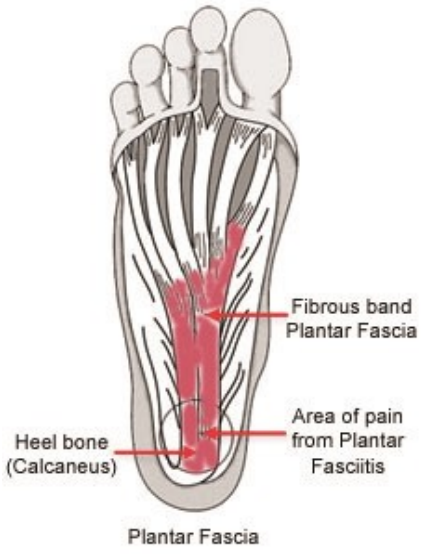
Plantar Fasciitis and Bone Spurs

Plantar fasciitis (fashee-EYE-tiss) is the most common cause of pain on the bottom of the heel. Approximately 2 million patients are treated for this condition every year.

Plantar fasciitis occurs when the strong band of tissue that supports the arch of your foot becomes irritated and inflamed.

Anatomy

The plantar fascia is a long, thin ligament that lies directly beneath the skin on the bottom of your foot. It connects the heel to the front of your foot, and supports the arch of your foot.



Cause

The plantar fascia is designed to absorb the high stresses and strains we place on our feet. But, sometimes, too much pressure damages or tears the tissues. The body's natural response to injury is inflammation, which results in the heel pain and stiffness of plantar fasciitis.

Risk Factors

In most cases, plantar fasciitis develops without a specific, identifiable reason. There are, however, many factors that can make you more prone to the condition:

- Tighter calf muscles that make it difficult to flex your foot and bring your toes up toward your shin
- Obesity
- Very high arch
- Repetitive impact activity (running/sports)
- New or increased activity

Heel Spurs

Although many people with plantar fasciitis have heel spurs, spurs are not the cause of plantar fasciitis pain. One out of 10 people has heel spurs, but only 1 out of 20 people (5%) with heel spurs has foot pain. Because the spur is not the cause of plantar fasciitis, the pain can be treated without removing the spur.

Heel spurs do not cause plantar fasciitis pain.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon, or locate one in your area through the AAOS "Find an Orthopaedist" program on OrthoInfo.org.

Copyright ©1995-2013 by the American Academy of Orthopaedic Surgeons.

Symptoms

The most common symptoms of plantar fasciitis include:

- Pain on the bottom of the foot near the heel
- Pain with the first few steps after getting out of bed in the morning, or after a long period of rest, such as after a long car ride. The pain subsides after a few minutes of walking
- Greater pain after (not during) exercise or activity

Doctor Examination

After you describe your symptoms and discuss your concerns, your doctor will examine your foot. Your doctor will look for these signs:

- A high arch
- An area of maximum tenderness on the bottom of your foot, just in front of your heel bone
- Pain that gets worse when you flex your foot and the doctor pushes on the plantar fascia. The pain improves when you point your toes down
- Limited "up" motion of your ankle

Tests

Your doctor may order imaging tests to help make sure your heel pain is caused by plantar fasciitis and not another problem.

X-rays

X-rays provide clear images of bones. They are useful in ruling out other causes of heel pain, such as fractures or arthritis. Heel spurs can be seen on an x-ray.

Other Imaging Tests

Other imaging tests, such as magnetic resonance imaging (MRI) and ultrasound, are not routinely used to diagnose plantar fasciitis. They are rarely ordered. An MRI scan may be used if the heel pain is not relieved by initial treatment methods.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon, or locate one in your area through the AAOS "Find an Orthopaedist" program on OrthoInfo.org.

Copyright ©1995-2013 by the American Academy of Orthopaedic Surgeons.

Treatment

Nonsurgical Treatment

More than 90% of patients with plantar fasciitis will improve within 10 months of starting simple treatment methods.

Rest. Decreasing or even stopping the activities that make the pain worse is the first step in reducing the pain. You may need to stop athletic activities where your feet pound on hard surfaces (for example, running or step aerobics).

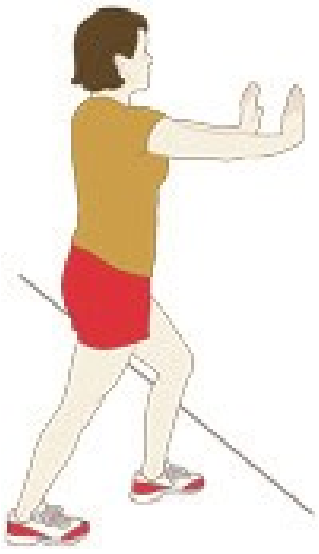
Ice. Rolling your foot over a cold water bottle or ice for 20 minutes is effective. This can be done 3 to 4 times a day.

Nonsteroidal anti-inflammatory medication. Drugs such as ibuprofen or naproxen reduce pain and inflammation. Using the medication for more than 1 month should be reviewed with your primary care doctor.

Exercise. Plantar fasciitis is aggravated by tight muscles in your feet and calves. Stretching your calves and plantar fascia is the most effective way to relieve the pain that comes with this condition.

