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Print-Out

-How to Take Care of Plantar Fasciitis at Home-

07/15/14

Knowledge is power, and this hand-out offers you tips on how to manage plantar fasciitis and, hopefully, prevent it from returning!

The plantar fascia is a thick fibrous band across the bottom of the foot, starting at the heel bone and fanning forward towards the toes. It acts like a “bowstring” to support the medial longitudinal arch of the foot, from back to front. It's different from all the arches of the foot that are created by tendons that connect muscle to bone and ligaments that connect bone to bone.

Plantar fasciitis is an inflammation of the plantar fascia.

If you suffer from plantar fasciitis, you'll experience pain in the part of the foot where the inflammation takes place when you get up in the morning or after sitting for a while; most often by the heel, but potentially also in the mid-foot or the fore-foot. The **dull, intermittent pain** may progress to a **sharp, persistent pain**.

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1- Symptoms and causes of plantar fasciitis:

Plantar fasciitis is an inflammation of the plantar fascia. The inflammation most often occurs in the plantar fascia closest to the heel bone, but can also occur in the plantar fascia of the mid-foot or the plantar fascia by the toes.

- The inflammation may develop if part of the inflexible fibrous band is placed under **tension repeatedly from sports**, such as running or hiking.
- The inflammation may also develop if **continuous tension is caused by a pronated foot with a weakened longitudinal arch**. A pronated foot causes the inside of the ankle to tilt downward, the sole of the foot to turn outward, and the foot becomes longer due to the weakened longitudinal arch.

As the foot collapses and gets longer due to a weakened and inflamed plantar fascia and a weakened longitudinal arch, the body may “compensate” by growing extra bone on the heel where the plantar fascia attaches to allow lengthening of the inflexible fibrous plantar fascia band. The extra bone is called a “**heel spur**.”

A person with plantar fasciitis usually experiences **pain** in the part of the foot where the inflammation takes place when they get up in the morning or after sitting for a while; most often by the heel, but potentially also in the mid-foot or the fore-foot. Sometimes the **dull, intermittent pain** progress to a **sharp, persistent pain**. **Visible swelling** is occasionally seen on the foot where the inflammation is present.

The pain is not necessarily due to the associated heel spur, but rather due to the **inflammation that puts pressure on the surrounding nerve endings** upon standing. The first few steps usually push some of the fluids of the swelling away from the area, and the pressure around the nerve endings usually subsides.



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2-Who are prone to getting plantar fasciitis:

Since there's a close relationship between the plantar fascia and the longitudinal arch of the foot, any condition that puts one or both of these elements of the foot under stress can, therefore, contribute to plantar fasciitis. The following conditions are among the most likely to contribute to plantar fasciitis:

- Pronated or flat feet.
- Rigid feet with a high arch.
- Shoes with a poor arch support.
- Distance running, toe running, and hill running.
- Walking or running on sand or other soft terrain.
- Playing basket-ball.
- Old age (where everything gets weaker and/or more rigid.)
- Sudden weight gain.
- Sudden increase in activity level.
- Genetic disposition or family tendency.

3-Treating plantar fasciitis:

Rest: Rest and sedentary activities are needed to allow the injury to heal. Use pain in your foot as a guide as to when you need to rest your foot.

Ice: Crusted ice in a plastic bag or a bag of frozen peas can be used to reduce the inflammation and pressure on the nerve endings. Place it on the skin over the site of the inflammation for 20-30 minutes, on and off during the day, or immediately after a strenuous activity. Always cushion with a towel between your skin and the ice to prevent “freeze burn” of your skin.



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Exercises:

Specific exercises can be done to strengthen the small muscles that support the weakened plantar fascia and the weakened longitudinal arch. If they are done regularly, they may prevent a recurrence of plantar fasciitis. For most people, the exercises should be done twice a day. Check with your doctor, if in doubt.

- **Stretches:** You need to exercise both your calf muscles and your Achilles tendon. *The exercises below assume that the injury is in your right foot. Switch sides according to your specific needs.* I recommend that you do the exercises for both the affected foot and the unaffected foot.
 - Stand at arm's length from a counter top with your right foot behind you and your left foot in front of you. Leave approximately 1-1 ½ foot's space between your two feet. Place your hands on the counter top and lean forward to allow your right leg to remain straight with the knee locked, and your left leg bent at the knee. With your back straight but tilted forward, slowly lean towards the table, pressing forward until a moderate stretch is felt in the calf muscles of your straight right leg. Release the tension a little bit if pain is felt. Hold 15 seconds.
 - Keeping both heels on the floor, bend your right knee until a moderate stretch is felt in your Achilles tendon. Release the tension a little bit if pain is felt. Hold for another 15 seconds.
- **Shin curls:** Sit in a chair with your feet on the ground. Lift the foot with the inflamed plantar fascia. Move the foot with inflammation up and down the opposite shin, while using the toes of the inflamed foot to “pinch” the skin on the opposite shin. Relax your foot and then repeat.



