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## ACHILLES TENDINITIS

### ANATOMY

The **Achilles tendon** is a strong tendon that connects the calf muscles to the heel. When the calf muscles contract, they pull on the Achilles tendon causing your foot to point down (plantar flexion) allowing you rise up on your toes. This powerful muscle group allows you to sprint, jump, or climb.

### INJURY

With aging and overuse, the Achilles tendon is subject to degeneration or weakening within the substance of the tendon. Over time, some of the individual strands of the tendon can fray, other fibers break, and the tendon begins to lose strength. The body tries to heal the tendon, so the tendon becomes thickened because of the formation of scar tissue. This process can result in the formation of a tender nodule within the tendon. This condition is called **tendinitis** or **tendinosis**. The area of tendinosis is weaker than normal tendon and is usually painful. If treated promptly after the start of symptoms, this injury can heal completely. A tendon that is weakened by inflammation or fraying can rupture. However, if the tendonitis is painful, the person usually avoids activities that cause pain. Thus, a painful Achilles tendonitis usually does not rupture if treated correctly.

Achilles tendon rupture can occur when suddenly jumping or pushing off forcefully such as in tennis, squash, racquetball and basketball. Rupture is more common in men than women in their third to fifth decade.

When the Achilles tendon ruptures, the person often hears a "pop" at the back of the lower leg. There is sudden pain in the region of the Achilles tendon that subsides quickly. Rupture of the tendon causes weakness when trying to stand on tiptoes. A defect or gap in the Achilles tendon can usually be felt. The torn tendon usually has to be repaired surgically. An alternative treatment is prolonged cast immobilization.

### Treatment

Treatment has two objectives: to reduce the inflammation and to allow the tendon to heal.

When the Achilles tendon is painful and swollen, you must rest it. Avoid running and jumping sports. You can use a heel lift in your shoe to help relieve strain on the Achilles tendon. Let pain be your guide. You are aggravating the condition if you continue activities while experiencing pain. Mild discomfort or ache is not a problem but definite pain is a cause for concern.



Ice the Achilles tendon for 20 minutes, two or three times a day and after any sporting activities— apply a bag of crushed ice over a towel or submerge the foot and tendon in a pan of ice water. This reduces swelling, inflammation and pain.

Aspirin, Aleve or Advil sometimes helps to relieve pain and reduce inflammation.

A physical therapist or the doctor can recommend exercises to strengthen the muscles. Exercises can also be used to stretch and balance the calf and leg muscles.

In some cases surgery may be indicated.

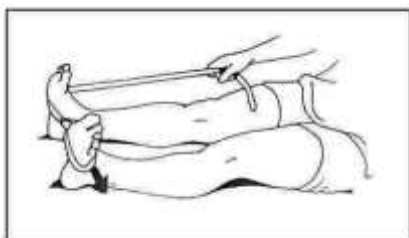
### **Exercises Program**

All exercises should be done without pain or excessive stretch at the injury site. The following Theraband exercises can be done once or twice a day, as instructed by the doctor or the physical therapist, Alex Petruska.

### **Theraband Exercise Program**

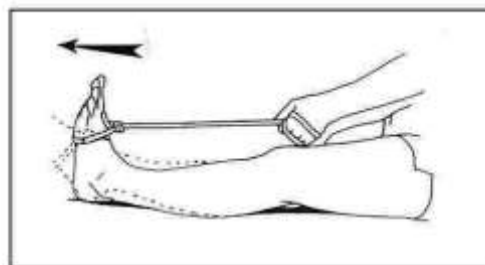
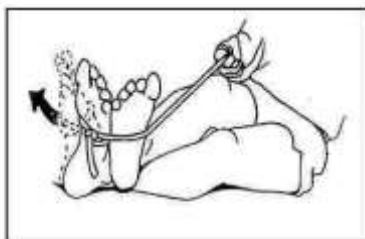
#### **Ankle Plantar Flexion**

With tubing around foot, press foot down. Repeat 30 times. This is the most important of the exercises.



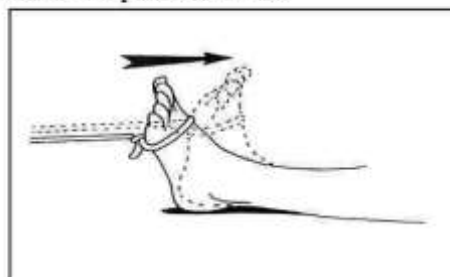
#### **Ankle Dorsiflexion**

With tubing anchored on solid object, pull foot toward you knee. Repeat 30 times.



#### **Ankle Eversion**

With tubing anchored around uninvolved foot, slowly turn injured foot outward. Repeat 30 times

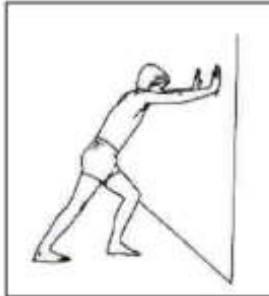


#### **Ankle Inversion**

Cross legs with the operated foot underneath. With tubing anchored around uninvolved foot, slowly turn injured foot inward. Repeat 30 times.

## Stretching and Strengthening Program

You can progress to the following exercises after two or three weeks if they are pain free. You can follow this program every other day, or as instructed by the doctor or the physical therapist, Alex Petruska. When stretching, the most effective time to stretch is after exercising, when cooling down.

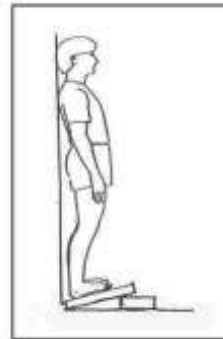


### Calf Stretch

Keep the injured leg further from the wall. Maintain the knee extended with the heel and foot flat on the floor. Lean toward the wall until a stretch is felt in the calf. Do not stretch excessively. Hold 15 to 20 seconds. Repeat three to five times.

### Tilt Board Stretch

As an alternative to the Calf Stretch, use a piece of plywood and put it on a book to create a 15 to 20 degree angle. Stand with your back to the wall, keep your knees straight, and hold a gentle stretch in the calf for ten or fifteen minutes.



### Dorsiflexion Stretch

Standing with both knees bent and the injured foot forward, gently lean forward, bending the injured knee over the ankle while keeping the heel and foot flat on the floor. This stretch will be felt in the ankle close to the heel or in the front of the ankle. Do not over-stretch! Hold 15 to 20 seconds, Repeat three to five times.

### Toe Raises

Stand facing a table, holding the table for support and balance. Keep the knees extended straight. While holding the knees fully straight, raise up on 'tip-toes' while maintaining the knees in full extension. Hold for one second, then lower slowly to the starting position. Repeat 20 to 30 times. After one month, you can raise up on *both* legs, and lower down on only the *injured* side.

At five or six months after injury, build strength so that you can raise up *and* down on



just the injured leg. Follow the 'Toe Raise Progression' on the following page under the instruction of your doctor or physical therapist.



**Single -Leg Balancing**

Attempt to balance on the injured leg while holding the uninjured foot in the air. When you can balance easily, you can attempt to balance with eyes closed, or while someone throws you a ball. Practice this exercise for 5 minutes.

If you have questions regarding the exercise program, call 617-726-7500.