

# Heel Pain

In our pursuit of healthy bodies, pain can be an enemy. In some instances, however, it is of biological benefit. Pain that occurs right after an injury or early in an illness may play a protective role, often warning us about the damage we've suffered.

When we sprain an ankle, for example, the pain warns us that the ligament and soft tissues may be frayed and bruised, and that further activity may cause additional injury.

Pain, such as may occur in our heels, also alerts us to seek medical attention. This alert is of utmost importance because of the many afflictions that contribute to heel pain.

## Heel Pain

Heel pain is generally the result of faulty biomechanics (walking gait abnormalities) that place too much stress on the heel bone and the soft tissues that attach to it. The stress may also result from injury, or a bruise incurred while walking, running, or jumping on hard surfaces; wearing poorly constructed footwear; or being overweight.

The heel bone is the largest of the 26 bones in the human foot, which also has 33 joints and a network of more than 100 tendons, muscles, and ligaments. Like all bones, it is subject to outside influences that can affect its integrity and its ability to keep us on our feet. Heel pain, sometimes disabling, can occur in the front, back, or bottom of the heel.

## Heel Spurs

A common cause of heel pain is the heel spur, a bony growth on the underside of the heel bone. The spur, visible by X-ray, appears as a protrusion that can extend forward as much as half an inch. When there is no indication of bone enlargement, the condition is sometimes referred to as "heel spur syndrome."

Heel spurs result from strain on the muscles and ligaments of the foot, by stretching of the long band of tissue that connects the heel and the ball of the foot, and by repeated tearing away of the lining or membrane that covers the heel bone. These conditions may result from biomechanical imbalance, running or jogging, improperly fitted or excessively worn shoes, or obesity.

## Plantar Fasciitis

Both heel pain and heel spurs are frequently associated with an inflammation of the band of fibrous connective tissue (fascia) running along the bottom (plantar surface) of the foot, from the heel to the ball of the foot. The inflammation is called plantar fasciitis. It is common among athletes who run and jump a lot, and it can be quite painful.

The condition occurs when the plantar fascia is strained over time beyond its normal extension, causing the soft tissue fibers of the fascia to tear or stretch at points along its length; this leads to inflammation, pain, and possibly the growth of a bone spur where it attaches to the heel bone.

The inflammation may be aggravated by shoes that lack appropriate support, especially in the arch area, and by the chronic irritation that sometimes accompanies an athletic lifestyle.

Resting provides only temporary relief. When you resume walking, particularly after a night's sleep, you may experience a sudden elongation of the fascia band, which stretches and pulls on the heel. As you walk, the heel pain may lessen or even disappear, but that may be just a false sense of relief. The pain often returns after prolonged rest or extensive walking.

## Excessive Pronation

Heel pain sometimes results from excessive pronation. Pronation is the normal flexible motion and flattening of the arch of the foot that allows it to adapt to ground surfaces and absorb shock in the normal walking pattern.

As you walk, the heel contacts the ground first; the weight shifts first to the outside of the foot, then moves toward the big toe. The arch rises, the foot generally rolls upward and outward, becoming rigid and stable in order to lift the body and move it forward. Excessive pronation—excessive inward motion—can create an abnormal amount of stretching and pulling on the ligaments and tendons attaching to the bottom back of the heel bone. Excessive pronation may also contribute to injury to the hip, knee, and lower back.

## Disease and Heel Pain

Some general health conditions can also bring about heel pain.

- **Rheumatoid arthritis** and other forms of arthritis, including gout, which usually manifests itself in the big toe joint, can cause heel discomfort in some cases.
- Heel pain may also be the result of an inflamed bursa (**bursitis**), a small, irritated sack of fluid; a **neuroma** (a nerve growth); or other soft-tissue growth. Such heel pain may be associated with a heel spur or may mimic the pain of a heel spur.
- **Haglund's deformity** ("pump bump") is a bone enlargement at the back of the heel bone, in the area where the achilles tendon attaches to the bone. This sometimes painful deformity generally is the result of bursitis caused by pressure against the shoe and can be aggravated by the height or stitching of a heel counter of a particular shoe.
- Pain at the back of the heel is associated with inflammation of the achilles tendon as it runs behind the ankle and inserts on the back surface of the heel bone. The inflammation is called **achilles tendinitis**. It is common among people who run and walk a lot and have tight tendons. The condition occurs when the tendon is strained over time, causing the fibers to tear or stretch along its length, or at its insertion on to the heel bone. This leads to inflammation, pain, and the possible growth of a bone spur on the back of the heel bone. The inflammation is aggravated by the chronic irritation that sometimes accompanies an active lifestyle and certain activities that strain an already tight tendon.
- **Bone bruises** are common heel injuries. A bone bruise or contusion is an inflammation of the tissues that cover the heel bone. A bone bruise is a sharply painful injury caused by the direct impact of a hard object or surface on the foot.

