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Patient education: Heel and foot pain (caused by plantar fasciitis) (Beyond the Basics)

Author: [Rachelle Buchbinder, MBBS, MSc, PhD, FRACP](#)

Section Editor: [Zacharia Isaac, MD](#)

Deputy Editor: [Monica Ramirez Curtis, MD, MPH](#)

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PLANTAR FASCIITIS OVERVIEW

Plantar fasciitis is one of the most common causes of foot pain in adults. Plantar fasciitis is caused by a strain of the ligaments in an area of the foot called the plantar fascia ([figure 1](#)). The plantar fascia (pronounced FASH-uh) is a thick piece of tissue with long fibers that starts at the heel bone and fans out along the under surface of the foot to the toes. The fascia provides support as the toes bear the body's weight when the heel rises during walking. Running, jumping, or standing for long periods of time can strain the plantar fascia.

Most people with plantar fasciitis notice improvement in symptoms with or without conservative treatment such as rest, icing, and stretching. Most people are pain-free within a year.

PLANTAR FASCIITIS SYMPTOMS

The most common symptom of plantar fasciitis is pain beneath the heel and sole of the foot. The pain is often worst when stepping onto the foot, particularly when first getting out of bed in the morning or when getting up after being seated for some time. You may have pain in one or both of your feet.

PLANTAR FASCIITIS RISK FACTORS

Plantar fasciitis is more likely to occur in people whose lifestyle or occupation causes repetitive impact to the heel. Activities such as running, marching, or dancing may trigger or worsen symptoms. Possible other factors that increase the risk of plantar fasciitis include obesity, prolonged standing, and limited ankle flexibility.

Plantar fasciitis occurs more frequently among runners. Although evidence is limited, possible factors that increase the risk in this group include:

- Excessive training (particularly a sudden increase in the distance run)
- Improper running shoes
- Running on unyielding surfaces
- Prolonged standing or walking on hard surfaces
- Flat feet
- High arches

Plantar fasciitis usually occurs in people without underlying medical problems, but it can be associated with other rheumatic disorders such as ankylosing spondylitis or psoriatic arthritis. (See "[Patient education: Axial spondyloarthritis, including ankylosing spondylitis \(Beyond the Basics\)](#)" and "[Patient education: Psoriatic arthritis \(Beyond the Basics\)](#)".)

PLANTAR FASCIITIS TESTS

To diagnose plantar fasciitis, a health care provider will take a medical history and examine your feet to locate painful areas. This involves holding your foot in a flexed position with one hand, and using the other hand to press on different parts of your sole (where the plantar fascia is located). It is important to tell your provider if you have noticed pain or tenderness in other areas not found during the exam.

If you have typical symptoms of plantar fasciitis, then no X-rays, ultrasound, or other tests are required. This is the case for most people. In some instances, depending upon the nature and

severity of pain as well as other individual factors, your provider may recommend X-rays to determine if another issue (such as a fracture) is causing your pain.

PLANTAR FASCIITIS TREATMENT

Conservative treatment of plantar fasciitis — Plantar fasciitis is usually treated conservatively (meaning without surgery or other invasive procedures). However, many commonly used treatments have not been proven to improve the symptoms of plantar fasciitis.

Commonly used treatments for plantar fasciitis include the following:

Rest — Limiting athletic activities and getting extra rest may help to relieve your symptoms. If possible, avoid excessive and repetitive heel impact from jumping, dancing, and distance running. A complete lack of physical activity, however, is not recommended, as this can lead to stiffening and a return of pain.

Icing — Applying ice to the area, for example for 20 minutes up to four times daily, may relieve pain. Ice and massage may also be used before exercise.

Stretching — Stretching exercises may be helpful. Home exercises include the calf-plantar fascia stretch ([picture 1](#)), foot/ankle circles ([picture 2](#)), toe curls ([picture 3](#)), and toe towel curls ([picture 4](#)). Go slowly and be careful when you start new exercises to avoid causing more pain.

