Physical Therapist's Guide to Achilles Tendon Injuries (Tendinopathy)

An Achilles tendon injury (tendinopathy) is one of the most common causes of pain felt behind the heel and up the back of the ankle when walking or running. While Achilles tendinopathy affects both active and inactive individuals, it is most common in active individuals; 24% of athletes develop the condition. Males experience 89% of all Achilles tendon injuries, and an estimated 50% of runners will experience Achilles pain in their running careers. In all individuals, Achilles tendinopathy can result in a limited ability to walk, climb stairs, or participate in recreational activities.

Achilles Tendon Injuries (Tendinopathy)

Achilles tendinopathy is an irritation of the Achilles tendon, a thick band of tissue along the back of the lower leg that connects the calf muscles to the heel. The term tendinopathy refers to any problem with a tendon, either short or long term. The Achilles tendon helps to balance forces in the leg and assists with movement of the leg and the ankle joint. Achilles tendinopathy results when the demand placed on the Achilles tendon is greater than its ability to function. This can occur after 1 episode (acute injury) or after repetitive irritation or "microtrauma" (chronic injury).

The severity of acute injuries is graded based on the amount of damage to the tendon:

- **Grade I:** Mild strain, disruption of a few fibers. Mild to moderate pain, tenderness, swelling, stiffness. Expected to heal normally with conservative management.
- **Grade II:** Moderate strain, disruption of several fibers. Moderate pain, swelling, difficulty walking normally. Expected to heal normally with conservative management.
- **Grade III:** Complete rupture, often characterized by a "pop," immediate pain, inability to bear weight. Typically requires surgery to repair.

Most often, Achilles tendon pain is the result of repetitive trauma to the tendon. This repetitive strain can result in chronic Achilles tendinopathy, which is a gradual breakdown of the tissue and is most often treated with physical therapy.

Achilles tendinopathy may result from a combination of several different variables, including:

- Ankle stiffness
- Calf tightness
- Calf weakness
- Abnormal foot structure
- Abnormal foot mechanics
- Improper footwear
- A change in an exercise routine or sport activity

Pain can be present at any point along the tendon; the most common area to feel tenderness is just above the heel, although it may also be present where the tendon meets the heel.
How Does it Feel?

With Achilles tendinopathy, you may experience:

- Tenderness in the heel or higher up in the Achilles tendon
- Tightness in the ankle
- Tightness in the calf
- Swelling in the back of the ankle
- Pain in the back of the heel
- Pain and stiffness with walking, worst with the first several steps

How Is It Diagnosed?

Your physical therapist will review your medical history and complete a thorough examination of your heel. The goals of the initial examination are to assess the degree of the injury and determine the cause and contributing factors to your injury.

It is common for your physical therapist to perform a movement assessment. This may include watching you walk, squat, step onto a stair, or balance on 1 leg. The motion and strength in your leg will also be assessed.

Your physical therapist may also ask questions regarding your daily activities, exercise regimens, and footwear to identify other contributing factors.

Imaging techniques, such as x-ray or MRI, are often not needed to diagnose Achilles tendinopathy.

How Can a Physical Therapist Help?

You and your physical therapist will work together to develop a plan to help you achieve your specific goals. To do so, your physical therapist will select treatment strategies including any or all of the following areas:

- **Pain.** Many pain-relief strategies may be implemented, such as applying ice to the area, putting the affected leg in a brace, or using therapies such as ionictophoresis (a medicated patch placed on the skin that is electrically charged and used to decrease pain and inflammation) or therapeutic ultrasound.
- **Range of motion.** Your ankle, foot, or knee joint may be moving improperly, causing increased strain on the Achilles tendon. Self-stretching and manual therapy techniques (massage and movement) applied to the lower body to help restore and normalize motion in the foot, ankle, knee, and hip can decrease this tension.
- **Muscular strength.** Muscular weaknesses or imbalances can result in excessive strain on the Achilles tendon. Based on your specific condition, your physical therapist will design an individualized, progressive, lower-extremity resistance program for you. You may begin by performing strengthening exercises in a seated position -- for example, pushing and pulling on a resistive band with your foot. You then may advance to exercises in a standing position -- for example, standing heel raises.
- **Manual therapy.** Your therapist may treat your condition by applying hands-on treatments to move your muscles and joints in order to improve their motion and strength. These techniques often address areas that are difficult to treat on your own.
- **Functional training.** Once your pain, strength, and motion improve, you will need to safely transition back into more demanding activities. To minimize the tension on the Achilles tendon and your risk of repeated injury, it is important to teach your body safe, controlled movements. Based on your goals and movement assessment, your physical therapist will create a series of activities that will help you learn how to use and move your body correctly to safely perform the tasks required to achieve your goals.
- **Patient education.** Your therapist will work with you to identify, and establish plans to address, any possible external factors causing your pain, such as faulty footwear or inappropriate exercises. He or she will assess your footwear and recommend improvements, and develop a personal exercise program to help ensure a pain-free return to your desired activities.

