



What is it?

The Achilles tendon is a band of connective tissue that attaches your calf muscle (gastrocnemius and soleus) onto the back of your heel (calcaneus) and is the body's largest and strongest tendon. Achilles tendinopathy is an umbrella term used to describe pain, swelling (whether it be local or diffuse) surrounding the Achilles tendon. This term can be divided into Achilles tendonitis or Achilles tendinosis. Achilles tendonitis describes acute inflammation or swelling whereas Achilles tendinosis results from chronic overuse, such as a repetitive strain over time, without allowing for an appropriate amount of time for the tendon to recover, ultimately resulting in damage.

Further, Achilles tendinitis can be broken down into two categories; insertional and non-insertional. Insertional Achilles tendonitis occurs when there is pain directly on or within 2cm above the back of the heel. Non-insertional Achilles tendonitis is the term used when there is pain along the course of the tendon that is 2-7cm above the insertion. Achilles tendonitis is commonly found in runners and individuals who participate in repetitive jumping sports. It is important to differentiate between the two pathologies and other closely related pathologies such as Haglund's deformity and retrocalcaneal bursitis in order to properly manage symptoms and guide treatment.

What do people experience?

Common symptoms of Achilles tendinitis/tendinosis include:

- Pain behind the heel or lower leg (closer to the ground)
- Aching or burning pain upon raising from rest in the morning
- Swelling or inflammation during acute phase
- Thickening of the tendon
- A decrease in pain with initial activity that worsens as the day progresses
- As the duration of painful symptoms increases, the onset of pain will occur sooner into activity
- Pain with lifting heels off the ground
- You may feel better not wearing footwear as irritation can be caused by the collar and/or heel counter
- Oftentimes it may be accompanied by a Haglund's deformity/bony spur which may be causing the irritation

Insertional Achilles Tendinitis

- Pain upon palpation directly at the heel (insertion of Achilles tendon)

Non-insertional Achilles Tendinitis

- Pain along the Achilles tendon that is located anywhere from 2-7cm away from the insertion point (on the back of the heel)

Risk factors & how to avoid discomfort

Risk factors for discomfort include:

- Activities with lateral (side-to-side) movement or sudden direction changes
- Hill running and repeated jumping exercises
- Poor fitting or worn out footwear
- Unsupportive footwear, such as sandals or other poorly-structured shoes
- Uneven terrain – avoid surfaces with uneven terrain like trails or loose gravel as they may place a greater strain on the involved tissues
- High impact and high volume or intensity of exercise
- Depending on your mechanics, being over weight or obese may increase the strain on the muscles and tendons in your lower legs

- Your mechanics – depending on your alignment and mechanics, you may be predisposed to straining the muscles and tendons of your lower limbs. Consult with your physiotherapist or Podiatrist if you suspect this may be the case
- Ensure your flexibility for the activity you are participating in is adequate
- It is important to keep in mind that when you are running, you want to make sure to incorporate rest days into your routine and do slower run days that are well below your “race pace”

What are my options for treatment? Who else can help?

With Achilles tendinopathy, it is imperative that early detection and properly guided treatment be the main focus in order to limit the damage being done. It has been recommended that a multidisciplinary approach be taken when looking at factors contributing to this pain.

Treatment Options

Non-steroidal anti-inflammatory drugs (NSAIDS)

These can help to decrease pain and swelling within the area if present. Please contact your family physician for more information before utilizing this as an appropriate method of treatment.

Footwear change

Changing your footwear if it is old and well worn should be your first option. Well-worn shoes may exaggerate your biomechanics in a way that your body may not respond well to, which can ultimately lead to injury. Also, making sure that you are in proper footwear given your biomechanics and foot type is important when being active. Ensure that your footwear is properly fit, while providing the proper amount of support and cushioning for your activity. Wearing footwear with a proper rocker may be a viable option in order to decrease the activity of the calf musculature during activity. Implementing heel lifts into footwear may be another viable option given your biomechanics. Contact your Podiatrist to have your biomechanics assessed properly and for a proper footwear recommendation.

Stretching and strengthening

Ensuring that you have the adequate strength and flexibility for the activity you are participating in is always crucial. Having the proper flexibility in the calf

muscles (soleus and gastrocnemius) is going to be beneficial in minimizing the risk of Achilles tendinopathy. Eccentric stretching and strengthening programs have shown to be beneficial when dealing with symptoms of Achilles tendonitis. Consult a physiotherapist or Podiatrist for the proper protocols regarding this musculature.