Pain medication — A clinician may recommend a short course of a nonsteroidal antiinflammatory drug (NSAID) such as [ibuprofen](#) (sample brand names: Advil, Motrin) or [naproxen](#) (sample brand name: Aleve) to relieve pain. However, these medications have many possible side effects, and it is important to weigh the potential risks and benefits. (See "[Patient education: Nonsteroidal antiinflammatory drugs \(NSAIDs\) \(Beyond the Basics\)](#)".)

Protective footwear — It may help to wear athletic shoes, arch-supporting shoes (particularly those with an extra-long counter, which is the firm part of the shoe that surrounds the heel), or shoes with rigid shanks (usually a metal insert in the sole of the shoe). Cushion-soled shoes with gel pad inserts or heel cups may provide temporary pain relief. Silicone inserts have been found to provide better support than felt pads or rubber heel cups. Magnetic insoles have not been found to provide any additional benefit.

People who work or live in buildings with concrete floors should wear shoes with extra cushioning.

Wearing slippers or going barefoot may cause your symptoms to get worse or return, even if your floors are carpeted. Thus, it's a good idea to put on a supportive shoe or sandal even before you step out of bed in the morning.

Tape support — Taping the affected foot with a technique known as "low-Dye taping" may help, particularly if you experience pain first thing in the morning. Four strips of tape are applied as illustrated in the figure ([picture 5](#)). The tape should not be applied too tightly. You can use hypoallergenic tape if you have an allergy or sensitivity to regular sports tape.

Other plantar fasciitis treatment options — If these noninvasive measures fail to improve the pain, your health care provider may recommend trying one of the following:

Steroid injection — An injection of a steroid (also called "glucocorticoid") medication in your foot can help to relieve pain, although the effect may wear off after a few weeks. The doctor will press on your foot in order to locate the tender area and give the injection in that spot. The injection can be repeated, although many clinicians limit the number of times they will give injections because they believe repeated injections may weaken the tissues of the sole of the foot. However, this belief is unproven.

Steroid injections can be painful and are associated with a very small risk of causing infection.

Casting — Another option is a short walking cast, which begins at the calf and covers the ankle and foot up to the toes. This type of cast has a rocker-shaped bottom that allows you to continue walking while wearing it. This treatment has not been tested in clinical trials.

Surgery — Surgery is rarely required for people with plantar fasciitis. It would only be recommended if all other treatments had failed and if you have had persistent symptoms for at least 6 to 12 months. Surgery involves detaching the plantar fascia from the heel bone.

Unproven treatments — There are some approaches that have been tried in people who do not improve with conservative treatments. However, these approaches are typically more costly and of uncertain benefit. Shockwave therapy has been studied more extensively than some of the other alternative options.

Shockwave therapy — Some clinicians recommend shockwave therapy. This involves using a special probe to generate sound waves that provide a burst of energy to the sole of the foot. The treatment is initially painful. In high-quality studies, it has not been proven to be more effective than placebo treatment (ie, pretend treatment that doesn't really deliver a dose of energy, or delivers a dose too low to have an effect).

WHERE TO GET MORE INFORMATION

Your health care provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for health care professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

[Patient education: Heel pain caused by plantar fasciitis \(The Basics\)](#)

[Patient education: Metatarsalgia \(The Basics\)](#)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

[Patient education: Axial spondyloarthritis, including ankylosing spondylitis \(Beyond the Basics\)](#)

[Patient education: Psoriatic arthritis \(Beyond the Basics\)](#)

[Patient education: Nonsteroidal antiinflammatory drugs \(NSAIDs\) \(Beyond the Basics\)](#)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

[Heel pain in the active child or skeletally immature adolescent: Overview of causes](#)

[Foot and ankle pain in the active child or skeletally immature adolescent: Evaluation](#)

[Overview of running injuries of the lower extremity](#)

[Plantar fasciitis](#)

[Clinical manifestations and diagnosis of peripheral spondyloarthritis in adults](#)

The following organizations also provide reliable health information.

- National Library of Medicine

(www.nlm.nih.gov/medlineplus/healthtopics.html)

- American Academy of Orthopedic Surgeons
(<http://orthoinfo.aaos.org/>)
- American Podiatric Medical Association
(www.apma.org/)

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Topic 698 Version 21.0

GRAPHICS

Plantar fasciitis



The plantar fascia is a tough band of tissue that connects the heel bone to the toes.

