

# Achilles Tendinopathy

**A** tendon is a tough band of tissue that is attached to a muscle at one end and a bone at the other. The **Achilles tendon** connects the calf muscles (gastrocnemius, soleus) to the heel bone (calcaneus). It is the largest tendon in the body and allows a person to walk, run, jump, stand on toes, and go up and down stairs. During running, it is subjected to increased loads of up to 12 times body weight. It is named after the Greek mythical hero Achilles, who was invulnerable everywhere except his heel and was eventually fatally wounded in the heel by an arrow. Since then, the term “Achilles’ heel” has come to mean a person’s principal weakness. **Achilles tendinopathy** is a common overuse injury, accounting for 11% of all running injuries. The January 13, 2010, issue of *JAMA* includes a study reporting that injections of platelet-rich plasma were not effective for treating chronic Achilles tendinopathy.

## CAUSE

Achilles tendinopathy (previously “Achilles tendinitis”) is thought to be due to abnormal tissue repair and tendon weakening. Tendon blood supply is poor, possibly contributing to slow healing. The phrase “too much, too soon” is frequently described in patients’ histories. While not proven, causes may include

- Rapid increase in running distance or speed
- Adding uphill running or stair climbing to an exercise routine
- Starting up too quickly after not exercising
- Change of footwear or training surface
- Weak calf muscles
- **Overpronation** (rolling in) of feet when running
- Wearing high heels, which shorten the tendon and calf muscles

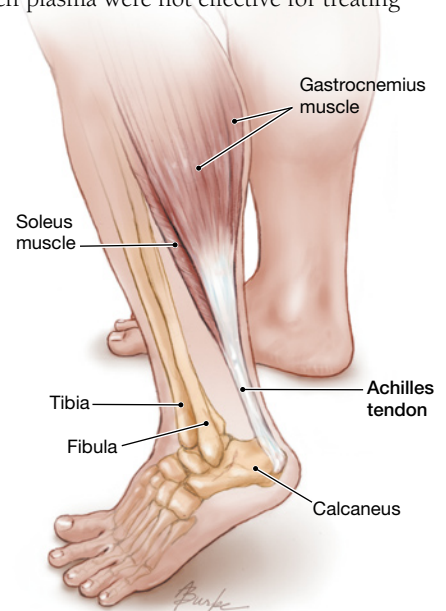
## SYMPTOMS

Pain is typically felt in the middle of the tendon. Initially, pain and stiffness are present only in the morning, during warming up, or after activity. Rest may decrease symptoms, but they often return with increased activity. In a later stage the tendon pain is more constant.

## TREATMENT AND PREVENTION

Chronic tendinopathy is difficult to treat. Nonsurgical management is the most conservative approach. Switching to another sport (swimming, weight training, rowing, cycling) allows the tendon time to rest. **Eccentric exercise therapy** (exercises that cause stretching combined with contraction of a muscle) is increasingly prescribed for patients with chronic Achilles tendinopathy. Although scientific evidence does not support many traditional treatments, they are still often used and include nonsteroidal anti-inflammatory medication (eg, ibuprofen), **orthoses** (devices to support the muscle and relieve tendon stress; eg, heel pads), stretching, massage, ultrasound, taping the back of the leg, and plaster casting. Steroid injection directly into the tendon is sometimes used but not generally recommended because some specialists believe this increases the risk of tendon rupture. Surgery is often a last resort because recovery is slow.

Although not proven, preventive measures often include choosing running shoes that provide sufficient cushion for heel strike, using a prescribed orthotic, walking and stretching to warm up calf muscles before running, gradually increasing running distance and speed by not greater than 10% per week, avoiding unaccustomed sprinting and hill running, and cooling down properly after exercise.



## FOR MORE INFORMATION

- National Institutes of Health  
[www.niams.nih.gov](http://www.niams.nih.gov)
- American Academy of Orthopaedic Surgeons  
[orthoinfo.aaos.org](http://orthoinfo.aaos.org)

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Sources: National Institutes of Health, American College of Rheumatology, American Academy of Orthopaedic Surgeons

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