

Calf muscle, Achilles tendon strains are preventable

by

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As you run down the basketball court, you feel a pull in your calf. Suddenly, you feel it is challenging and painful to raise yourself up onto your toes and walk. Unfortunately, you have just either strained your gastrocnemius (calf) muscle, or possibly ruptured your Achilles tendon.

The gastrocnemius, or calf muscle attaches to your heel bone by the Achilles tendon and it provides the power needed to push off with your foot when you stand, walk and run. Gastrocnemius strains represent an injury and tear at the junction between the muscle fibers and the tendon. There is bleeding which results in swelling, delayed bruising, and significant pain that makes it difficult to walk, let alone continue to play. The muscle-tendon junction has such a broad area of connection that these strains tend to be partial tears where there remains continuity between the muscle and tendon and therefore, do not require surgical intervention to be reattached.



Achilles tendon ruptures represent a tear and traumatic separation within the tendon just a few centimeters above the calcaneus (heel) bone. Because many Achilles tendon injuries are complete, the gastrocnemius (calf muscle) and soleus (deeper calf muscle) muscles are disconnected from the calcaneus (heel) bone, resulting in loss of power and the ability to push off with your foot. Because the muscles act like coiled springs, they retract resulting in a gap or separation of the tendon ends at the tear site which will not functionally heal unless the tendon ends are re-approximated (put back in touch with each other).

How do I know if I injured my calf?

Acute, or sudden injuries are clearer as there is a specific moment when you will feel the pain start. This often is described as a rubber band snapping, or feeling as if someone kicked you in the back of the ankle. Following the initial injury there typically is pain in the calf and/or Achilles tendon. Due to weakness in the muscle, it may become difficult to raise up on your toes as needed when climbing stairs. There also may be pain when squatting or going down stairs as these actions stretch the tendon and calf muscle.

Those who have a more gradual onset of pain usually do not have a specific instant that they can report as the start of their symptoms. Additionally, this process often can lead to a noticeable deformity in the tendon and it may look like there is a marble-size lump in the back of the ankle. However, the functional limitations often are similar, with difficulty negotiating stairs, squatting, and/or lifting. Most individuals

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with this injury also will complain of stiffness in the ankle early in the morning and that it feels like it needs to continually be stretched.

What is the most common treatment?

Initially, rest, ice (20 minutes every three to four hours), elevation and an Ace™ elastic bandage wrapped with a comfortable amount of compression from your toes to just above the injury site will help minimize the swelling and discomfort.

Gastrocnemius strains do not require surgery but improve faster with an active rehabilitation rather than just rest. Progressive mobility, stretching, strengthening and functional exercises will reduce swelling, pain and return patients to activity within two to six weeks, depending on injury severity. An active rehabilitation also allows for better tissue healing and remodeling that helps prevent re-injury. Physical therapists often are enlisted to guide patients through their course of treatment.

Achilles tendon ruptures require intervention to approximate the torn tendon ends and restore function. Non-operative treatment with a cast to hold the foot in an equinus position (flexed down) can allow the torn

tendon ends to come together and heal. However, studies have documented decreased strength and higher re-rupture rates with conservative treatment. For active patients, most orthopaedic surgeons recommend surgical repair to sew the torn ends together to help the tendon to heal at its previous length.



Following either conservative treatment or operative treatment, the tendon requires protection to allow early healing over at least six weeks before more aggressive weightbearing, stretching and strengthening can begin. Because of this requirement, the muscle atrophies (shrinks, gets weaker) considerably and requires four to six months to gain sufficient strength and function before being able to return to full activities. Depending on the effort and capabilities of the patient, it can take even longer.

What can I do to prevent this injury?

With all of this in mind, don't let your "Achilles heel" slow you down and take some measures to lower your risk for injury. Before any competition or strenuous activity, you should take ten to fifteen minutes to warmup. A proper warmup should include some dynamic stretching, light running and other sport-specific activities like cutting, jumping or throwing, etc. Also, it is important to maintain adequate hydration by drinking plenty of water before, during and after the activity. Avoid muscle fatigue either prior to or during the activity. Many muscle strains occur when someone tries to sprint before their muscles are adequately recovered from a previous game or workout, even from the day or two before. Regular sport or activity-specific training should include flexibility with stretching, strength with resistance exercises and applicable cardiovascular endurance exercise. To download free, specific in-season training programs, visit otrfund.org and click on the Sports Performance Program tab at the top of the page.