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- **Towel curls:** Sit in a chair with your feet on the ground and with a towel on the floor in front of the inflamed foot. Using only the toes of the inflamed foot, roll or curl the towel towards you. Resistance can be increased by attaching a weight to the towel. Relax your foot and then repeat.

Exercises for general body health in the acute phase of plantar fasciitis should be changed to non-weight bearing exercises, such as swimming, cycling, and weight-lifting, using all muscle groups, while sitting or lying.

Shoes: You need to find a shoe that supports your arch as it appears when you sit in a chair in a “neutral” position without putting weight on your foot. Look at your arch while sitting, possibly by using a mirror, and try to find a shoe where the arch mimics the arch of your foot. A proper shoe arch will support the longitudinal arch of your foot and prevent it from collapsing; which also means that it will support your plantar fascia and prevent it from “trying to” stretch, which could cause inflammation and a heel spur.

Let comfort guide you in determining if you've found a shoe with a proper arch for your foot. Are you able to walk comfortably in a new shoes without your foot starting to ache? If your foot starts aching after walking in a shoe, that otherwise fits properly, the arch of the shoe is likely not a good match for your foot and should not be purchased with the hope that you can “wear-it-in.”

A good tennis shoe or athletic shoe is often the best choice to prevent and even treat plantar fasciitis if it has a thick, supportive sole that will not give and bend in the middle due to pressure from movements of the foot during the walk cycle. The tennis shoe or athletic shoe must also have a proper arch that supports the shape of your own resting arch during gait. The prefabricated insole, that the tennis shoe or athletic shoe came with, must be removed to make room for custom-made orthoses (orthotic), if necessary.



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Orthoses (orthotics): If you're unable to find adequate arch support in regular shoes, you'll have to consider having your foot fitted for a custom-made orthoses or orthotic. This will be done by a podiatrist or certified pedorthist who evaluates your foot and gait, and makes a cast of your foot in the neutral sitting position. The orthoses or orthotics should prevent your arch from collapsing, correct your gait as needed, and attempt to heal the plantar fasciitis and keep it from recurring.

Heel pads: Heel pads of felt, sponge, or other synthetic materials can be used to cushion against the pain from a heel spur. They can also equalize and absorb the pressure from the inflammation in your heel, as you step on it.

Taping: Taping of the sole of your foot in its neutral position will allow the arch to not collapse when you step on your foot. It serves the same purpose of stabilizing your arch as a proper shoe arch or custom-made orthoses or orthotics would. A person, who has been trained in this procedure, can use non-stretchable skin tape and hold the arch in place with horizontal pieces of tape across the sole of the foot. An initial strip of tape is placed on the sides and heel of the foot, starting at the big toe and moving around the foot to the little toe. This piece of tape creates a good surface for the horizontal pieces of tape to attach to. A final piece of tape around the foot, done as the first one, will hold all the different pieces of horizontal tape in place to stabilize the longitudinal arch of the foot.

Taping can be a temporary solution before a proper shoe is found or custom-made orthoses or orthotics are produced. The taping will need to be replaced when wet or damaged.

Medications: OTC anti-inflammatory medications can be used. As always, anti-inflammatory medications put you at risk for bleeding and can't be tolerated by every-one. If you tolerate them, make sure to take them with food in your stomach. A doctor or podiatrist can also inject steroids to reduce the inflammation. You can also take pain pills that reduce the pain caused by the inflammation.



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Surgery: Surgery can be performed to remove the heel spur; however, it doesn't address the collapsed longitudinal arch of the foot or the reason that the inflamed plantar fascia is pulling on the heel bone, causing it to grow the extra bone. Surgery can also be done to release the plantar fascia from the heel bone to eliminate the tension. Surgery should always be the last option.

4-Preventing plantar fasciitis:

Preventing a problem is always easier if you understand the reasons that cause the problem and try to prevent them. Refer back to page 3 for the reasons that contribute to plantar fasciitis. The reasons that can be controlled by yourself are the ones you should worry about:

- Always wear a shoe with a proper arch and sturdy sole, that allows you to walk around without your feet starting to ache.
- For a pronated foot, proper custom-made orthoses or orthotics are often needed to correct your gait and support your arch to prevent plantar fasciitis.
 - The above two preventive steps are especially important if you enjoy a lot of weight-bearing activities or sports that put extra stress on your feet.
- Prevent sudden weight gain.
- Prevent sudden increase in activities that cause repeated stress on your foot.

5-References and links:

My website has other related hand-outs with foot and body health information.

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