



# Achilles Tendon Tear and Repair

## Introduction

The Achilles tendon is the most powerful tendon in the human body. Tendons are strong tissues that connect muscles to bone. The Achilles tendon is located in the lower back part of the leg and works with the calf muscles to provide forceful foot movements. Achilles tendon ruptures most commonly occur as a result of sports injuries from activities such as basketball, football, or tennis. They can also result from a condition called Achilles tendinopathy. Individuals with Achilles tendinopathy have weakened and inflamed tendons that are susceptible to injury.

## Anatomy

The Achilles tendon is a large, strong fibrous cord that connects the calf muscles in the back of the leg to the back of the heel bone (calcaneus). The Achilles tendon and the calf muscles work together to allow individuals to point the foot downward and to raise the heel upward. People rely on it virtually every time they move their foot. This motion enables individuals to walk, jump, stand on their toes, and climb stairs. Individuals with Achilles tendon ruptures will most often not be able to perform such movements.

## Causes

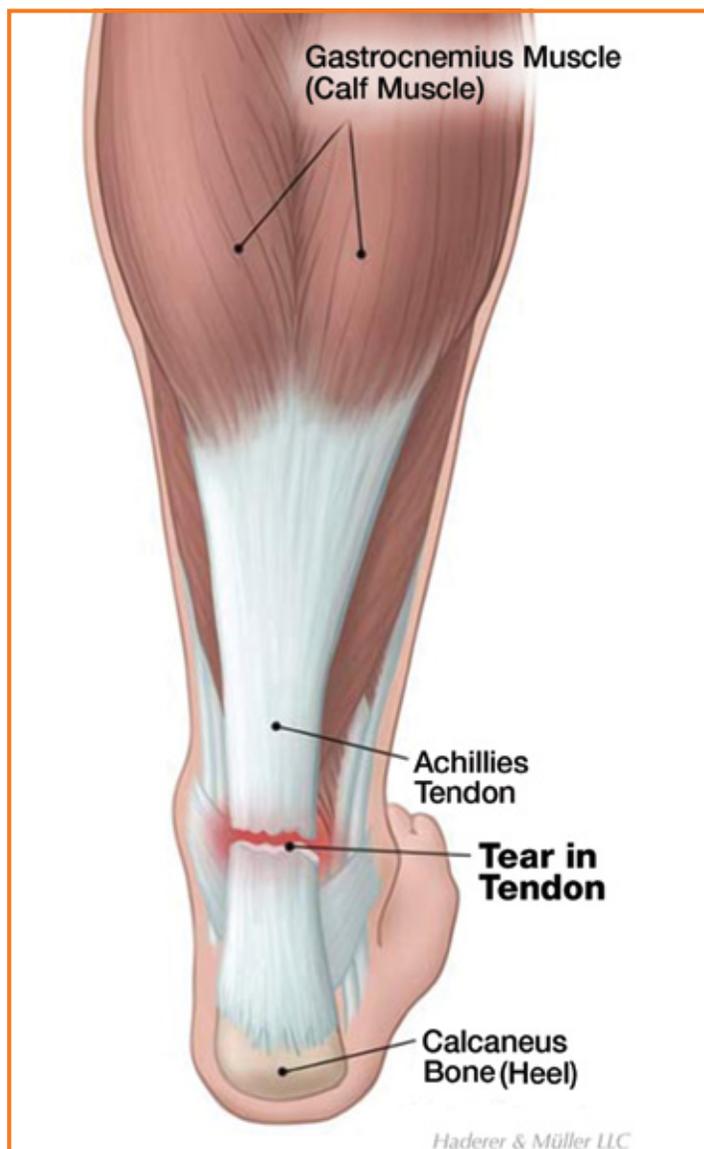
Achilles tendon ruptures most commonly occur in men between the ages of 30 and 50 years old that participate in sports. Sports such as basketball, football, and tennis require quick forward and backward leg movements, jumping, and cutting that can create an imbalance of pressure on the leg and foot. The Achilles tendon can rupture when the flexed foot sustains a sudden strong force and the calf muscles powerfully shorten. Achilles tendon rupture can also result from tendons weakened over time by Achilles tendinopathy (chronic inflammation of the tendon).

## Symptoms

A loud “pop” may be heard when the Achilles tendon ruptures. Most individuals feel a sudden painful “snap” in the back of the calf or lower leg followed by sharp severe pain. Swelling and skin discoloration in the back of the calf will often develop because of bleeding beneath the skin. Individuals are unable to point their feet downward or raise their heels upward making it difficult to walk, jump, stand on their toes, and climb stairs.

## Diagnosis

In order to diagnose an Achilles tendon rupture, a physician will perform an examination and review the individual’s medical history. The Thompson Test is the most reliable physical examination to confirm a suspected Achilles tendon rupture. The test is simple to perform. The individual lies face down with the leg straight. The physician squeezes the calf muscles in the leg. If the foot does not point, the Achilles tendon may have ruptured. The foot will not be able to point because the tendon connecting the calf muscles at the heel is torn. Some physicians may order medical imaging tests,



such as ultrasound or Magnetic Resonance Imaging (MRI), to determine the location and type of tendon tear. An ultrasound uses sound waves to create an image when a device is gently placed on the skin. An MRI provides a very detailed view of body structures. The MRI equipment focuses on the leg area while the individual remains very still. In some cases, x-rays are ordered to assess if the leg or heel bone was injured when the Achilles tendon ruptured.

### Treatment

Each case of Achilles tendon rupture must be evaluated on an individual basis. It is important for the individual and physician to discuss and determine which treatment options are most appropriate. Treatment for Achilles tendon ruptures can be surgical or nonsurgical.

Surgery is not recommended for inactive individuals or those who are at high risk for complications or cannot tolerate surgery. Treatment for these individuals includes approximately six weeks of casting to allow the tendons to heal, followed by physical therapy. Physical Therapists focus on improving physical functioning by addressing muscle strength, flexibility, endurance, balance, and coordination. This method can be effective, and it avoids the risks, such as infection, associated with surgery.

### Surgery

For individuals with active lifestyles and who want to return to strenuous recreational activities, physicians recommend surgery to reattach the torn Achilles tendon. Surgery is generally very effective and the risk of complication is typically low. The surgery will require anesthesia, but can also be performed on an out-patient basis. The surgeon makes a three to four inch opening behind the ankle and reattaches the tendon ends to each other or to the bone. The foot is placed in a pointed position in a splint or short leg cast. The splint or cast is worn for four to six weeks. The individual participates in physical therapy when the healing is complete.

### Recovery

Individuals with surgical and non-surgical repair have good to excellent rates of returning to full activity levels with proper treatment and rehabilitation. The length of time for healing is highly variable. Generally, individuals with surgical repair can return to walking and swimming at six weeks, and gradually return to sports several months from the surgery. They have a lower risk of repeated tendon rupture and a better chance of regaining full strength in the leg. Individuals with non-surgical repair will often participate in rehabilitation for a longer period of time. They have a higher risk of repeated tendon rupture and loss of strength.

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