

### Heel Pain

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.

#### **Causes**

Heel pain has many causes. 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 (such as flimsy flip-flops); or being overweight.

Common causes of heel pain include:

**Heel Spurs:** 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 plantar fasciitis, 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. 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 the plantar fascia 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.

**Achilles tendinitis:** Pain at the back of the heel is associated with Achilles tendinitis, which is inflammation of the Achilles tendon as it runs behind the ankle and inserts on the back surface of the heel bone. 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.

**Other possible causes of heel pain include:**

- rheumatoid arthritis and other forms of arthritis, including gout, which usually manifests itself in the big toe joint;
- an inflamed bursa (bursitis), a small, irritated sac 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"), 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;
- a bone bruise or contusion, which 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.

**When to Visit a Podiatrist**

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

**Diagnosis and Treatment**

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 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.

### **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

*Information courtesy of APMA.org*