

## Plantar Fasciitis (Heel Pain)

### What is it?



The plantar fascia (aponeurosis) is thick fibrous tissue that connects from the bottom surface of the heel bone to the bottom of the toes. The role of the plantar fascia includes: 1) holding the parts of the foot together (bones, nerves, muscles, tendons), 2) protect the bottom of the foot from injury, and 3) helps support the longitudinal arches of the foot.

Plantar fasciitis is usually an overuse injury caused by strain and inflammation of this tissue creating heel pain and potentially arch pain in the foot. Often people think this is caused by a bone spur but research has found that this is not the case. On x-ray, bone spurs are seen in people with and without heel pain. Heel pain can also occur from stress fractures, fat pad contusion, medial calcaneal nerve entrapments, tarsal tunnel syndrome, lumbopelvic spine conditions (i.e. sciatica, lumbar disc injury).

### Possible Contributing Factors/Cause

- Tightness and/or weakness in muscles of the lower leg that attach in the foot.
  - o Gastroc/Soleus (usually tight)
  - o Posterior Tibialis (usually weak)
  - o Anterior Tibialis (can be weak or tight)
  - o Peroneals (usually weak)
- Weak foot intrinsic (small muscles in the foot)
- Proximal weakness in the trunk and upper legs
- Excessive pronation or supination
- Improper footwear
- Wearing high heels on a regular basis contributes to lower leg tightness.
- Repeated high direct impact (excessive heel strike with running or poor shock absorbing aka..hard landing).
- Decreased dorsiflexion range of motion/ankle equinus (old ankle sprains, tight calves, joint stiffness)
- Asymmetrical weightbearing through lower extremities (are you balanced)

### Symptoms (may have some or all)

- Pain in the bottom of the heel with weightbearing.
- Usually worse first thing in the morning and improves during the day

- Often painful with first few steps after prolonged sitting during day.
- Aggravated by walking, standing, running (weightbearing activities)
- Eases with rest.
- Often worse if walking barefoot versus supportive shoes.
- Pain often reproduced with direct palpation of the insertion point on the heel bone and with stretching the toes into dorsiflexion (up).

### **What can I do?**

- Addressing Symptoms:
  - o Supportive Footwear
  - o Taping Arch
  - o Ice (frozen plastic bottle) after activity
  - o Massage to plantar fascia and calf muscles
  - o Relative Rest – nonweightbearing ex's (swimming, water running)
  - o Heel cup, night splint, walking boot (very severe)
  - o NSAIDS
  - o Ultrasound
  - o Acupuncture
  - o Cortisone Injections (very painful)
- Addressing Mechanics:
  - o Calf stretching
  - o Ankle Strengthening
  - o Foot Strengthening
  - o Ankle Dorsiflexion stretching (joint vs muscles)
  - o Soft Strike Drills
  - o General trunk and proximal leg strengthening to improve impact
  - o Get your footwear checked
  - o Orthotics

### **When to seek treatment from PT:**

- If experiencing numbness/tingling and/or apparent weakness in leg
- If experiencing concomitant low back pain or posterior leg pain
- If symptoms are worsening rather than improving
- If symptoms are persistent into rest periods
- If symptoms are affecting your performance or form and you want to continue to participate in activity
- If you want direct treatment for symptoms and assistance addressing biomechanics

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