Injury Prevention

Heel Pain & Plantar Fasciitis

Definitions
Plantar fasciitis is an inflammation of the connective tissue (fascia) on the bottom of the foot, usually caused from excessive stress or trauma.

The plantar fascia acts like a bowstring to prevent the arch from collapsing, disperse shock, provide stability to the joints, and restore the foot to its natural shape.

Symptoms
Pain felt from plantar fasciitis is typically most intense in the morning or after sitting for a longer period of time. This pain is caused from re-injury of the plantar fascia. During rest, the body begins to heal the injury. Without proper support and/or preparation, those first few steps can reverse any healing that has occurred, thus causing pain. If not properly treated, plantar fasciitis has been known to lead to a heel spur.

Causes

POOR FOOT MECHANICS
- Pronation is a normal function the foot performs with each step. However, excessive pronation (collapsing of the arch) can cause an increase in the stress of the plantar fascia. An uncorrected leg length discrepancy has also been found to over-work the plantar fascia.

BEING ON YOUR FEET
- Individuals who are on their feet for extended periods of time as well as on hard surfaces will increase their foot fatigue by putting more load on their plantar fascia.

EXCESSIVE PHYSICAL LOAD
- Adding extra weight (pregnancy, too heavy a backpack, weight gain) or a dramatic increase in activity level could put extra strain on the plantar fascia and cause a tightening in the Achilles tendon and calf muscles. All of which could be exacerbated by improper footwear and conditioning.

TIGHT ACHILLES TENDON AND CALF MUSCLES
- The Achilles tendon attaches to the back of the heel bone. When the calf muscles are tight, they pull on the (calcaneus) heel bone. This position change of the heel bone causes the plantar fascia to become over-stressed and micro tears may occur.

UNSUITABLE FOOTWEAR
- Shoes that do not support the foot in the correct way may put extra stress on the plantar fascia. This may lead to under or over-pronation, tight Achilles tendon, and/or tight calf muscles.
Treatment

- Before standing, trace the alphabet in the air with your foot. Pointing and flexing the foot increases circulation to the foot and plantar fascia.
- Avoid going barefoot. Wear supportive shoes even at home.
- Stretch the Achilles tendon and calf muscles to relieve strain on the fascia.
- Invest in quality shoes and arch supports. These support the arch and correct poor foot mechanics.
- Strengthen the muscles in the feet and calf to help maintain proper alignment.
- Rest. Use pain to dictate your activity level.
- Ice the foot. Roll the foot over a frozen soda bottle for 10 minutes 3-4 times per day. This decreases inflammation and pain in the area.
- Losing extra weight reduces unnecessary pressure and stress on the feet and fascia.
- Massage the foot and calf. Using a tennis ball or Foot Rubz can break up excessive scar tissue, decrease pain, and speed recovery.

Helpful Exercises

Always check with your physician for specifics on your condition and what you should or should not do.

**Gastroc Stretch**
Keep back leg straight, heel on floor with foot turned slightly outward. Lean toward wall until stretch is felt in calf. *Do only after non-weight bearing exercises, until stretch is tolerable.*

**Soleus Stretch**
Stand with both knees bent, and involved foot back. Gently lean into wall until stretch is felt in calf. *Do only after non-weight bearing stretch is tolerable.*

**Toe Curl**
Keep your heel still and grab at a towel. Hold for 3 seconds. Repeat. Work up to 3 minutes of curls on each foot.

**Plantar Fascia Stretch**
Standing with ball of foot on stair, reach for bottom step with the heel until a stretch is felt along the arch of foot.

The Three S’s

Along with ICE and REST, the three S’s are the simplest and most effective methods for treating these injuries. The three S’s are:

1. **STRETCHING**
2. **STRENGTHENING**
3. **SUPPORTING**