. (For a referral you can call the American Academy of Podiatric Sports

Medicine at (800) 438-3355 or visit their website at [www.aapsm.org](http://www.aapsm.org)). Custom devices can be made out of all different materials and combinations including plastic, graphite, cork, EVA and Spenco, with equal effectiveness. The most reliable method for fabricating the devices is through the use of plaster casting while the patient is sitting or lying down.

A new treatment that has received mixed reviews is the use of a device called an Ossatron. It delivers a treatment called extra-corporeal shock wave therapy. The treatment has been used in Europe with a reported 60% improvement after one treatment. The drawbacks of this treatment are limited availability and lack of insurance coverage for a procedure that may cost up to \$1,000. It should be noted that there are no long term follow up studies on the use of the Ossatron.

### **If It Doesn't Go Away**

Over 95% of the time plantar fasciitis improves or resolves with conservative therapy. If the symptoms are not improving then there may be something else causing the pain such as a stress fracture, nerve pain, or bursitis. In these cases further testing including an MRI, bone scan, or CT scan should be considered. In the event that plantar fasciitis is a confirmed diagnosis and pain is still present after a year or so of conservative treatment only then should surgery be considered.

Surgery involves cutting the inside half or two-thirds of the fascia away from the attachment into the calcaneus. Your surgeon may elect to perform this through a larger open incision or through the use of a scope known as Endoscopic Plantar Fasciotomy or EPF. Either way the success rates appear to be similar. Your plantar fascial symptoms should be relieved but pain may arise in other parts of the foot as a result of the disruption of the main supporting structure of the arch. The good news about rupturing your fascia is that you have performed your own surgery. After his plantar fascia rupture, Ray Pugsley was able to return to racing but it was a long road back due to complications.

If you do have to resort to surgery make sure your surgeon is a Podiatrist board certified in foot surgery or an Orthopedist that completed foot surgery fellowship training, and make sure you seek a second opinion.

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