

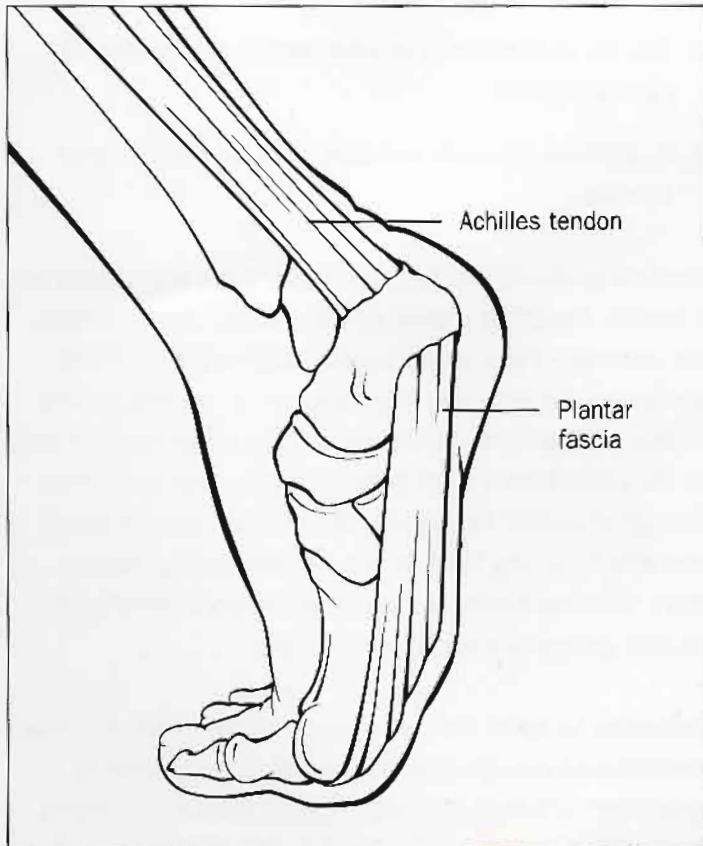
Achilles Tendonitis, Plantar Fasciitis, and Shin Splints

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Introduction

You aren't alone! Achilles Tendonitis, Plantar Fasciitis, and Shin Splints are three of the most typical overuse injuries in sports. These conditions have a lot of things in common and affect many athletes in running and jumping sports.



1. **Achilles tendonitis** is an inflammation of the tendon that connects your calf muscles (gastrocnemius and soleus) to the back of the heel (calcaneus). Pain typically occurs about two centimeters above the site of insertion into the heel.
2. **Plantar fasciitis** causes pain on the bottom of the foot at the insertion of this membrane into the inner side of

the heel. You may feel pain on the first step after getting out of bed with this problem. The plantar fascia connects your toes and forefoot to the heel and supports the arch.

3. **Shin splints** is a general term for pain in the muscles and areas along the inner surface of the shin.

Overtraining

One common feature of these conditions is that they often result from overtraining. As a general rule athletes who increase their training stress by more than 10% weekly run a 50% risk of injury in four weeks.

1. Achilles tendonitis occurs in any level athlete who may have increased speed workouts, hill running, jumping or total training volume. Achilles/calf is the major muscle tendon group responsible for the push-off that leads to the airborne or "leaping" phase of running.
2. Plantar fasciitis can affect anyone but is more common in older athletes, overweight athletes or those engaged in prolonged exercise. Distance runners who run high mileage; tennis players spending hours on the court on their toes; and basketball athletes in the midst of two-a-day preseason training are examples of athletes who frequently develop plantar fasciitis.
3. Shin splints on the other hand typically affect beginners and underconditioned athletes who dramatically increase their running at the beginning of the season or at the start of more intense training. If you are a more experienced and well-conditioned athlete, shin pain could arise from other causes besides typical shin splints, such as tibial stress fractures or compartment syndromes.

Treatment Principles

Because these injuries relate to overtraining, the **first principle of treatment** is rest.

1. If you have mild symptoms, begin by reducing training by 50% and then gradually reinstate training volume by 10% per week as treatment continues.
2. If you cannot run without a limp, you may have a moderate to severe case, which requires complete rest from running—substitute cross training (biking, swimming). After a few weeks, begin a gradual return to your sport.
3. In severe cases, you may be kept out of your sport until clinical improvement is noted by your physician.

The **second principle of treatment** is the reduction of inflammation. Icing helps reduce swelling and inflammatory change and is the treatment of choice:

1. For Achilles injuries, use an ice massage with water frozen in a styrofoam cup.
2. For Plantar fasciitis, submerge the heel for 10 minutes in an ice bath.
3. For Shin splints, a good strategy may be to use an ice massage. Over-the-counter orthotics may also play a role.

Non-steroidal anti-inflammatory medications (NSAIDs) help these treatments. You may not need to continue taking NSAIDs after 5 to 7 days, except to relieve pain. After this time most of the changes in these conditions have more to do with tissue breakdown than inflammation.

Rehabilitation

Specific rehabilitation exercises help restore the strength of supporting muscle groups and allow you to return to full activity. These exercises emphasize strengthening the

muscles that support the foot, arch and lower leg. In general, exercise needs to work on both concentric (contracting) and eccentric (lengthening) strength.

1. For the Achilles, perform heel raises on a step by slowly lowering the heels below the level of the step on the downward phase. This provides both concentric and eccentric stress. You may start by lifting body weight on one foot, then add progressive weights to a backpack to gradually increase strength. Start with 10 reps and progress to 30 reps a day. Simple toe raises, heel raises, walking on heels and toes and walking backwards while carrying steadily increased weight are part of a functional rehabilitation program. This program will strengthen the muscles that support the shin and the arch.
2. The above exercises can also benefit shin splints and plantar fasciitis.
3. In addition, toe curls and arch curls may help plantar fasciitis.

Stretching should be done cautiously while any tissues are inflamed. Stretches should be directed at motion deficits. For example, if you have poor dorsiflexion (little flexibility upward) of the foot, you may be prone to Achilles injuries unless you perform calf stretches to gradually improve this. At the same time a tight anterior tibialis (shin bone) may limit good plantar flexion (needed to stand on your toes) and affect running form. In general, performing two to three pain-free stretches lasting 30 seconds for affected muscle groups is a good starting point.

Returning to sport from an overuse injury means you have rehabilitated enough to perform without compromising good form. Athletes who limp, change running or jumping form or favor one leg, will ultimately get another injury and lose additional time. While you may not be 100% pain free, the ongoing training and competition should not prevent daily progress toward recovery. After training resumes, some specific exercises and post activity icing may be needed for a few weeks or months.

The Gatorade Sports Science Institute (GSSI) serves to share current information and expand knowledge on sports nutrition and exercise science to enhance the performance and well-being of athletes. For more information, check out the GSSI web site at www.gssiweb.com.

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