Rest

Refraining from activity while relieving the stressed tissue is crucial with the early detection of pain. If swelling is present, ice applied for 15-20 minute intervals to the area of concern can provide some pain relief. Talk to your healthcare professional about the proper protocol that can be implemented given the duration of your symptoms.

Modified Training

Your training regimen should be modified with the presence of pain. Intensity, duration and frequency should all be decreased while pain is present. During this time, low impact and cross-training exercises, such as swimming or elliptical running can be performed in a controlled manner. Ask your healthcare professional about other exercises you can perform during this rehabilitation period.

Shockwave Therapy

If all other conservative managements have been exhausted, current literature has shown this form of therapy can be beneficial. Studies have shown a decrease in pain and an increase in functional scores after implementing this form of therapy. For more information, please ask your respective healthcare provider.

As always, utilizing the proper healthcare professional during the rehabilitation process is important in order to implement changes in a controlled manner. With the amount of information available in books and on the internet, it can be difficult to know what information will be useful and beneficial to you.

Staying active with pain

Staying active while you recover is important for overall health and well-being. Appropriate exercise selection however, is important. As a general guideline, avoid any exercises or activities that induce or intensify your symptoms. That means both during and after the activity. With soft tissue injuries, like some tendinopathies, once the tissue is warmed up it will often feel fine while active. If

this is the case, the discomfort will usually set in once you stop the activity, after a period of rest, or may come the next morning when you get out of bed. If any of these are the case, reduce the intensity or duration of the activity until you reach a point that does not induce your symptoms. In particular, avoid sports with sudden direction changes or repeated jumping like soccer, basketball, volleyball or racquet sports and exercises with lateral (side-to-side) movements such as plyometrics, kick boxing etc. Chose mild intensity exercises or cross training activities that will keep you active while helping to encourage a healthy recovery.

DON'T LET ACHILLES TENDINITIS GET YOU DOWN. GET BACK ON YOUR FEET, TODAY.

To feel better, read on!

How can SoleScience help you feel better?

Locating areas of higher pressure on your foot:

- In-shoe pressure sensors (F-scan)
- Pedograph scans (Harris mat)
- Footwear analysis and education
- 3D foot casting

Gait and movement testing:

- Static alignment
- Dynamic movement testing
- 2D clinical gait analysis
- 3D clinical gait analyses

The Pedorthists at SoleScience will work with you to start feeling better, immediately following your first visit. While you are waiting for your custom foot orthoses to be manufactured (typically 3-5 days), your Pedorthist will work with you to improve comfort, both in and out of the house. Whether you know it or not, both the shoes and activities that you select may be your best friend or your worst enemy!

Our take on the need for custom foot orthoses

Depending on your specific mechanics, custom foot orthoses may be used to support or cushion the motions of the foot and lower leg that may be affecting your discomfort. With support found in the current medical literature, custom foot orthoses have been shown to reduce the strain and load being placed on the Achilles tendon and lower limb musculature on the leg. Relieving the musculature of the continued load being placed on it can be beneficial when dealing with this pain. Providing support to the foot while attenuating shock through cushioning materials (found in both the orthotic device and the proper footwear selection) will help to relieve the soft tissue of this stress. If it has been confirmed, or you suspect that you may have Achilles tendinopathy, call the experts at SoleScience to see if you may benefit from a custom foot orthoses, 3D GAiT analysis or change in footwear.

Custom vs. OTS

OTS or off-the-shelf orthotics are pre-fabricated devices that can be fit in to your shoes right from the shelf. This type of orthotic is typically heat moldable allowing for a degree of immediate customization. Truly custom-made foot orthoses are differentiated in that they are designed specifically around a 3D model of your foot. This type of orthotic can be completely tailored to suit your needs. Depending on your symptoms and mechanics, OTS devices may be a great first step. In cases where the support offer by the OTS device is enough to address the concern, awesome, that may be as far as we need to go. If the OTS device provides some relief but doesn't quite offer enough support, or if it does not match well to your foot type, custom may provide the most comfort and relief of symptoms.

Footwear recommendations

Appropriate footwear selection is important for day-to-day comfort and depends on your specific mechanics. Generally speaking, footwear with ample cushion and support work well while managing Achilles tendinopathy symptoms. If inadequate flexibility is an issue, staying away from a shoe that is considered to be within the "minimalist" shoe category may be advised. Because "minimalist" shoes generally have a very low heel height, meaning the pitch of the shoe is very flat, the Achilles tendon can undergo stresses that you may not be able to handle, leading to injury. However, no matter which shoe you select, proper fit is vital. Length, width, depth and heel height are important considerations to make. Consult with your Pedorthist for recommendations specific to your foot type and intended use.