



Plantar Fasciitis (Heel Spur Syndrome)

DESCRIPTION

Plantar fasciitis is characterized by stiffness and inflammation of the main fascia, the fibrous connective ligament-like tissue, on the bottom of the foot. Plantar fasciitis is occasionally associated with a bone spur on the heel or with a partial or complete tear of the fascia of the bottom of the foot. Bone spurs themselves usually do not cause symptoms.

COMMON SIGNS AND SYMPTOMS

- Pain and tenderness in the sole of the foot, mostly under the heel bone, with standing or walking
- Pain with the first steps when getting out of bed in the morning or after sitting

CAUSES

- Stress or injury to the heel, which causes inflammation and calcification of the fascia of the foot
- Irritation of a small nerve that runs under the foot, where the main fascia attaches to the heel bone
- Tight calf muscles or flat feet
- Shoes that do not fit well, those that have inadequate or rigid arch supports, and shoes with soles that are too stiff
- Activities that require sudden turns or stops

FACTORS THAT INCREASE RISK

- Sports that require running or jogging and sudden stops or changes in direction
- Prolonged standing
- Poor physical conditioning (strength, flexibility)
- Inadequate warm-up before practice or play
- Obesity
- Flat feet

PREVENTIVE MEASURES

- Appropriately warm up and stretch before practice and competition.
- Maintain appropriate conditioning that includes calf, ankle, and foot flexibility, strength and endurance training, and cardiovascular fitness.
- Maintain an ideal body weight.
- Avoid activities that put a constant strain on the foot (e.g., walking, running).

- Wear appropriate shoes with a rubber or felt heel cushion and good arches or cushioned arch supports.

EXPECTED OUTCOME

Plantar fasciitis is usually curable with appropriate conservative treatment. When conservative treatment fails, heel spurs are often curable with surgery.

POSSIBLE COMPLICATIONS

- Frequent recurrence of symptoms may result in a chronic problem; appropriately addressing the problem the first time decreases the frequency of recurrence.
- Lower back or knee disorders may be caused by constant limping.
- Following surgery, pain or weakness of the foot may occur during push off.
- Chronic inflammation, scarring, and partial or complete fascia tear may occur more often as a result of repeated cortisone injections.

GENERAL TREATMENT CONSIDERATIONS

Initial treatment consists of medications and ice to relieve pain, stretching exercises of the heel cord and achilles tendon, and modification of activities. A heel cup or felt insert in the shoe to relieve pressure on the heel is usually recommended. Occasionally, wearing splints at night may be offered, but chronic cases may require referral to a physical therapist or athletic trainer for further evaluation and treatment. Arch supports are helpful for people with flat feet to prevent or treat this problem. Surgery is sometimes needed to release the fascia and nerve, and it is often effective at relieving the symptoms.

MEDICATION

- Nonsteroidal antiinflammatory medications, such as aspirin and ibuprofen (do not take for 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician, and contact your doctor immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

- Cortisone injections reduce inflammation; however, these should be used sparingly. The number of times cortisone may be given is limited, because it weakens muscle, fascia, and tendons. Anesthetics temporarily relieve pain.

HEAT AND COLD

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. It should be applied for 10 to 15 minutes every 2 to 3 hours as needed and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

