



INFERIOR HEEL PAIN

Heel pain is a very common occurrence; can occur in all age groups. In the young, rigorously-active individual, heel pain is most commonly associated with an apophysitis or inflammation about the growth plate. As an individual matures and the skeletal system develops further and the growth plates close, heel pain can be related to multiple conditions. These include plantar fasciitis, stress fractures of the calcaneus; fractures of heel spurs, bursitis about the heel spur itself or compression of the lateral branch of the plantar nerve. The most common cause of heel pain is plantar fasciitis. It is a very common in middle-aged individuals and seen quite commonly in runners and other athletes. Pain typically occurs on the inside portion of the heel just distal towards the toes from the soft, fatty portion of the heel pad itself. The plantar fascia itself really functions as a windlass for the foot and provides significant stability. It is not a structure to be taken lightly nor can it be surgically resected surreptitiously.

Generally, pain related to plantar fasciitis is worse in the morning and responds to stretching and decreased activities. Plantar fasciitis may run a prolonged course lasting anywhere from 6-10 months time frame. It may be intermittent and more chronic than that. Extended periods of conservative treatment result in approximately 95% of patients noting significant improvement.

Treatment modalities that have been found to be significantly beneficial are intermittent stretching 5-7 times per day for 20 second durations maintaining the stretch of the plantar fascia during that time frame. This can be accomplished using walls, doors or gentle stretching using the body weight or a slightly elevated step to allow the heel to be lower than the toes (*See Diag. 5*). It is important to maintain the stretch position for at least 20-30 seconds and do several repetitions (probably 7-10) at intervals throughout the day to maintain good stretch in the plantar fascia. The most important aspect of treatment seems to be stretching prior to the first step in the morning. Placing weight on the foot prior to stretching tends to place stress on the plantar fascia, causes a possible microscopic tearing of the fascia and initiates inflammatory response as well as significant pain. This stretch is best accomplished in a seated position with the knee straight, the ankle flexed upward as much as possible, not inverting nor evertting the foot and keeping it in a straight line with the knee itself and then placing a towel just below the toes and pulling up on the foot so that the plantar fascia is stretched (*See Diag 4*). Again, a 20-30 second stretch is prudent for at least 10 repetitions prior to first step in the morning. Many people have noted that warming the area up with a warm shower following this with repeat stretching can sometimes be beneficial as well. Addition of heel cups are occasionally successful as are arch supports, especially if there is a significant amount of pronation, especially in the forefoot in athletes. The slightly elevated heel tends to take some of the stretch off the plantar fascia. This can be accomplished through several over the counter devices such as Tuli's type heel cup. It is recommended the individual use a greater than 175 pound type cup as this will give the heel a slight increased elevation as compared to the standard cups. If symptoms tend to persist, options for treatment include use of a short leg walking boot or a resting nighttime splint. Nighttime splinting keeps the foot in a dorsiflexed position to maintain stretch on the plantar fascia. It is felt that most likely as the individual sleeps that the plantar fascia is allowed to contract or shorten and then the first step in the morning tends to stretch out the fascia, causing microscopic tearing and initiating the inflammatory response. Thus, the constant splinting at nighttime may allow people to gain

Dale W. Boyd, Jr., MD | Debbie Sherman, PA-C

6019 Oleander Drive | Suite 200 | Wilmington | North Carolina | 28403 | t 910-790-9714 | f 910-791-1063



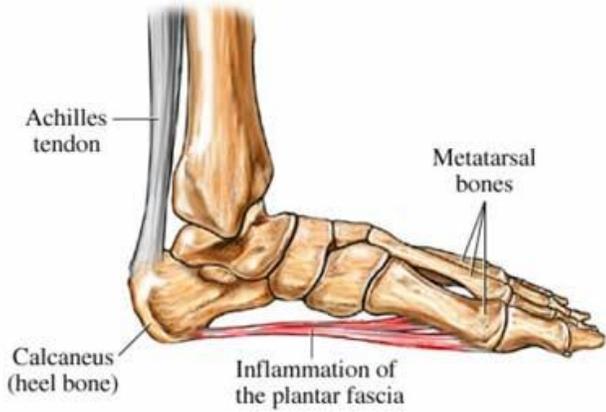
significant benefit. It is important to note that conservative treatment usually will give an excellent result and improvement in the condition, although certainly the condition may last for a prolonged period of time.

There are other conditions of the heel that can also give pain, especially in those individuals who stand on their feet for extended periods of time or are rigorously active with walking or running programs or who have underlying metabolic conditions of the bone. These include conditions such as stress fracture or a fracture of a heel spur at its base. It is important to note that heel spurs, although commonly seen on x-rays, do not specifically correlate with heel pain nor do they specifically correlate with plantar fasciitis. Thus, they can be a finding on an x-ray and have nothing to do with the clinical condition. It is important in these conditions to rule out other associated problems such as inflammatory arthritis, entrapment of the nerves about the foot, or stress fractures to differentiate these from plantar fasciitis as certainly the treatment may be altered and treatment for plantar fasciitis may not be beneficial for these other conditions. Heel surgery of the plantar fascia has been noted to lead to early degenerative changes in other areas of the foot and although immediate relief from the pain may be significant, other conditions may develop in the foot related to alterations of normal foot mechanics. There are frequent complications with heel surgery. Conservative, non-surgical treatment of heel pain is prudent in most cases for up to a year prior to consideration of any type of surgical treatment as 95% of individuals improve within 6-10 months time frame.

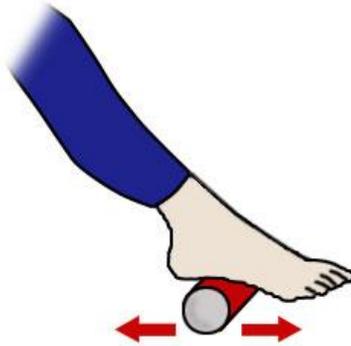
I have purposely left out discussion of corticosteroid injection in the plantar fasciitis. Corticosteroid injections disrupt the normal healing process of the plantar fascia and may cause premature acute rupture as well as atrophy of the central fat pad of the heel. Individuals need to be quite cautious when considering corticosteroid injection as the results are temporary.

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Diag 1

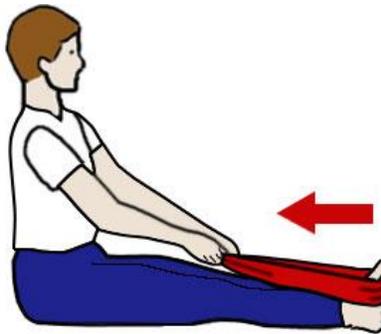


Diag 2: Stretching using a ball or bottle, you can fill a water bottle / soda bottle (leave space at the top) and freeze it

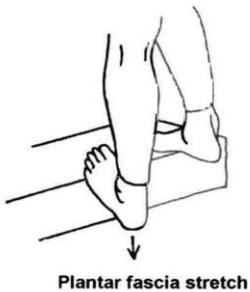


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Diag 3: Manual stretching with hands



Diag 4: Stretching with a towel before first step in the morning



Plantar fascia stretch

Diag 5