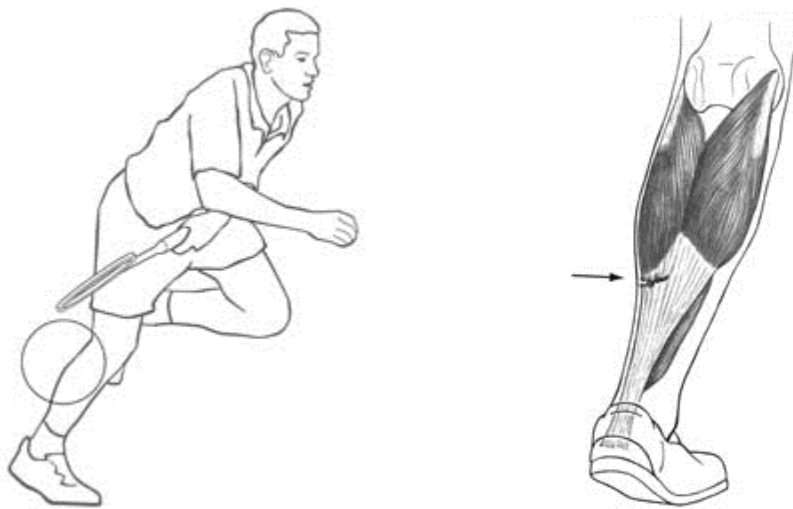


CALF MUSCLE STRAIN

Diagnosis

'Tennis leg' is an incomplete rupture of the inside of the calf muscle (Figure 1 and 1a). It is a typical tennis injury that often occurs in players in the 35 to 50 age group. This muscle injury may occur as a result of a sudden contraction of the calf muscles, for instance during a sprint.



Figures 1 and 1a. Calf muscle strain ('Tennis leg').

Symptoms are a sudden, sharp or burning pain in the leg, sometimes accompanied by an audible sound. In most cases, the player is unable to continue play because of the severe pain. Depending on the severity of the injury, recovery may take between a few days and six weeks.

First Aid

The following action should be taken as quickly as possible, certainly within 48 hours.

- Rest (immobilisation). Stop playing tennis and do not lean on the foot.
- Cool the painful area directly with ice, a cold pack, or cold running water for 10 to 15 minutes and repeat this several times a day. Do not place ice on the bare skin. Place a towel between the skin and the ice pack to avoid injury from the ice pack.

- Apply a compression bandage. This is important, as it compresses the small vessels in the calf and limits the bleeding.
- Elevate the lower leg.

Fast and adequate first aid is of major importance for a quick recovery. In severe cases, or if in doubt, the injury should be evaluated by a physician, who may make a referral for physiotherapy.

How to Ensure the Best Recovery

When the worst pain and swelling have subsided (after 1 to 2 days), start to build-up the training load. During this period, pain is a signal to rest.

Do not to cross the pain threshold, as this will slow down the healing process. The training load is built up in three steps. These are described below, with several tips.

Stage 1. Improvement of Normal Function

- If the pain allows it, you may put weight on the foot, if necessary using elbow crutches during the first week. The foot should be used in a normal fashion.
- A heel lift (with shock absorption) in both shoes for one to two weeks may help to ease the load on the calf muscles during walking. 'Viscoheels' are very useful for this purpose.
- Swimming or cycling for 30 minutes every day increases the blood flow to the calf muscles and enhances recovery.
- Stretching the long calf muscles (Figure 2). 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 with



Fig 2. Stretching the long calf muscles

your hands on a stationary object. The stretch is felt high up in the calf. Hold the stretch for 15 to 20 seconds without bouncing, followed by a rest period of 10 to 20 seconds. Repeat 3 times.

- Stretching the short calf muscles (Figure 3). Start from the same position as described above, but now bend the knee of the hind leg, while keeping the heel on the floor. The stretch is felt low in the calf. Again, hold the stretch for 15 to 20 seconds (no bouncing), followed by 10 to 20 seconds rest, and repeat 3 times.



Fig 3. Stretching the short calf muscles

- 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.

Stage 2. Build-up

As soon as all the above exercises can be performed and walking is possible without pain, a return to tennis and other sports can be considered.

- Start by strengthening the calf muscles (Figure 4). Slowly rise onto your toes and hold this position for 10 to 20 seconds. Then return to the starting position. Perform this exercise with both feet at the same time, then when leaning on the injured leg only. If using body weight is too painful or difficult, elastic tubing may be used to work the plantar flexors (i.e. push the toes and forefoot down against the resistance of the elastic tubing).



Fig 4. Strengthening the calf muscles

- Take small, quick steps on the spot, alternating the left and the right leg.
- If this goes well, you can begin jogging. Start with an easy jog, then include some sprints and straight running, followed by quick turns, starts, and stops.
- Finally, you can include jumping exercises.

Stage 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 your opponent on the court. Make sure you position yourself well for the ball by taking small steps.
- In this phase you can also include volley exercises.
- Gradually (in the course of one to two weeks) include more exercises that involve moving longer distances towards the ball.
- Next, include low volleys, followed by overheads and services.
- As soon as you can hit a smash with footwork without problems, you are ready to start playing points, games and a practice match.
- Once you have played practice matches for two weeks in succession without problems, you can start playing matches again.

Preventing Re-injury

It is not always possible to prevent tennis leg, but the risk can be reduced by paying attention to the following points:

- Perform a complete warm-up before play and a cool down afterwards, for approximately 10 to 15 minutes each. Pay close attention to correct stretching exercises. Stretching exercises for the calf muscles are particularly important.
- Build up training gradually, so that the body can slowly adapt to the increased load.
- Adapt clothing to the weather conditions. Particularly at the start of the season or if there is a biting wind, it may be wise to keep the track suit or running tights on during the warm up. Well-warmed muscles and tendons are better able to withstand pulling and traction forces than cold muscles.

- Wear properly fitting tennis shoes with good shock absorption, sideways stability, feeling with the playing surface (grip) and optimal comfort.
- Massage calf muscles if they feel stiff and tense.
- Maintain strong calf muscles, with adequate rest in your training programme. Steps, cycling and running are ideal exercises for calves.