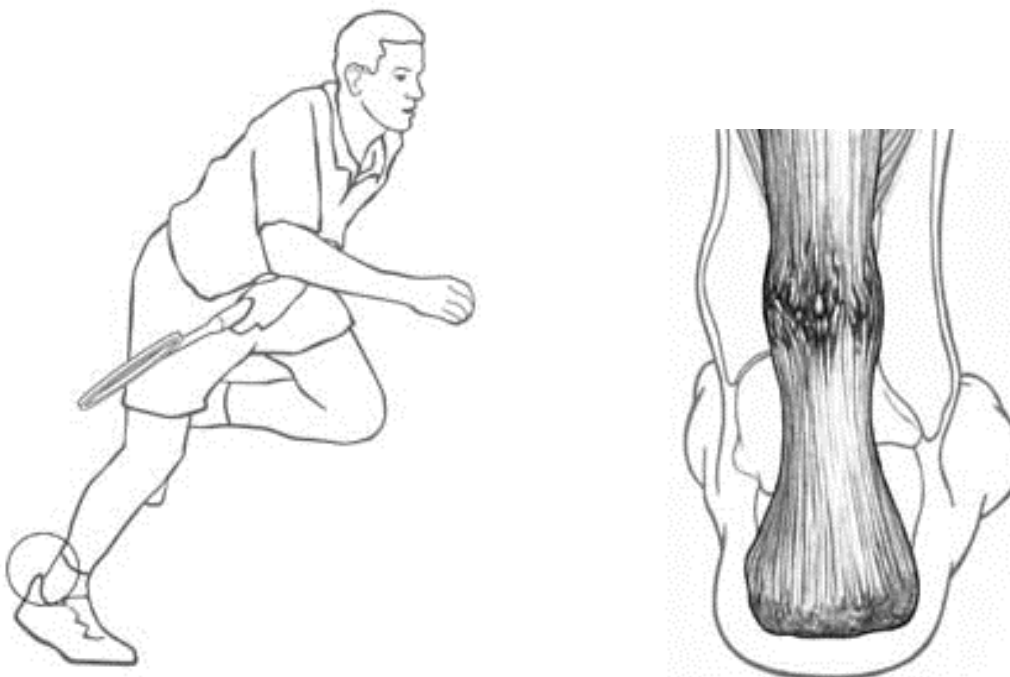


## ACHILLES TENDON

### Diagnosis

An injury of the Achilles tendon is a degenerative condition of the tendon, not an inflammatory process. It is therefore incorrect to describe this as tendinitis. Tendinopathy is a better term.

The injury is caused by chronic repetitive movements during running and jumping. It occurs mainly in recreational tennis players aged between 35 and 45. The symptoms are a gradual increase of pain, initially only in the morning and at the start of the training. In later stages, the pain may be continually present during exercise and even at rest. The pain is felt in the Achilles tendon, 5-7 cm above the heel (Figure 1 and 1a). Continued exercise carries the risk of a gradual worsening of the injury, which makes recovery more difficult.



Figures 1 and 1a. The Achilles tendon

## First aid

- As a rule of thumb, first aid involves modification of activity (less tennis and running).
- Cooling with ice, stretching exercises and wearing firm, good shoes are also important measures.
- When there is swelling and pain, ice massage may alleviate symptoms. Use a melting ice cube or a paper cup with ice. Massage the painful spot. In general, 5 to 8 minutes will be sufficient. Repeat this several times a day.
- Use special (visco-elastic) inlays or an Achilles tendon bandage. These provide good shock absorption and because of the increase in height, they artificially 'lengthen' the tendon, reducing the stress on it.
- Replace running exercises with cycling or swimming.

## How to Ensure the Best Recovery

Exercises can start when the worst pain and swelling have disappeared. During these exercises, pain is a signal to reduce the training load.

Do not surpass the pain threshold, as this will impair recovery. The build-up of the training load takes place in three stages, as described below, together with some practical tips.

### Stage 1. Improving Normal Function

- Stretching the long calf muscles (Figure 2). Take a step forward with the unaffected leg, keeping the heel of the back leg on the floor. The knee of the affected leg is kept straight.