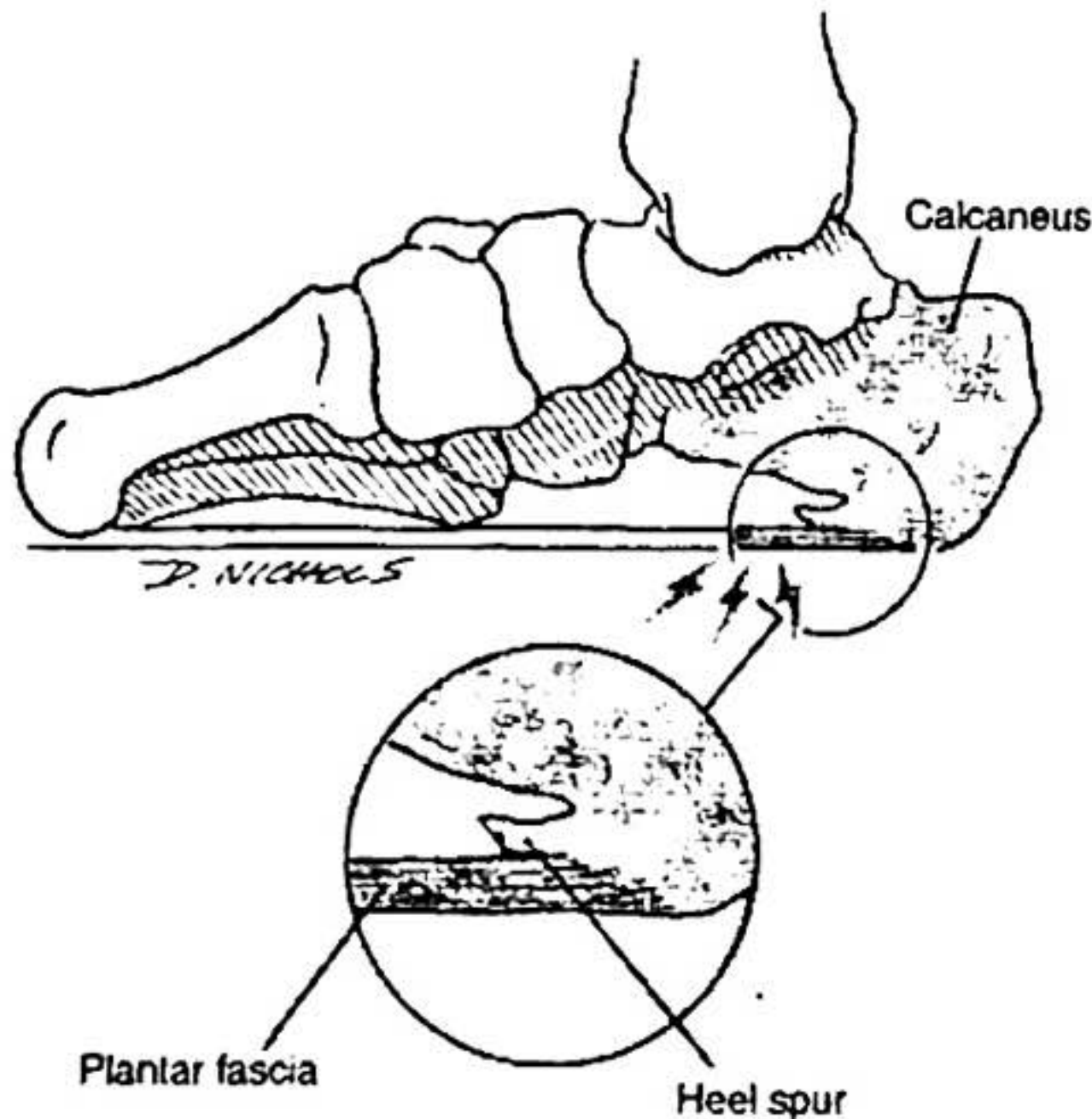


FIGURE 1 From Shankman GA: *Fundamental orthopedic management for the physical therapy assistant*, St Louis, 1997, Mosby Year Book, p 141.

WHEN TO CALL YOUR DOCTOR

- Symptoms get worse or do not improve in 2 weeks despite treatment.



These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it.
- A *gentle* stretching sensation should be felt.



