Calves like bricks

Physiotherapists NEESHAL JOGIE and TANYA BELL-JENJE explain the possible causes of tight, painful calves.

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Extremely tight calves can force you to slow down and stretch mid-run! Read on to understand what is happening in your legs, and make an appointment with a qualified physio for a proper diagnosis and treatment.

Whether you are a seasoned campaigner or a novice preparing for your first 10km run, lower leg injuries are a regular occurrence in the running community. Painful, tight calves may be experienced by many runners but there could be several conditions that could be causing them.

We will take a look at some of the differential diagnoses and some interventions to help you overcome them.

COMPARTMENT SYNDROME

The posterior compartment contains muscles and a nerve that control movement in the foot, and a vein and artery that supply blood to the foot. When symptomatic you will experience and deep aching pain in the back of your calf that is brought on by running and goes away with rest.

Initially this will be at a similar distance each time, but as the condition progresses this may happen sooner and last for a longer period and you may experience numbness and weakness in the feet. A study of 1,411 individuals in the Netherlands found that 78% of posterior compartment syndrome cases occurred bilaterally (in both legs).

CALF STRAINS

A calf strain is a common injury that results in a tear of muscle fibres at the back of the lower leg. The calf muscle is made up of three separate muscles that come together and attach to the heel via the Achilles tendon. Depending on the extent of the tear you may have continued with running but would have experienced discomfort and tightness during the run.

If you continue to train with a strain you run the risk of tearing more fibres and this would involve a longer recovery time. Whilst pain may start on one side, persistent training with a strain places an additional load to the unaffected leg which could lead to a strain there too.

VASCULAR CONDITIONS

Although muscular structures are more commonly associated with posterior calf pain, there have been a few vascular conditions that can cause pain in a similar area. The Popliteal artery is one of those vascular structures due to its position in the lower leg. As it branches through the lower leg it passes deep to the calf muscles. In some people the artery is trapped by the calf muscles which have developed in an abnormal position, this is known as a popliteal artery entrapment syndrome.

A more common presentation is a functional popliteal entrapment syndrome which occurs bilaterally in 24% of patients. This happens when the calf muscles are over developed due to excessive training and compress the artery. Symptoms include, pain, numbness and cramping in the calf during exercise that eases with rest.

As the presentation can be similar to a compartment syndrome, your physiotherapist should consider an arterial entrapment if no improvement is seen whilst treating you for a posterior compartment syndrome.

EXERCISE INDUCED HYPOXIA

Hypoxia is a condition during which a region of the body is deprived of adequate oxygen supply at the tissue level. During hyperventilation oxygen combines more tightly with haemoglobin making it difficult for it to move into the tissue resulting in hypoxia.

Hyperventilation causes a decrease in carbon dioxide (CO2) levels in the body. This makes the body more alkalotic and could cause symptoms of tingling or pins and needles in both hands and or lower legs. This could be seen in runners who complain of lower leg symptoms during intense interval training but not during steady state endurance running.

It can be controlled by correcting breathing patterns during exercise. This involves re-education of diaphragmatic breathing strategies during running.

TREATMENTS

Abnormal biomechanics have long been seen as a cause for running related injuries. There are many biomechanical adaptations that can be made, but there is no single recipe for success.

An assessment conducted by a physiotherapist experienced in treating runners may be beneficial to provide the appropriate treatment.

Cadence (total steps per minute) and foot strike have been proven to be modifiable and will influence your biomechanics. This needs to be tailored to the individual and their ability to tolerate these changes. An increase in cadence of 10% and reduction of stride length by 10% decreases lower leg forces during running. Increasing your cadence produces a forefoot strike which can place an added load on the posterior calf. This will need to be addressed during your rehabilitation.

Stretching and correction of muscle imbalances will help you to cope with the altered load experienced from changing your biomechanics. With posterior calf pain this will include calf stretches and strengthening of the lower legs.

Optimising running biomechanics is beneficial to getting you pain free on the road or through the beautiful landscapes of our country. This rehabilitation journey should be guided by an experienced professional.

As a runner you are constantly told what is the correct way to run but, as with most things in life, you have to find what works best for you. We all know this process can be more equated to a marathon than a sprint!

Contact the **South African Society of Physiotherapy** to get in touch with Neeshal Jogie, Tanya Bell-Jenje, or other physiotherapists with a special interest in treating sportspeople.

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Stretch out your calves using a lunge. Make sure you do both sides, only once your muscles are warmed up.

An inclined surface is a great tool for calf stretches. Don't push yourself too far, too soon, or you can risk further injury.

For a controlled stretch, especially if you have knee pain, try lying on your back and pulling down on your flexed foot with a towel or resistance band.