Plantar fasciitis is a common foot problem in both athletic and non-athletic populations. In a majority of cases the cause is unknown. It afflicts roughly 10% of the population during their lifetimes, with females being more frequently affected than males. The vast majority of people afflicted with it will have the problem resolved within a year. However, about 10% of people with plantar fasciitis will have it develop into a chronic problem. Thus, it is important to begin early conservative treatment.

DESCRIPTION
The plantar fascia is a broad ligamentous structure that runs from the heel to the forefoot and toes. It provides stability to the foot when one stands on the foot. Repeated stress to the structure can cause an inflammation where the fascia attaches to the calcaneus (heel bone) and microtears to the fascia. This manifests itself as pain in the bottom of the foot. Over time degenerative changes may occur in some cases.

SYMPTOMS
Typical symptoms include:
1) a pain felt in the bottom of the foot when first getting out of bed in the morning or after prolonged sitting;
2) sharp pain frequently felt in the heel and sometimes extending into the bottom of the arch;
3) pain worsening as one stands for a longer period of time, after exercising for a longer period of time, and as the day progresses;
4) pain felt with deep pressure in the bottom of the heel, usually more so on the inner part of the heel.

RISK FACTORS
One of the most important factors in plantar fasciitis is having tight calf muscles. This may cause compensatory ankle movements, stressing the plantar fascia more. Other risk factors include being overweight, a recent increase in exercising or activity level, prolonged standing on hard surfaces, shoes with improper support for people with flatter arches, and poorly cushioned shoes for those with higher rigid arches.

Tip: Don't wear flip flops too much!

TREATMENT
As previously mentioned, treatment should begin soon after onset. It may involve several approaches which include:
1) Avoiding aggravating activities. Avoid going barefoot or wearing poorly supportive or cushioned sandals. Wearing flip flops can commonly aggravate foot pain. Reduce weight bearing or impact on hard surfaces, e.g. prolonged standing on concrete floors, or running on asphalt/concrete.
2) Staying active with other exercises or activities that are not painful, such as biking or swimming.
3) Anti-inflammatories. These may be beneficial in providing short term relief, but they do not address the underlying cause.
4) Stretching. Stretching of the lower leg and foot muscles generally is very beneficial in addressing the problem. Before getting out of bed in the morning, it may be helpful to bend the ankle up toward your head for 5-10 reps, holding each rep for 10 seconds, and to stretch the plantar fascia as demonstrated below. This may relieve pain felt during the first steps out of bed.

Three stretches are shown below:

Gastrocnemius muscle stretch
Keep back leg straight, foot pointed forward, and heel down while leaning forward. The stretch should be felt in the back of the knee. Hold for 30 seconds.
**Soleus muscle stretch**
Bend back knee and drop body toward the floor while keeping back foot pointed forward and heel down. The stretch should be felt in the Achilles tendon. Hold for 30 seconds.

**Plantar fascia stretch**
Bend toes back to feel stretch in the bottom of the foot. Hold 10-15 seconds for 3 repetitions.

Another way to stretch the plantar fascia is to roll the bottom of your foot back and forth on a frozen drink bottle or a glass bottle.

5) **Appropriate shoes.** For those with more rigid, high arched feet, wearing well cushioned shoes may relieve pain. For those with flatter feet, wearing more supportive shoes, known as stability or motion control shoes, may help in relieving stress on the plantar fascia. Wearing a shoe with a heel or using a small heel lift will take some of the stress off the plantar fascia.

6) **Strengthening.** Strengthening of the calf muscles is recommended. Also, stronger thigh muscles may provide more shock absorption to lessen impact forces and stress to the feet.

7) **Night splint.** This device, worn generally at night, pulls the ankle slightly upward. The night splint is often considered if symptoms do not improve within 6 months.

8) **Taping.** Generally done by a healthcare provider, this technique gives support to the heel and arch and can provide temporary relief. If taping helps, then supportive insoles often will prove to be helpful.

9) **Losing weight.** Less impact is borne by the plantar fascia with each step.

10) **Cortisone injections.** These are somewhat controversial. Cortisone reduces inflammation, which may relieve pain, but it is also known to have possible damaging long term effects, to include thinning of the fascia and possible rupture.

11) **Shock wave therapy.** This technique uses high energy sound waves that travel through the skin, designed to promote an inflammatory response and possibly new blood vessel formation.

12) **Surgery.** This should be the last resort and may want to be considered after 6-12 months of conservative treatment. Recovery takes a long time and may result in unsatisfactory outcomes in some cases.

**References**

“Managing plantar fasciitis and other heel pain: sorting out the causes, prognosis, and underlying conditions,” The Journal of Musculoskeletal Medicine, p 106, March, 2009
aapsm.org, American Academy of Podiatric Sports Medicine website


If you are a registered University of Illinois student and you have questions or concerns, or need to make an appointment, please call: **Dial-A-Nurse at 333-2700**

If you are concerned about any difference in your treatment plan and the information in this handout, you are advised to contact your health care provider.

Visit the McKinley Health Center Web site at: **http://www.mckinley.illinois.edu**