

What Is the Achilles Tendon?

A tendon is a band of tissue that connects a muscle to a bone. The Achilles tendon runs down the back of the lower leg and connects the calf muscle to the heel bone. Also called the "heel cord," the Achilles tendon facilitates walking by helping to raise the heel off the ground.

Achilles Tendonitis and Achilles Tendinosis

Two common disorders that occur in the heel cord are Achilles tendonitis and Achilles tendinosis.

Achilles tendonitis is an inflammation of the Achilles tendon. This inflammation is typically short-lived. Over time, if not resolved, the condition may progress to a degeneration of the tendon (Achilles tendinosis), in which the tendon loses its organized structure and is likely to develop microscopic tears. Sometimes the degeneration involves the site where the Achilles tendon attaches to the heel bone. In rare cases, chronic degeneration with or without pain may result in rupture of the tendon.

Causes

As "overuse" disorders, Achilles tendonitis and tendinosis are usually caused by a sudden increase of a repetitive activity involving the Achilles tendon. Such activity puts too much stress on the tendon too quickly, leading to micro-injury of the tendon fibers. Due to this ongoing stress on the tendon, the body is unable to repair the injured tissue. The structure of the tendon is then altered, resulting in continued pain.

Athletes are at high risk for developing disorders of the Achilles tendon. Achilles tendonitis and tendinosis are also common in individuals whose work puts stress on their ankles and feet, such as laborers, as well as in "weekend warriors"—those who are less conditioned and participate in athletics only on weekends or infrequently.

In addition, people with excessive pronation (flattening of the arch) have a tendency to develop Achilles tendonitis and tendinosis due to the greater demands placed on the tendon when walking. If these individuals wear shoes without adequate stability, their over-pronation could further aggravate the Achilles tendon.

Symptoms

The symptoms associated with Achilles tendonitis and tendinosis include:

- Pain—aching, stiffness, soreness, or tenderness—within the tendon. This may occur anywhere along the tendon's path, beginning with the tendon's attachment directly above the heel upward to the region just below the calf muscle. Often pain appears upon arising in the morning or after periods of rest, then improves somewhat with motion but later worsens with increased activity.
- Tenderness, or sometimes intense pain, when the sides of the tendon are squeezed. There is less tenderness, however, when pressing directly on the back of the tendon.
- When the disorder progresses to degeneration, the tendon may become enlarged and may develop nodules in the area where the tissue is damaged.

Diagnosis

In diagnosing Achilles tendonitis or tendinosis, the surgeon will examine the patient's foot and ankle and evaluate the range of motion and condition of the tendon. The extent of the condition can be further assessed with x-rays or other imaging modalities.

Treatment

Treatment approaches for Achilles tendonitis or tendinosis are selected on the basis of how long the injury has been present and the degree of damage to the tendon. In the early stage, when there is sudden (acute) inflammation, one or more of the following options may be recommended:

- **Immobilization.** Immobilization may involve the use of a cast or removable walking boot to reduce forces through the Achilles tendon and promote healing.
- **Ice.** To reduce swelling due to inflammation, apply a bag of ice over a thin towel to the affected area for 20 minutes of each waking hour. Do not put ice directly against the skin.
- **Oral medications.** Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, may be helpful in reducing the pain and inflammation in the early stage of the condition.
- **Orthotics.** For those with over-pronation or gait abnormalities, custom orthotic devices may be prescribed.
- **Night splints.** Night splints help to maintain a stretch in the Achilles tendon during sleep.
- **Physical therapy.** Physical therapy may include strengthening exercises, soft-tissue massage/mobilization, gait and running re-education, stretching, and ultrasound therapy.

When is Surgery Needed?

If non-surgical approaches fail to restore the tendon to its normal condition, surgery may be necessary. The foot and ankle surgeon will select the best procedure to repair the tendon, based upon the extent of the injury, the patient's age and activity level, and other factors.

Prevention

To prevent Achilles tendonitis or tendinosis from recurring after surgical or non-surgical treatment, the foot and ankle surgeon may recommend strengthening and stretching of the calf muscles through daily exercises. Wearing proper shoes for the foot type and activity is also important in preventing recurrence of the condition.

