

Achilles Tendonitis

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Runners have a high incidence of Achilles tendon injuries, particularly those over 40. The most common traumatic cause of Achilles tendonitis in runners is simply stepping into a pothole or misjudging a curb whereby the ankle dorsiflex rapidly (the heel lowers below the forefoot) while the body weight is displaced onto the calf or Achilles tendon. Although traumatic causes do occur, most cases of Achilles tendonitis occur as a result of biomechanical faults or overuse.

The Achilles tendon is formed by the union of the tendon of the soleus and gastrocnemius muscles, which attaches to the calcaneus. Over-pronation can cause a repetitive tensile overload strain to the Achilles tendon. The tendon can become irritated from being over-stretched during over-pronation as the heel rotates inward. Usually, over-pronation will irritate the fibers to the inner side of the Achilles tendon. In contrast, under-pronators will typically injure the lateral aspect of the Achilles tendon. The Achilles tendon can easily develop into a serious chronic injury. In the chronic stages degeneration of the tendon occurs. In these cases the tendon will appear thickened as the collagen fibers are separated by a mucoid gelatinous matrix. This loosely bound collagen weakens the tendon, making it vulnerable to re-injury.

Proper footwear is crucial for recovery and prevention of injury re-occurrence. Just as the proper footwear can be curative to Achilles tendonitis by correcting over-pronation or under-pronation, improper foot can inadvertently cause injury. In an under-pronator, a shoe that is rigid in nature and lacks appropriate shock absorption will lend the athlete more vulnerable to Achilles tendonitis. In an over-pronator, a shoe that is too flexible or flexes at a point other than where the toes meet the foot (metatarsal phalangeal joints), and/or lacks any medial posting (an increased midsole density along the inner side of the shoes midsole) will lend the athlete more vulnerable to Achilles tendonitis. Thus expert advice should be sought to insure that your biomechanical gait pattern matches your footwear in both the prevention and treatment of plantar fasciitis.

One common problem associated with recovery from both calf strains and Achilles tendonitis is the fact that the Soleus muscle is the only muscle in the body that is required to contract while a person is standing. This contraction simply prevents people from falling forward. Therefore, the only time the Soleus receives any rest is when a person is either sitting or lying down. Runners whom strike the ground with their forefoot or midfoot, rather than heel, increase load through the Achilles as the calf is used to absorb shock at foot strike and propel the body forward at toe off phases of gait. With this style of gait footwear shock absorption will also play a role in the treatment of Achilles tendonitis.

Most injuries to the Achilles tendon occur in a region approximately one to three inches above the tendon's attachment to the calcaneus. During the four decade of life the blood supply to this region becomes depleted as the fatty tissue supplying blood to this region atrophies. Because of the limited vasculature, the tendon may be somewhat slow to repair. A good blood supply is needed to deliver nutrition to an area for rapid repair.

The Achilles tendon may become irritated simply from rubbing against the back of a shoe. In these cases, cutting out the back of the shoe during the acute stage can alleviate the symptoms. A shoe that is too rigid or lacks flexibility at the point where the toes meet the foot (metatarsal phalangeal joint) can contribute to Achilles tendonitis. In this case the rigid shoe increases the lever arm length of the foot and load transmitted through the tendon.

Chronic cases of Achilles tendonitis generally develop as a result of biomechanical stresses placed upon the tendon (such as over-pronation) or continued repeated traumas which cause either a loss of blood supply from the peritenon or a actual degeneration the tendon's collagen fibers. Too many cortisone injections or a misplaced one can also lead to chronic Achilles tendonitis and may predispose someone to complete rupture of the tendon itself.

Self-treatment for Achilles tendonitis is generally in the form of ice after exercise, a gentle, easy stretching of the calf muscles and planter fascia. The temporary use of hell lifts bilaterally may be helpful. If there is a biomechanical cause, then that cause, then that cause would have to be corrected, which may require orthotics or biomechanically corrective shoes.



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