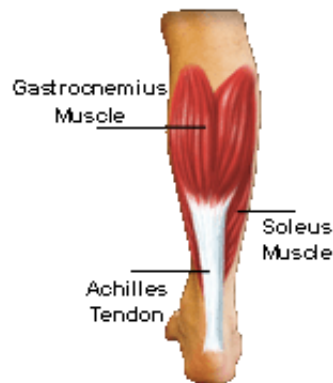


Achilles Tendonitis / Rupture

Introduction Problems that affect the achilles tendon are common among active middle aged people. These problems cause pain at the back of the calf, and may result in a rupture of the achilles tendon in severe cases.

Anatomy The achilles tendon is a strong, fibrous band that connects the calf muscle to the heel. The calf is actually formed by two muscles, the underlying soleus and the thick outer gastrocnemius. Together, they form the gastroc-soleus muscle group. When they contract, they pull on the achilles tendon causing your foot to point down and helping you raise up on your toes. This powerful muscle group helps when you sprint, jump, or climb. Several different problems can occur that affect the achilles tendon, some rather minor and some quite severe.



Tendocalcaneal Bursitis - A bursa is a fluid filled sac designed to limit friction between rubbing parts. These sacs, or bursae, are found in many places in the body. When a bursa becomes inflamed it is called a bursitis. Tendocalcaneal bursitis is an inflammation in the bursa behind the heel bone. This bursa limits friction where the thick fibrous achilles tendon that runs down the back of the calf glides up and down behind the heel.

Achilles Tendonitis - A violent strain can cause injury to the calf muscles or the achilles tendon. This can happen during a strong contraction of the muscle, as when running or sprinting. Landing on the ground after a jump can force the foot upward, also causing injury. The strain can affect different portions of the muscles or tendon. For instance, the strain may occur in the belly of the muscle. Or it may happen where the muscles join the achilles tendon (called the musculotendinous junction). Chronic overuse may contribute to changes in the achilles tendon as well, leading to degeneration and thickening of the tendon.

Achilles Tendon Rupture - In severe cases, the force may even rupture the tendon. The classic example is the middle aged tennis player or weekend warrior who places too much stress on the tendon and experiences a rupture of the tendon. In some instances, the rupture may be preceded by a period of tendonitis which renders the tendon weaker than normal.

Causes Problems with the achilles tendon seems to occur in different ways. Initially, irritation of the outer covering of the tendon called the paratenon causes a paratendonitis. The word paratendonitis simply indicates that there is inflammation around the tendon. Inflammation of the tendocalcaneal bursa (described above) may also be present with the paratendonitis. Either of these conditions may be due to repeated overuse, or ill-fitting shoes that rub on the tendon or bursa.

As we age, a tendon is subject to degeneration within the substance of the tendon. The term degeneration means that wear and tear occurs in the tendon over time and leads to a situation where the tendon is weaker than normal. Degeneration in a tendon usually shows up as a loss of the normal arrangement of the fibers of the tendon. Tendons are made up of strands of a material called collagen (think of a tendon as similar to a nylon rope and the strands of collagen as the nylon strands). Some of the individual strands of the tendon become jumbled due to the degeneration, other fibers break, and the tendon loses strength. The healing process in the tendon causes the tendon to become thickened as scar tissue tries to repair the tendon. This process can continue to the extent that a nodule forms within the tendon. This condition is called tendinosis. The area of tendinosis in the tendon is weaker than normal tendon. The weakened, degenerative tendon sets the stage for the possibility of actual rupture of the achilles tendon.

Symptoms Tendocalcaneal bursitis usually begins with pain and irritation at the back of the heel. There may be visible redness and swelling in the area. The back of the shoe may further irritate the condition, making it difficult to tolerated footwear. Achilles tendonitis usually occurs further up the leg, just above the heel bone itself. The achilles tendon in this area may be noticeably thickened and tender to the touch. Pain is present with walking especially when pushing off on the toes. Finally, achilles tendon rupture is usually an unmistakable event. Some bystanders may report actually hearing the snap, and the victim of a rupture usually describes a sensation like someone kicked me in the calf. Following rupture

there may be swelling in the calf and there is usually no ability to raise up on the toes.

