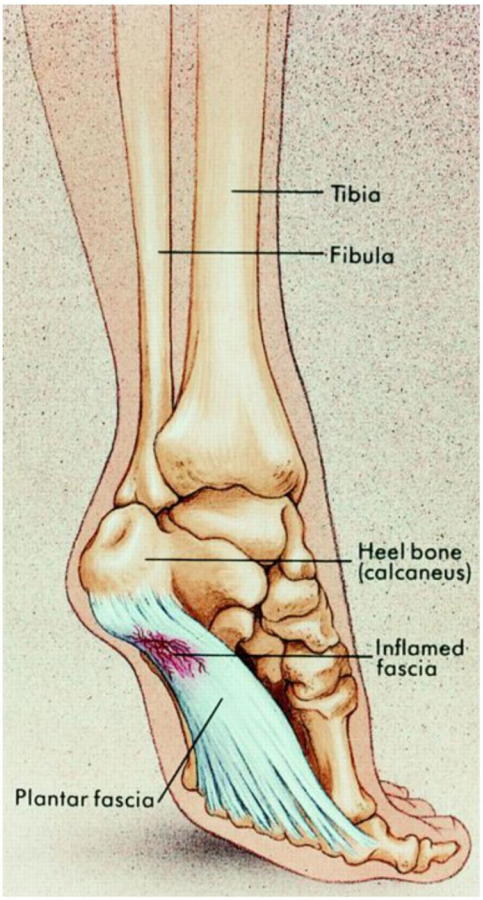
Understanding Plantar Fasciitis

By Paul Langer, DPM

Plantar fasciitis is what I often refer to as a nuisance injury. It's rarely painful enough to stop someone in their tracks but it can just keep hanging on and gradually worsening over time until it becomes debilitating. Plantar fasciitis (PF) is a unique injury in that it commonly affects young athletes but just as commonly affects older sedentary individuals and almost anyone in between. Studies show that 10-15% of the adult population in the U.S. will seek treatment for it at some point in their lives.

Reputable running retailers know that their customers rely on their expertise for help with foot or leg pain. While only licensed medical professionals can legally diagnose and treat medical conditions, those who work in running retail can certainly benefit from a better understanding of the anatomy, causes and treatment options of PF.



Most people take between 8,000-10,000 steps each day just for everyday activities. Walkers take roughly 2,000 steps per mile while runners take 1,000-1,500. For a number of reasons these steps can begin to overload the plantar fascia. Fortunately 80% of those affected can resolve the condition once the causative factors have been identified and treatment initiated. Many times very simple treatments go a long way not only in resolving PF but also in preventing recurrence. More severe cases may require surgery but this is the exception rather than the rule.

Anatomy: The plantar fascia is a ligament that originates at the bottom of the calcaneus (heel bone) and extends to the bases of the phalangeal bones of the toes. Ligaments differ from tendons in a few important ways. Ligaments attach one bone to another and function as stabilizers. Tendons attach muscles to bone and function to provide movement. A ligament cannot be strengthened by exercising it like a muscle/tendon unit can. The plantar fascia becomes thicker and tighter as plantar fascia progresses to the point where it almost "bowstrings" out as the toes are pulled up towards the ankle.

Function: The plantar fascia is the most important non-muscular structure that supports and stabilizes the foot and arch. It does this through a process called the "windlass mechanism." You can think of the windlass as a winch or a pulley system that helps raise

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the arch of the foot. This happens after initial footstrike while the heel is raising and weight is transferred to the forefoot during the propulsive phase of gait. As the heel rises and the toes bend upwards, the Plantar Fascia winds around the metatarsal heads (the bones at the ball of the foot) which act as a pulley. This tightens the fascia and assists the arch in rising. The rising arch is important because it brings pronation to an end and helps stabilize the foot for the power generating phase of the running stride. If the plantar fascia is subjected to excessive strain during this phase then it will become injured.

Symptoms: The most common complaint is heel pain especially after arising from bed or sitting. Pain usually improves gradually with walking only to return again. Runners often state that they have no pain during the workout. Variations of PF pain include pain that radiates into the arch, pain that worsens as the day progresses. PF does not cause ankle, lower leg or forefoot pain but because plantar fasciitis is so common, many individuals misdiagnose themselves with this condition. X-rays may show a bone spur but this does not often affect the prognosis or treatment.

Causative factors include: weight gain, worn or inappropriate footwear, increased activity, working on hard floors (warehouses, hospitals, schools). Those with a pronated foot type as well as high arched individuals may be more prone to PF than those with a neutral foot type. For some, there are no easily identifiable causative factors. There are a number of theories on why PF is so common. Some speculate that it is due to weaker foot muscles due to wearing shoes. Others look at the artificially hard and flat surfaces such as concrete and asphalt which are more common than ever before.

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Obesity is certainly a contributing factor for some.

Most people with foot pain will self-treat by purchasing either a softer shoe or a soft insole. I emphasize to my patients that the plantar fascia does not get injured when the heel hits the ground (for most people) but when the heel lifts and transfers weight to the forefoot. More cushioning in the shoes or insoles will not relieve tension on the fascia but a more supportive shoe and or insole can. Stability shoes and firm insoles can potentially relieve tension on the fascia by affecting pronation and/or supporting the arch.

Those suffering with PF often ask which shoe or insole is "best for plantar fasciitis?" Of course there is not one single magical shoe or insole that cures plantar fasciitis for all individuals but the same fitting principles that most shoe fitters follow are a good starting point. Insoles work great for those who are already in an appropriate shoe. I recommend insoles be selected based on comfort and foot type but explain that firm insoles relieve tension on the fascia better than cushioned insoles.

Stretching exercises that isolate the plantar fascia and Achilles tendon have been shown to help reduce pain of PF. I emphasize that the studies show that these need to be done 2-3 times per day until symptoms resolve. Icing and over-the-counter pain medications can help manage symptoms but rarely resolve PF by themselves.

If initial treatment does not resolve symptoms then physical therapy, night splints and cortisone injections may be warranted. Night splints are worn when sleeping and are designed to gently stretch the plantar fascia. They are not the most comfortable thing to sleep in but are effective for many people in relieving the morning pain.

It goes without saying but runners want to keep running even if they are in pain. Many physicians advise no running or activity until PF resolves. However, except in very rare instances, I allow my patients to remain active while we initiate treatment. I may advise them to decrease the intensity of running by avoiding speed or hill workouts or have them replace one or two of their weekly running workouts with biking or swimming but I rarely have them shut running down altogether. I do tell them though that if they clearly are getting worse despite treatment then they will have to stop until it improves.

Runners should not overlook the fact that they likely take 8,000-10,000 walking steps each day so they need to make sure they have protective shoes and insoles during the day too.

I explain to all my running patients that PF can recur so they need to make note of which treatments work best for them and employ them when symptoms flare. usually recommend using insoles only as much as needed and encourage my patients to remove them once their pain resolves. Their feet will them how often they need to be worn. Some of my patients can go months or even years without their insoles others may get PF as soon as they come out of the shoe. The insoles are a tool to be used as needed.

Like most overuse injuries, the longer PF persists the more difficult it to resolve so recognizing it and treating it is best done sooner than later. In my experience those who are overweight or work in jobs where they spend long periods of time on concrete floors have the most difficult time resolving PF. ■

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