Shift the weight of the back leg to the front leg and press the heel of the back leg firmly into the floor. Rest the hands on a stationary object (no bouncing). The stretch should be felt high in the calf. Hold the stretch for 15 to 20 seconds, followed by a rest period of 10 to 20 seconds, and repeat three times.



Fig 2. Stretching the long calf muscle

- Stretching of the short calf muscles (Figure 3). Start from the same position as above, but now bend the knee of the back leg, while keeping the heel on the floor. The stretch is felt low in the calf. Hold the stretch for 15 to 20 seconds, followed by 10 to 20 seconds rest, and repeat three times.



Fig 3. Stretching the short calf muscle

- Strengthening the foot muscles. Sit on a chair. Write the alphabet in the air with the foot of the injured leg. Fold a towel by grasping it with the toes of the injured leg. Perform this for 15 to 20 seconds, followed by 10 to 20 seconds rest, and repeat 10 to 20 times.

- Strengthening the calf muscles (Figure 4). Stand on your toes on a stair or bench and move up and down. It is best to use both legs while going up, and to lean on the injured leg only when going down. This exercise needs to be repeated seven days a week, twice a day for five minutes, for twelve weeks. The exercise should be performed both with an extended knee as with a slightly bent knee. You should continue the exercise, even if you feel pain and stop only if the pain becomes really severe. The exercise can be made harder by carrying a filled knapsack.



Fig 4. Strengthening the calf muscles

- Cycling or swimming for 15-30 minutes every day to preserve general fitness.

## Stage 2. Build-up

As soon as the Stage 1 exercises can be performed well and the patient can walk without pain, work can start on a return to sport.

- Take small, quick steps on the spot, alternating the left and the right leg.
- If this goes well, start with easy jogging. Take small steps and use the entire foot.
- Now you are ready for some easy running.
- The next step is to include some sprinting exercises, starts, stops and turns in the training.
- This can be followed by jumping exercises

## Step 3. Return to play

- A return to the tennis court should now be possible. Start against the practice wall or with mini-tennis and gradually increase the distance to the wall, or use a full court. Make sure you position yourself well for the ball by taking small steps.
- A start can now be made with volley exercises.
- The next step is some easy hitting from the baseline.
- In the course of the next two weeks, gradually incorporate exercises that require running longer distances to the ball (tennis drills from side to side).
- Next, include low volleys and overheads.
- Start playing points, then games, and then a full practice match. Once practice matches have been completed for two successive weeks without problems, the player is ready for match play.

## Preventing Re-injury

It is not always possible to prevent a reoccurrence of an Achilles tendon injury, but the risk can be reduced by paying attention to the following:

- Perform a complete warm-up before play and cool down afterwards, for approximately 10 to 15 minutes each.

- Improper footwear is one of the main causes of an overuse injury of the Achilles tendon. Stability around the ankle joint is essential. Make sure the shoe fits well around the heel and that the base of the heel is wide enough. The heel cap should be stable. You can test this by pressing the heel cap with your thumb. It should be very difficult to compress. The sole of the shoe should be supple, with a normal unrolling from the ball of the foot to the toes. The flex point of the shoe should be located under the ball of the foot and not under the middle of the foot. Do not throw old shoes immediately away, but gradually break in shoes of another type of brand. A good tip is to walk around in new shoes before wearing them when playing.
- During the unrolling of the foot a certain amount of pronation is necessary. Excessive pronation, however, can be found with a flat foot, cavus foot, and a leg length discrepancy. When misalignments are present, have customised inlays or a heel lift made by a podiatrist.
- After a heavy practice or match a massage may help to relax the calf muscles and to relieve the tension of the Achilles tendon. In addition, blood flow of the tissues is increased, which will reduce muscle cramp and enhance recovery.
- Do not increase the frequency or duration of the practice too quickly. If there are any drastic changes, such as new shoes or a change of playing surface, the body must be given enough time to become accustomed to the change.
- During the recovery period after an ankle injury there may be temporary Achilles tendon problems. This may be caused by the fluid around the Achilles tendon and increased instability of the ankle, which increases the load on the Achilles tendon. These complaints can be overcome by temporary use of an ankle brace.