Diagnosis Diagnosis is almost always by clinical history and physical examination. In cases where there is question whether or not the achilles tendon has been ruptured, an MRI scan may be necessary to confirm the diagnosis, (but this is seldom the case.) The MRI (Magnetic Resonance Imaging) machine uses magnetic waves rather than X-rays, to show the soft tissues of the body. With this machine, we are able to slice through the area we are interested in and see the tendons and ligaments very clearly. This test does not require any needles or special dye, and is painless.

Treatment Non-surgical treatment for tendocalcaneal bursitis and achilles tendonitis usually starts with combination of rest, anti-inflammatory medications such as aspirin or ibuprofen, and physical therapy measures. Several physical therapy treatment choices are available in the early stages of achilles tendonitis or tendocalcaneal bursitis. The rehabilitation following rupture of the tendon is quite different.

Ice: Ice can be used in the first moments after this type of injury, and to calm an inflamed bursae. A bag of crushed or cubed ice held on to the ankle with an elastic wrap works well. Initially, this should be used for periods of 15 minutes every hour. A cold temperature whirlpool may be chosen for your condition. The cold water helps reduce swelling and pain, and the moving water in the whirlpool provides a massage action. In supervised physical therapy, your therapist may continue to be treat with either an ice bag, cold pack, or ice massage.

Rest: An injury like this needs to be rested. This can be done by limiting activities like walking on the sore leg. A small (1/4 inch) heel lift placed in your shoe can minimize stress by putting slack in the calf muscle and achilles tendon. Be sure to place a similar sized lift in the other shoe to keep everything aligned.

Cortisone injection in this condition is usually not indicated, due to the increased risk of rupture of the tendon following injection. However, prior to having surgery most orthopedic surgeons will utilize at least one cortisone injection. A new procedure called Platlet Rich Plasma injections sometimes can stimulate healing of a chronic achilles tendonitis. This procedure is controversial and usually not covered by insurance as of yet.

Non-surgical treatment for an achilles tendon rupture is somewhat controversial. It is clear that treatment with a cast will allow the vast

majority of tendon ruptures to heal, but the incidence of re-rupture is increased in those patients treated with casting for 8 weeks when compared with those undergoing surgery. In addition, the strength of the healed tendon is significantly less in patients who elect cast treatment. For these reasons, many orthopedists feel that achilles tendon ruptures in younger active patients should be surgically repaired.

Surgical treatment for achilles tendonitis is not usually necessary or most patients. However, in some cases of persistent tendonitis/tendonosis a procedure called debulking of the achilles tendon may be suggested to help treat the problem. This procedure is usually done through an incision on the back of the ankle near the achilles tendon. The tendon is identified and any inflamed paratenon tissue (the covering of the tendon) is removed. The tendon is then split and the degenerative portion of the tendon is removed. The split tendon is then repaired and allowed to heal. It is unclear why, but removing the degenerative portion of the tendon seems to stimulate repair of the tendon to a more normal state.

Surgery may also be suggested if you have a ruptured achilles tendon. Repair of the torn achilles tendon by re-attaching the two ends of the torn tendon. This procedure is usually done through an incision on the back of the ankle near the achilles tendon. There are numerous ways that have been used to actually repair the tendon, but most all involve sewing the two ends of the tendon together in some fashion. There are some repair techniques that have been developed to minimize the size of the incision.

In the past, the complications of surgical repair of the achilles tendon made surgeons think twice before suggesting surgery. The complications arose because the skin where the incision must be made is thin and has a poor blood supply. This can lead to an increase in the chance of the wound not healing and infection setting in. Now that this is better recognized, the complication rate is lower and surgery is recommended more often.

After surgery, you will most likely be placed in a cast, or brace, to protect the repair - and the skin incision. A cast or brace will probably be required for 6-8 weeks. Following removal of the cast, a shoe with a fairly high heel may be recommended for several weeks longer. Physical therapy will probably be recommended for regaining the motion of the ankle and the strength in the calf muscles.