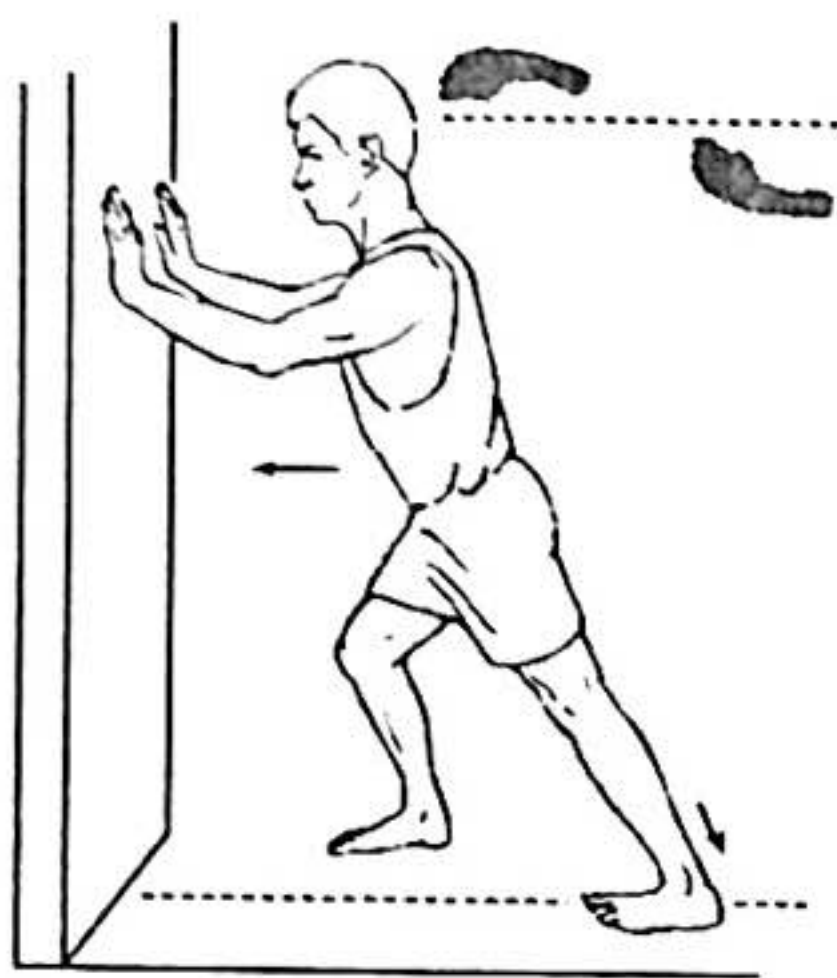
RANGE OF MOTION • Toe Extension

1. Grip your toes and pull them up toward your body as shown.
2. Hold this position for ____ seconds.
3. Return to the starting position, and pull the toes down.
4. Hold this position for ____ seconds.
5. Repeat this exercise ____ times, ____ times per day.



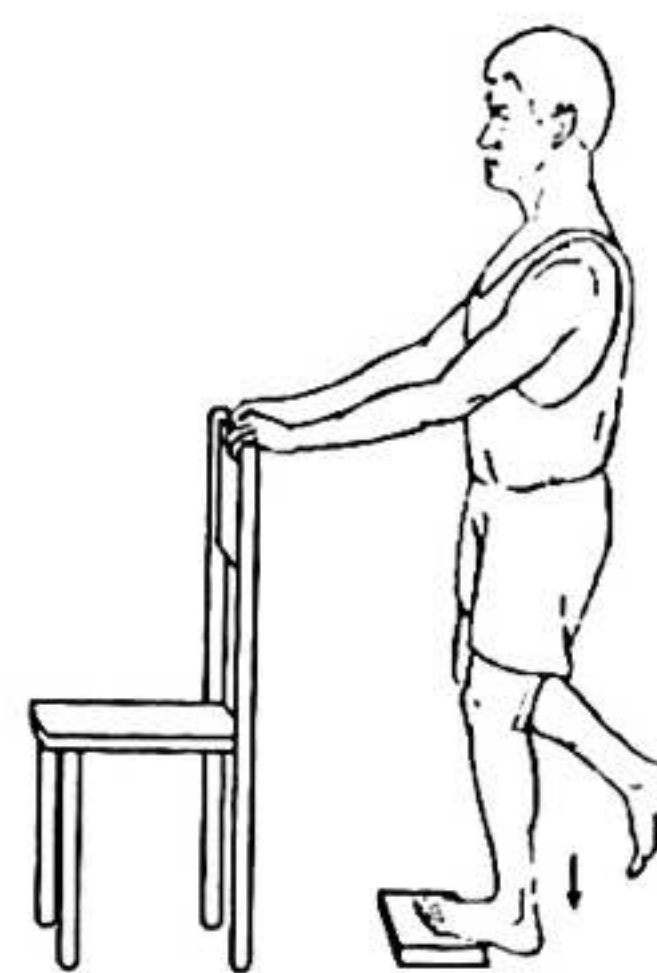
RANGE OF MOTION • Ankle Dorsiflexion

1. Sit on the edge of a chair as shown, and place your injured foot closest to the chair
2. Keep your foot flat on the floor, and move your knee forward over your foot.
3. Hold this position for ____ seconds.
4. Repeat this exercise ____ times, ____ times per day.



