

Foot Pain

Improved treatment for Plantar Fasciitis and other common foot conditions with Active Release Techniques® (ART®)

If you experience pain in your heel or bottom of your foot with walking, prolonged standing, or when first getting out of bed in the morning, you may be suffering from a foot condition that is commonly diagnosed as Plantar Fasciitis.

Unfortunately, this condition often results in months and sometimes years of discomfort, and too often leads the foot pain sufferer to limit their normal activities. It commonly interferes with their work, as well as sports and recreational activities. Traditional treatment methods for this type of foot pain are often

slow to provide relief and often do not address the true source of the problem, leading to incomplete relief and a high rate of re-occurrence.

Fortunately, a new treatment technique known as **Active Release Techniques® (ART®)** is proving to be a very effective method to resolve Plantar Fasciitis and other common foot conditions. But before we talk about how ART works so effectively, we first need to understand how Plantar Fasciitis develops in the first place.

Understanding Plantar Fasciitis

The foot is a very complicated area which includes 28 different bones and many different joints. These bones and joints have to move as the demands on the foot change. In order to help control the position of the foot and stabilize the joints, there is an intricate system of muscles and ligaments associated with the foot and ankle. Many of these muscles are located on the back of the calf and have long tendons that cross the ankle and foot and can have an effect on the foot and toes.

There is also another group of muscles that are located on the bottom of the foot. The vast majority of these muscles attach into the bottom of the heel. Additionally, located just under the skin and over the top of the foot muscles is the “plantar fascia”. This is a very tough and dense connective tissue that runs from the bottom of the heel all the way to the toes. The fascia works to support the arch of the foot and helps to stabilize the joints of the foot when bearing weight.

It is important to realize that beneath the plantar fascia the muscles are arranged in layers, and each muscle within each layer has a different job or function. For example, some of the muscles attach all the way into the toes and act to flex and stabilize the toes, while other muscles attach into the other bones of the mid-foot to control and stabilize the arch of the foot. For the foot and ankle to work properly, and to prevent pain and injury, not only does there have to be adequate strength and flexibility of the foot and calf muscles, but these different layers of muscles need to be able to glide freely over one another during normal use.



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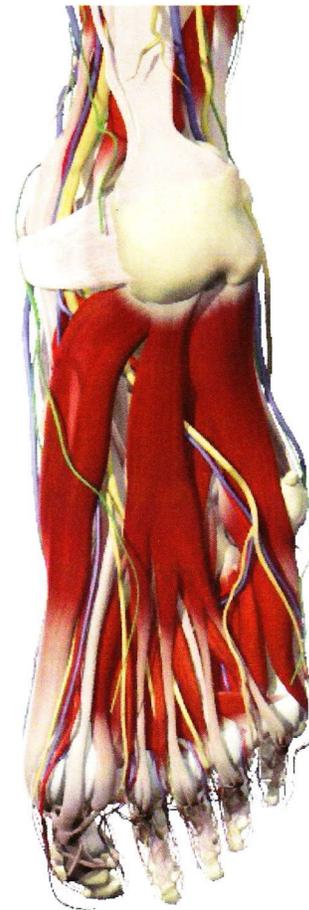
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Throughout the day we are on our feet a great deal. As we stand, walk, or run, it places a tremendous amount of pressure on the foot. This creates a tension on the plantar fascia causing the muscles of the foot to contract to help support the arch and stabilize the joints of the foot. Over time, the muscles and the fascia will become strained and fatigued and can develop small amounts of injury known as micro-trauma. Simply stated, micro-trauma is very small scale damage that occurs in the muscles, fascia, and ligaments in response to small levels of strain. Initially this micro-trauma is not painful, but may be perceived as a mild ache or tightness in the muscles or at the heel where these muscles attach. Even though it is only small, this damage still needs to be repaired. The body responds to soft-tissue injury (including micro-trauma) by laying down small amounts of scar tissue to repair the injured tissue. Unfortunately, over time, this scar tissue will build-up and accumulate into what are known as adhesions. As these adhesions form, they start to affect the normal health and function of the muscles. In fact, they will often lead to pain, tightness, lack of flexibility, muscle weakness, compromised muscle endurance, restricted joint motion, and diminished blood flow.

As the muscles and fascia of the foot become strained and develop adhesions, they become very tight. As the tightness increases, the tissues begin to pull away from the heel where they attach, which will eventually lead to pain and irritation at the bottom of the heel. In many cases with long term muscle tightness, formation of this constant tension can even