Graphic 73704 Version 8.0

Calf stretch exercise



Sit with your legs straight and loop a towel around your foot. Then pull the top part of your foot towards you. Hold it like that for 10 to 30 seconds. Repeat this 5 times each session and do 2 sessions a day. You can also push the ball of your foot against the towel. This exercises and strengthens the muscles in your foot.

Graphic 82144 Version 2.0

Foot/ankle circles



With your leg resting against something and your foot in the air, point and flex your foot. Then make circles with your foot by rotating your ankle.

Graphic 70569 Version 1.0

Toe curls



Curl your toes around the edge of a book. Then straighten them. Do this over and over again for 2 minutes, twice a day.

Graphic 56422 Version 2.0

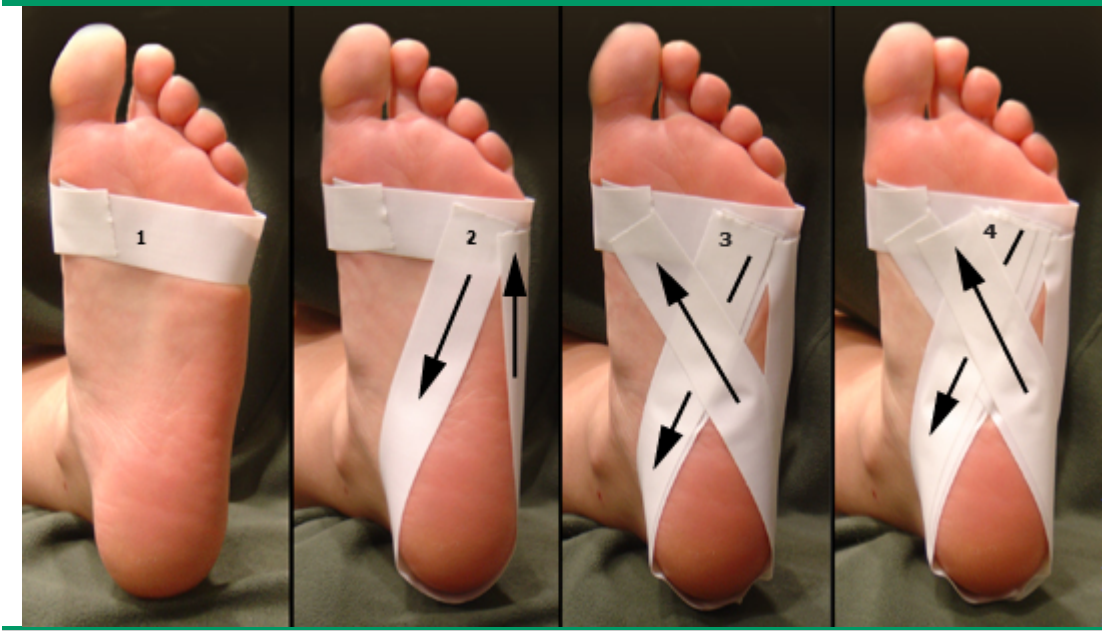
Toe towel curls



Curl your toes around a towel. Then grip and release the towel over and over again for 1 to 2 minutes, twice a day.

Graphic 70243 Version 2.0

Foot taping for plantar fasciitis



This way of taping the foot sometimes helps with plantar fasciitis. You can use sports tape, available at drug stores, for this. Here are the steps involved, from left to right.

- (1) Wrap a strip of tape around the foot, at the level of the ball of the foot.
- (2) Wrap a second strip of tape around the heel, starting just below the pinky toe, around the sides of the heel, and back up to the first strip of tape.
- (3) Wrap a third strip of tape around the heel, starting just below the pinky toe, like you did in step 2. This time, circle the heel and wrap the tape in a criss-cross, so that it ends just below the big toe.
- (4) Repeat step 3. The tape does not need to align perfectly. The tape can stay in place for 1 week.

Graphic 53721 Version 4.0

Contributor Disclosures

Rachelle Buchbinder, MBBS, MSc, PhD, FRACP Nothing to disclose **Zacharia Isaac, MD** Nothing to disclose **Monica Ramirez Curtis, MD, MPH** Nothing to disclose

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