FLEXIBILITY • Gastrocnemius Stretch

1. Stand one arm's length from the wall as shown. Position the calf muscle to be stretched behind you as shown.
2. Turn the *toes in* and *heel out* of the leg to be stretched.
3. Lean toward the wall, leading with your waist and allowing your arms to bend. First do this exercise with your knee straight, then bend it slightly. *Keep your heel on the floor at all times.*
4. Hold this position for _____ seconds.
5. Repeat this exercise _____ times, _____ times per day.



FLEXIBILITY • Gastrocnemius Stretch

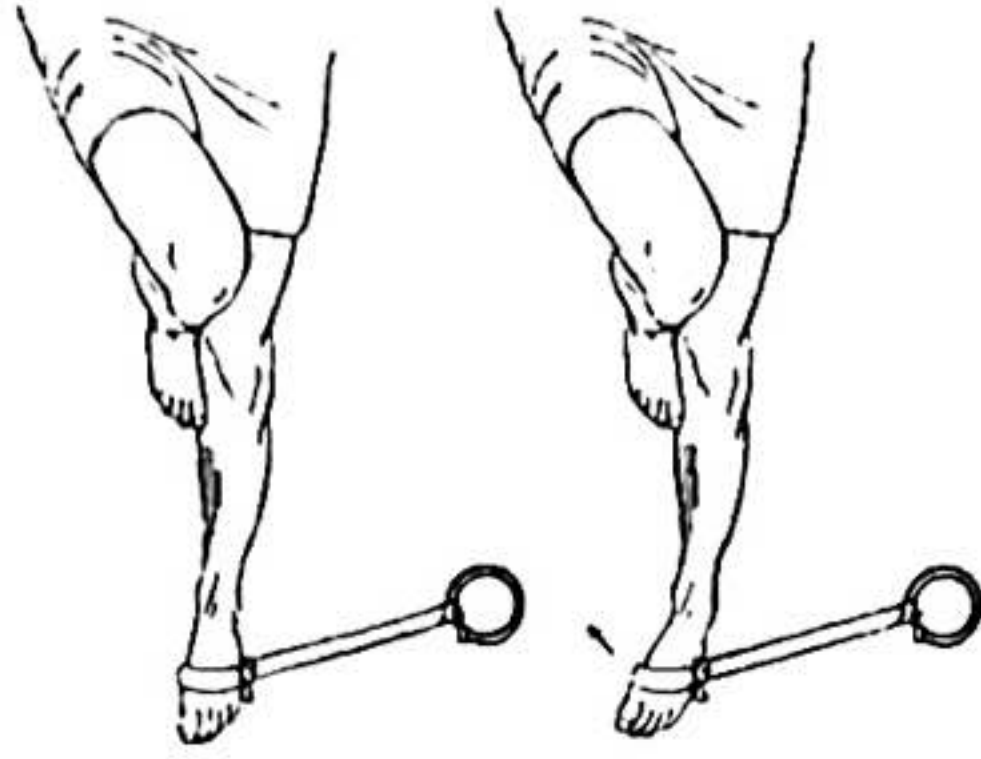
Note: This exercise can place considerable stress on your foot and ankle and should only be done after checking with your physician, physical therapist, or athletic trainer.

1. Place your toes and the ball of your foot on a stack of books or on the edge of a stair. Your heel should be off the ground.
2. Hold on to a chair or stair rail for balance, and allow your body weight to stretch your calf. First do this exercise with your knee straight, then bend it slightly.
3. Hold this position for _____ seconds.
4. Repeat this exercise _____ times, _____ times per day.

STRENGTHENING EXERCISES Plantar Fascia

These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Please remember:

- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise under their guidance, gradually increasing the number of repetitions and weight used.



STRENGTH • Ankle Inversion

1. Attach one end of an elastic band to a fixed object, such as the leg of a table or desk. Loop the other end around your foot.
2. Turn your foot inward as far as possible, attempting to push your little toe down and in.
3. Hold this position for _____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise _____ times, _____ times per day.



STRENGTH • Towel Curls

1. Sit in a chair on a noncarpeted floor. Place a towel on the floor in front of you, and place your foot on the towel as shown. You may also stand to do this exercise.
2. Pull the towel toward you with your toes, keeping your heel on the floor. Move the towel with your toes only. Do not move your knee or ankle.
3. If this is too easy, place a light weight—a book, hand weight, or canned food—at the far end of the towel.
4. Repeat this exercise _____ times, _____ times per day.