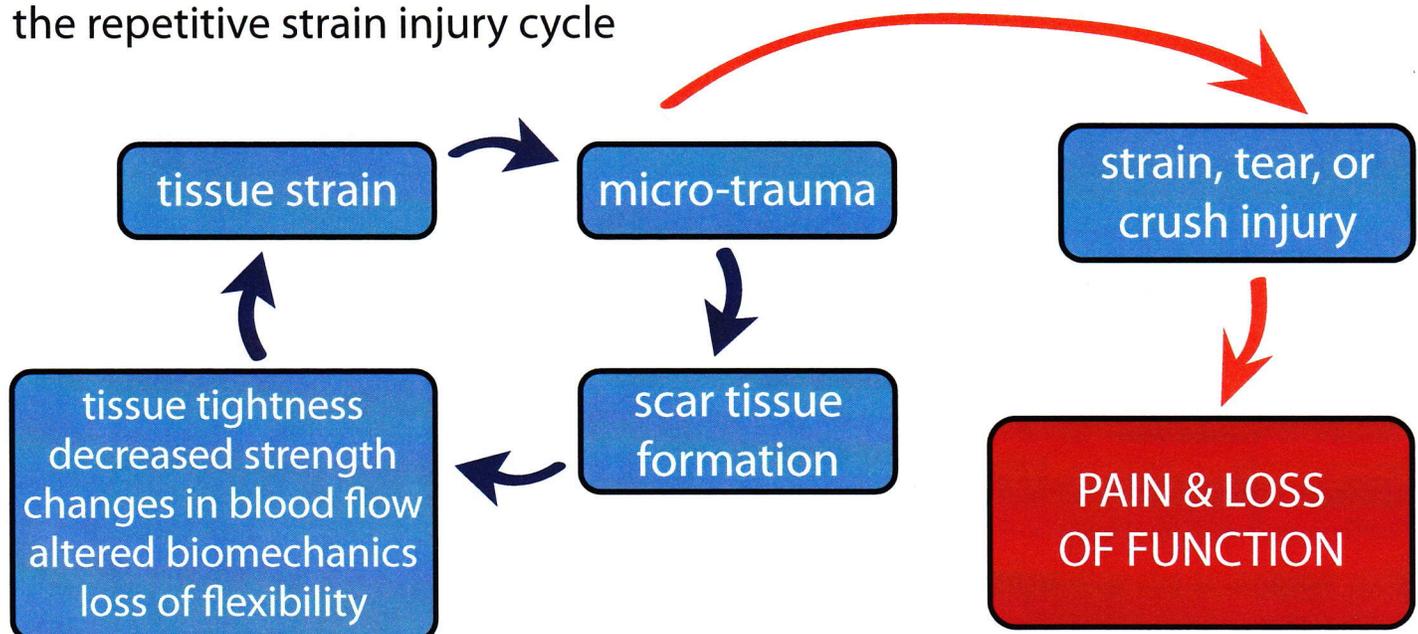
lead to a bone reaction and formation of a heel spur. The presence of this heel spur on an X-ray has often led to misdiagnosing the heel spur as causing the pain. The problem is that this heel spur is very rarely the cause of pain, leading to inappropriate treatment.



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the repetitive strain injury cycle



In addition to causing pain and tightness these, adhesions are also very sticky, affecting the ability of the muscles to stretch, contract, and slide over one another. Recall that there are several layers of muscles in the foot. Each of these muscles have a different function, and therefore contracts at different times. For this process to occur correctly, the muscles need to be able to glide freely on one another. As adhesions develop, they will cause the individual muscles and different muscle layers to stick to each other, preventing this normal gliding. When the muscles lose the ability to glide over one another, it will bind the entire area together. Think of these adhesions like rust and grime that can build-up in an automobile. Normally the parts of the car should be well oiled and move smoothly, but when rust and grime are allowed to build-up, the car begins to break down until eventually it does not work properly and repairs are needed. The same thing happens in the body. Stretching or contraction of one muscle will cause a pull and tension on all of the other muscles. This, in turn, will cause more and more strain on the muscles as well as increase tension at the heel.

Another common development is that the accumulation of scar tissue adhesions can affect the nerves in the region of the ankle and foot. This occurs because, between the layers of muscles, there are nerves that run all the way from the knee, down the lower leg, around the ankle, and into the bottom of the foot. Just as the muscles need to be able to glide on each other, nerves also need to be able to glide freely between the layers of muscles. In many cases, the accumulation of scar tissue can cause the nerves to become stuck to the surrounding muscles and fascia. Instead of the nerve easily gliding between the muscles, it becomes stretched and irritated leading to foot and heel pain. It is quite common for a nerve entrapment at the foot or ankle to cause foot and heel pain and lead to an incorrect diagnosis of Plantar Fasciitis. Obviously an incorrect diagnosis will lead to incorrect treatment, which will not be effective in relieving the condition.

How Can Plantar Fasciitis and Other Similar Foot Problems Be Fixed?

The Traditional Approach

In an attempt to treat Plantar Fasciitis, a variety of treatment methods are used, either on their own, or in combination with other methods. Some of the more common approaches include anti-inflammatory medications, rest, ice, orthotics, night splints, ultrasound (US), muscle stimulation (E-Stim), stretching, and exercise. Unfortunately, most of these traditional techniques generally require a long period of time before they provide any significant relief, and in many cases, provide only temporary relief from symptoms instead of fixing the underlying cause of the problem.

The main reason these approaches are often ineffective is that they fail to address the underlying scar tissue adhesions that develop within the muscles and surrounding soft tissues. These adhesions are binding the tissues together, restricting the normal sliding of the tissues, and potentially entrapping the surrounding nerves at the foot and ankle.

Passive approaches, including medications, rest, ice, and ultrasound, all focus on symptomatic relief and do nothing to address the muscle restrictions and dysfunction. More active approaches, such as stretching and exercises, are often needed for full rehabilitation of the condition and to restore full strength and function of the muscles. However, they themselves do not treat the underlying adhesions. In fact, without first addressing the scar tissue adhesions, stretches and exercises are often less effective and much slower to produce relief or recovery from the foot condition.