**Stress fractures** of the heel bone also can occur, although infrequently.

## Children's Heel Pain

Heel pain can also occur in children, most commonly between ages 8 and 13, as they become increasingly active in sports activity in and out of school. This physical activity, particularly jumping, inflames the growth centers of the heels; the more active the child, the more likely the condition will occur. When the bones mature, the problems disappear and are not likely to recur. If heel pain occurs

in this age group, podiatric care is necessary to protect the growing bone and to provide pain relief. Other good news is that heel spurs do not often develop in children.

## **Prevention**

A variety of steps can be taken to avoid heel pain and accompanying afflictions:

- Wear shoes that fit well—front, back, and sides—and have shock-absorbent soles, rigid shanks, and supportive heel counters.
- Wear the proper shoes for each activity.
- Do not wear shoes with excessive wear on heels or soles.
- Prepare properly before exercising. Warm up and do stretching exercises before and after running.
- Pace yourself when you participate in athletic activities.
- Don't underestimate your body's need for rest and good nutrition.
- If obese, lose weight.

## **Podiatric Medical Care**

If pain and other symptoms of inflammation—redness, swelling, heat—persist, you should limit normal daily activities and contact a doctor of podiatric medicine.

The podiatric physician will examine the area and may perform diagnostic X-rays to rule out problems of the bone.

Early treatment might involve oral or injectable anti-inflammatory medication, exercise and shoe recommendations, taping or strapping, or use of shoe inserts or orthotic devices. Taping or strapping supports the foot, placing stressed muscles and tendons in a physiologically restful state. Physical therapy may be used in conjunction with such treatments.

A functional orthotic device may be prescribed for correcting biomechanical imbalance, controlling excessive pronation, and supporting of the ligaments and tendons attaching to the heel bone. It will effectively treat the majority of heel and arch pain without the need for surgery.

Only a relatively few cases of heel pain require more advanced treatments or surgery. If surgery is necessary, it may involve the release of the plantar fascia, removal of a spur, removal of a bursa, or removal of a neuroma or other soft-tissue growth.

## **Heel Pain Tips**

- If you have experienced painful heels try wearing your shoes around your house in the evening. Don't wear slippers or socks or go barefoot. You may also try gentle calf stretches for 20 to 30 seconds on each leg. This is best done barefoot, leaning forward towards a wall with one foot forward and one foot back.
- If the pain persists longer than one month, you should visit a podiatrist for evaluation and treatment. Your feet should not hurt, and professional podiatric care may be required to help relieve your discomfort.
- If you have not exercised in a long time, consult your podiatric physician before starting a new exercise program.
- Begin an exercise program slowly. Don't go too far or too fast.
- Purchase and maintain good shoes and replace them regularly.

- Stretch each foot and achilles tendon before and after exercise.
- Avoid uneven walking surfaces or stepping on rocks as much as possible.
- Avoid going barefoot on hard surfaces.
- Vary the incline on a treadmill during exercise. Nobody walks uphill all the time.
- If it hurts, stop. Don't try to "work through the pain."

Your podiatric physician/surgeon has been trained specifically and extensively in the diagnosis and treatment of all manner of foot conditions. This training encompasses all of the intricately related systems and structures of the foot and lower leg including neurological, circulatory, skin, and the musculoskeletal system, which includes bones, joints, ligaments, tendons, muscles, and nerves.

Heel pain is most often caused by plantar fasciitis—a condition that is sometimes also called heel spur syndrome when a spur is present. Heel pain may also be due to other causes, such as a stress fracture, tendonitis, arthritis, nerve irritation, or, rarely, a cyst.

