Pearse Street Physiotherapy Clinic

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— & Associates —

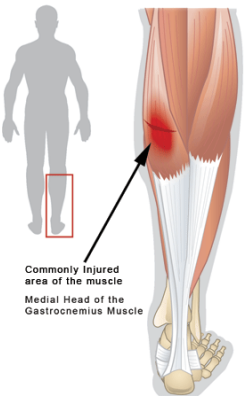
Aidan Woods is the Head Physiotherapist with the Olympic Council of Ireland. He has worked with Irish athletes in the London, Beijing and Athens Olympic Games. He currently practices in Pearse Street Physiotherapy Clinic, Dublin 2. www.pearsestreetphysio.com, and is here to answer your questions on running injuries.

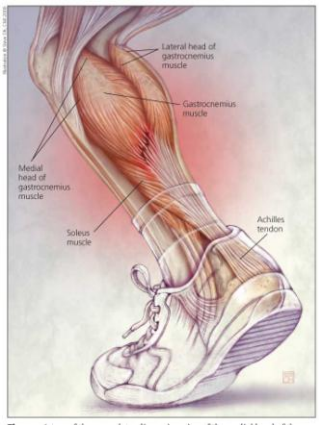
I have torn my calf muscle, what should I do to help it get better?

Your calf muscle (on the back of the lower leg), is made up of two muscles: the gastrocnemius and the soleus. The gastrocnemius is the larger calf muscle, and forms the visible bulge under the skin. This muscle has two parts or "heads," which together create its diamond shape. The soleus is a smaller, flat muscle that lies underneath the gastrocnemius muscle. These two muscles join together to become the Achilles tendon which inserts into the heel bone (calcaneus). During walking, running, or jumping, the calf muscle pulls the heel up to allow forward movement.

A strain is a tear of a muscle. In sports, a strained calf muscle (or any other muscle) is subject to being torn when it is asked to do more than it's used to doing, especially if other factors are involved, such as fatigue, an improper or incomplete lack of warm-up, or extreme weather conditions.

A torn calf muscle may happen as a gradual build up of pain or it may feel like you have just been hit in the leg or potentially hear a "pop". There is sudden pain at the rear of your calf and your calf may then swell and bruise, and you will probably have difficulty walking or standing on your toes.





As with most soft tissue injuries the **initial** treatment is **POLICE** – Prevent further damage, Optimal Loading, Ice, Compression, Elevation.

Preventing Further Damage

If you have torn your calf muscle or suspect that a calf muscle is about to tear the first thing to do is to minimize the amount of damage you do. The easiest way to do this is to stop or minimize any activities that cause your calf muscle to get sore.

Optimal Loading

Seek advice from your Chartered Physiotherapist on what optimal loading for your calf is. In very bad tears surgery may be needed, or strong medications and crutches. In the less severe calf tears your physiotherapist may advise you to stop running but may recommend other sports/exercises which don't put as much pressure on the calf such as cycling, swimming, stretching and strength work.

Ice

Ice is an easy and effective way to help reduce your pain and swelling. It can reduce bleeding within the muscle and prevent tissue damage, making the recovery process quicker. You may notice that during the initial phase your calf may seem warm or hot. Use ice packs with a ***thin towel layer*** **between the ice-pack and your skin** (never put ice directly on the skin) for 20 minutes at a time. In the early stages of healing (within 48 hours of injury), you can apply an ice pack in 20 minute increments every 2-4 hours.

Anti-inflammatory medication (if prescribed by your pharmacist or GP) and natural substances e.g. arnica may also help to reduce the pain and swelling in your calf. However, it is advised to avoid anti-inflammatory drugs during the initial 48 to 72 hours when they may encourage further bleeding within the calf muscle

Compression

As your symptoms improve, your Chartered Physiotherapist will recommend whether a compressive bandage, supportive taping or an elastic calf support is most appropriate. This will help to both support the injured soft tissue and helps to prevent the pooling of blood in your foot.

Elevation

Keep your foot elevated above your heart (where possible) to allow for gravity to help drain your calf and lower leg swelling.

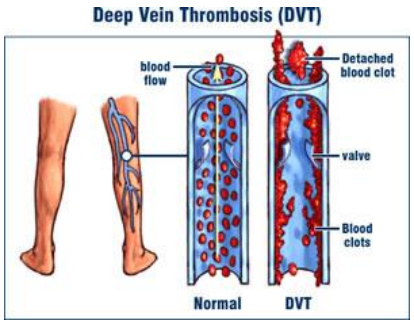
If you follow these steps in protecting your injured calf appropriately, the torn muscle can be given a chance to successfully heal, however mature scar formation takes at least six weeks. During this period you should be aiming to optimally "remould" your scar tissue to prevent the muscle re-tearing in the future. Your physiotherapist can help your healing scar tissue by lengthening and orientating the fibres through massage, muscle stretches and neurodynamic mobilisations. Dry needling can also be used to treat calf tightness which can put you at increased risk of calf strains. Pioneering studies by Dr. Jay Shah have shown that inserting thin needles into trigger points can cause biomechanical changes which are shown to alleviate pain. It is essential to elicit local "twitch" responses within the muscle, which are the first step to breaking the pain cycle and releasing tight trigger points within muscles.

Following successful acute treatment more active rehabilitation strategies advised by a physiotherapist can be started. Rehabilitative exercises should isolate the two calf muscles (soleus and gastrocnemius) by varying knee flexion.

Passive stretching of the injured muscle at this stage helps to lengthen the maturing intermuscular scar and helps to make the muscle ready for strengthening. Strengthening the muscle should be started with unloaded isometric contractions as the range of motion returns. 10-14 days after the injury, the developing scar should have the same tensile strength as the surrounding muscle and further progression of rehabilitative exercises can begin. Isometric, isotonic, and then dynamic training exercises can be added in once each exercise can be completed pain-free. Application of other Physiotherapy modalities, including massage, ultrasound and electrical stimulation, can also now be considered at this stage. Before full return to running you will require specific sport-specific exercises and a progressed training regime to enable a safe and injury-free return to running.

What potential complications can arise if this is not managed properly?

Deep Vein Thrombosis (DVT). Symptoms of a DVT can include pain, swelling and tenderness in the back of the calf often accompanied by redness and heat of the skin. What makes things harder is that these symptoms are almost the same as those associated with a calf tear. If in doubt, we would advise you attend your GP or hospital as a DVT could (rarely) lead to a pulmonary embolism which is potentially life threatening.



Tips on preventing calf injuries:

You can assist the prevention of a calf tear in the following ways:

- Do not increase the level of exercise intensity, frequency, or duration more than 10 percent a week
- Work with a Chartered Physiotherapist to learn proper sport-specific techniques that minimizes the stress placed on you calf muscles
- Allow more time for a longer warm up in cold weather conditions
- Ensure your running shoes are comfortable (consider cushioned insoles that help to reduce calf muscle stress) and in good condition, changing them every 300-500 miles if covering long distances
- Avoid running on uneven surfaces that you are not used to

References

1. Brukner P, Khan K. Clinical sports medicine. Revised 2nd ed
2. Jarvinen TAH, et al. Muscle injuries: biology and treatment. Am J Sports Med. 2005;33:745–764. doi: 10.1177/0363546505274714.[PubMed] [Cross Ref]