- **Calf stretch**
  Lean forward against a wall with one knee straight and the heel on the ground. Place the other leg in front, with the knee bent. To stretch the calf muscles and the heel cord, push your hips toward the wall in a controlled fashion. Hold the position for 10 seconds and relax. Repeat this exercise 20 times for each foot. A strong pull in the calf should be felt during the stretch.
- **Plantar fascia stretch**
  This stretch is performed in the seated position. Cross your affected foot over the knee of your other leg. Grasp the toes of your painful foot and slowly pull them toward you in a controlled fashion. If it is difficult to reach your foot, wrap a towel around your big toe to help pull your toes toward you. Place your other hand along the plantar fascia. The fascia should feel like a tight band along the bottom of your foot when stretched. Hold the stretch for 10 seconds. Repeat it 20 times for each foot. This exercise is best done in the morning before standing or walking.

Cortisone injections. Cortisone, a type of steroid, is a powerful anti-inflammatory medication. It can be injected into the plantar fascia to reduce inflammation and pain. Your doctor may limit your injections. Multiple steroid injections can cause the plantar fascia to rupture (tear), which can lead to a flat foot and chronic pain.

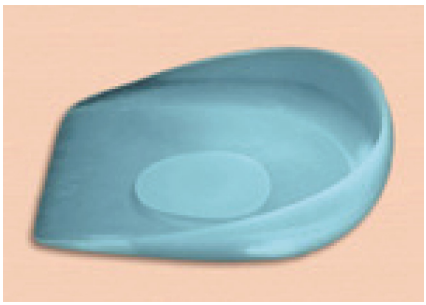


Calf stretch.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon, or locate one in your area through the AAOS "Find an Orthopaedist" program on OrthoInfo.org.

Copyright ©1995-2013 by the American Academy of Orthopaedic Surgeons.

Supportive shoes and orthotics. Shoes with thick soles and extra cushioning can reduce pain with standing and walking. As you step and your heel strikes the ground, a significant amount of tension is placed on the fascia, which causes microtrauma (tiny tears in the tissue). A cushioned shoe or insert reduces this tension and the microtrauma that occurs with every step. Soft silicone heel pads are inexpensive and work by elevating and cushioning your heel. Pre-made or custom orthotics (shoe inserts) are also helpful.



Soft heel pads can provide extra support.

Night splints. Most people sleep with their feet pointed down. This relaxes the plantar fascia and is one of the reasons for morning heel pain. A night splint stretches the plantar fascia while you sleep. Although it can be difficult to sleep with, a night splint is very effective and does not have to be used once the pain is gone.

Physical therapy. Your doctor may suggest that you work with a physical therapist on an exercise program that focuses on stretching your calf muscles and plantar fascia. In addition to exercises like the ones mentioned above, a physical therapy program may involve specialized ice treatments, massage, and medication to decrease inflammation around the plantar fascia.

Extracorporeal shockwave therapy (ESWT). During this procedure, high-energy shockwave impulses stimulate the healing process in damaged plantar fascia tissue. ESWT has not shown consistent results and, therefore, is not commonly performed.

ESWT is noninvasive—it does not require a surgical incision. Because of the minimal risk involved, ESWT is sometimes tried before surgery is considered.

Surgical Treatment

Surgery is considered only after 12 months of aggressive nonsurgical treatment.

Gastrocnemius recession. This is a surgical lengthening of the calf (gastrocnemius) muscles. Because tight calf muscles place increased stress on the plantar fascia, this procedure is useful for patients who still have difficulty flexing their feet, despite a year of calf stretches.

In gastrocnemius recession, one of the two muscles that make up the calf is lengthened to increase the motion of the ankle. The procedure can be performed with a traditional, open incision or with a smaller incision and an endoscope, an instrument that contains a small camera. Your doctor will discuss the procedure that best meets your needs.

Complication rates for gastrocnemius recession are low, but can include nerve damage.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon, or locate one in your area through the AAOS "Find an Orthopaedist" program on OrthoInfo.org.

Copyright ©1995-2013 by the American Academy of Orthopaedic Surgeons.

Plantar fascia release. If you have a normal range of ankle motion and continued heel pain, your doctor may recommend a partial release procedure. During surgery, the plantar fascia ligament is partially cut to relieve tension in the tissue. If you have a large bone spur, it will be removed, as well. Although the surgery can be performed endoscopically, it is more difficult than with an open incision. In addition, endoscopy has a higher risk of nerve damage.

Complications. The most common complications of release surgery include incomplete relief of pain and nerve damage.

Recovery. Most patients have good results from surgery. However, because surgery can result in chronic pain and dissatisfaction, it is recommended only after all nonsurgical measures have been exhausted.

OrthoInfo.org provides expert information about a wide range of musculoskeletal conditions and injuries. All articles are developed by orthopaedic surgeons who are members of the American Academy of Orthopaedic Surgeons (AAOS). To learn more about your orthopaedic health, please visit orthoinfo.org.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon, or locate one in your area through the AAOS "Find an Orthopaedist" program on OrthoInfo.org.

Copyright ©1995-2013 by the American Academy of Orthopaedic Surgeons.