Physical therapy promotes recovery from Achilles tendon injuries by addressing issues such as pain or swelling of the affected area, and any lack of strength, flexibility, or body control. When the condition remains untreated, pain will persist and may result in a complete tear of the Achilles tendon, which often requires surgery to repair.

If your surgeon decides that surgery is needed, physical therapy will be necessary after surgery for several months. Immediately after surgery, your ankle will be placed in a splint or cast with crutches to allow the repaired tissue to heal. Once sufficient healing has occurred, you will work with your physical therapist to progressively regain your ankle mobility and leg strength. He or she will also help you regain your ability to walk without assistance—and carefully guide your return over time to your desired recreational activities.

**Can this Injury or Condition be Prevented?**

Maintaining appropriate lower extremity mobility and muscular strength, and paying particular attention to your exercise routine—especially changes in an exercise surface, the volume of exercises performed, or your footwear are the best methods for preventing Achilles injuries.

Your physical therapist will help guide you through a process that will progressively reintegrate more demanding activities into your routine without overstraining your Achilles tendon. Keep in mind that returning to activities too soon after injury often leads to persistent pain, and the condition becomes more difficult to fix.

**Real Life Experiences**

Kevin is a 45-year-old recreational distance runner training for his second 5K road race. He runs 3 to 4 days each week. Over the past 2 months, he has begun to experience pain in the back of his right heel. His pain is worst at the beginning of his training runs; he also experiences pain and stiffness when taking his first steps in the morning and after standing up from his desk at work. He typically performs stretches for 5 minutes before or after his runs and is wearing running shoes that he purchased 10 months ago.

Kevin is becoming impatient as his pain is not improving, despite the fact that he has decreased the length of his runs. He is worried about his ability to train for and compete in an upcoming race, and consults his physical therapist.

The physical therapist conducts a comprehensive examination of Kevin's motion, strength, balance, movement, and running mechanics. Kevin describes his typical daily running routine, including distance, pace, and running surface; his stretching routine; and his footwear. Based on these findings, the physical therapist diagnoses Achilles tendinopathy.

Kevin and his physical therapist work together to establish short- and long-term goals and identify immediate treatment priorities, including icing and stretching to decrease his pain, as well as gentle foot and ankle strengthening exercises. They also discuss temporary alternative methods for Kevin to maintain his fitness without continuing to aggravate his injury and prolong his recovery, including swimming, biking, and aqua jogging. Kevin is also prescribed a home exercise program consisting of a series of activities to perform daily to help his recovery.
Together, they outline an 8-week rehabilitation program for Achilles tendinopathy. Kevin visits his physical therapist 1–2 times each week; she assesses his progress, performs manual therapy techniques, and advances his exercise program as appropriate. She also advises him when it is appropriate to resume running, and establishes a day-by-day plan to help him safely build back up to his desired mileage. They also discuss the appropriate running footwear, given Kevin’s foot shape, movement patterns, and injury history. Kevin also performs an independent daily exercise routine at home, including stretching and strengthening activities. After 8 weeks of patience and diligence, Kevin no longer experiences pain or stiffness in the affected leg and resumes his desired training program without pain in preparation for his upcoming 5K race.

**What Kind of Physical Therapist Do I Need?**

All physical therapists are prepared through education and experience to treat Achilles tendinopathy. However, you may want to consider:

- A physical therapist who is experienced in treating people with Achilles tendinopathy. Some physical therapists have a practice with an orthopedic or musculoskeletal focus.
- A physical therapist who is a board-certified clinical specialist or who completed a residency or fellowship in orthopedic or sports physical therapy. This therapist has advanced knowledge, experience, and skills that may apply to your condition.

You can find physical therapists who have these and other credentials by using Find a PT, the online tool built by the American Physical Therapy Association [www.APTA.org](http://www.APTA.org) to help you search for physical therapists with specific clinical expertise in your geographic area.

General tips when you're looking for a physical therapist (or any other health care provider):

- Get recommendations from family and friends or from other health care providers.
- When you contact a physical therapy clinic for an appointment, ask about the physical therapists' experience in helping people who have Achilles tendinopathy.
- During your first visit with the physical therapist, be prepared to describe your symptoms in as much detail as possible, and say what makes your symptoms worse.
Further Reading

The American Physical Therapy Association (APTA) believes that consumers should have access to information that could help them make health care decisions and also prepare them for their visit with their health care provider.

The following articles provide some of the best scientific evidence related to physical therapy treatment of Achilles tendinopathy. The articles report recent research and give an overview of the standards of practice both in the United States and internationally. The article titles are linked either to a PubMed* abstract of the article or to free full text, so that you can read it or print out a copy to bring with you to your health care provider.


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