Because there are several potential causes, it is important to have heel pain properly diagnosed. A podiatric foot and ankle surgeon is best trained to distinguish between all the possibilities and determine the underlying source of your heel pain.

## **What Is Plantar Fasciitis?**

Plantar fasciitis is an inflammation of the band of tissue (the plantar fascia) that extends from the heel to the toes. In this condition, the fascia first becomes irritated and then inflamed—resulting in heel pain. The symptoms of plantar fasciitis are:

- Pain on the bottom of the heel
- Pain that is usually worse upon arising
- Pain that increases over a period of months

People with plantar fasciitis often describe the pain as worse when they get up in the morning or after they've been sitting for long periods of time. After a few minutes of walking the pain decreases, because walking stretches the fascia. For some people the pain subsides but returns after spending long periods of time on their feet.

## **Causes of Plantar Fasciitis**

The most common cause of plantar fasciitis relates to faulty structure of the foot. For example, people who have problems with their arches—either overly flat feet or high-arched feet—are more prone to developing plantar fasciitis.

Wearing non-supportive footwear on hard, flat surfaces puts abnormal strain on the plantar fascia and can also lead to plantar fasciitis. This is particularly evident when a person's job requires long hours on their feet. Obesity also contributes to plantar fasciitis.

## **Diagnosis**

To arrive at a diagnosis, the podiatric foot and ankle surgeon will obtain your medical history and examine your foot. Throughout this process the surgeon rules out all the possible causes for your heel pain other than plantar fasciitis.

In addition, diagnostic imaging studies such as x-rays, a bone scan, or magnetic resonance imaging (MRI) may be used to distinguish the different types of heel pain. Sometimes heel spurs are found in patients with plantar fasciitis, but these are rarely a source of pain. When they are present, the condition may be diagnosed as plantar fasciitis/heel spur syndrome.

## Treatment Options

Treatment of plantar fasciitis begins with first-line strategies, which you can begin at home:

- Stretching exercises. Exercises that stretch out the calf muscles help ease pain and assist with recovery.
- Avoid going barefoot. When you walk without shoes, you put undue strain and stress on your plantar fascia.
- Ice. Putting an ice pack on your heel for 10 minutes several times a day helps reduce inflammation.
- Limit activities. Cut down on extended physical activities to give your heel a rest.
- Shoe modifications. Wearing supportive shoes that have good arch support and a slightly raised heel reduces stress on the plantar fascia. Your shoes should provide a comfortable environment for the foot.
- Medications. Nonsteroidal antiinflammatory drugs (NSAIDs), such as ibuprofen, may help reduce pain and inflammation.
- Lose weight. Extra pounds put extra stress on your plantar fascia.

If you still have pain after several weeks, see your podiatric surgeon, who may add one or more of these approaches:

- Padding and strapping. Placing pads in the shoe softens the impact of walking. Strapping helps support the foot and reduce strain on the fascia.
- Orthotic devices. Custom orthotic devices that fit into your shoe help correct the underlying structural abnormalities causing the plantar fasciitis.
- Injection therapy. In some cases, corticosteroid injections are used to help reduce the inflammation and relieve pain.
- Removable walking cast. A removable walking cast may be used to keep your foot immobile for a few weeks to allow it to rest and heal.
- Night splint. Wearing a night splint allows you to maintain an extended stretch of the plantar fascia while sleeping. This may help reduce the morning pain experienced by some patients.
- Physical therapy. Exercises and other physical therapy measures may be used to help provide relief.

Although most patients with plantar fasciitis respond to non-surgical treatment, a small percentage of patients may require surgery. If, after several months of non-surgical treatment, you continue to have heel pain, surgery will be considered. Your podiatric foot and ankle surgeon will discuss the surgical options with you and determine which approach would be most beneficial for you.

## Long-term Care

No matter what kind of treatment you undergo for plantar fasciitis, the underlying causes that led to this condition may remain. Therefore, you will need to continue with preventive measures. If you are overweight, it is important to reach and maintain an ideal weight. For all patients, wearing supportive shoes and using custom orthotic devices are the mainstay of long-term treatment for plantar fasciitis.