Case Study
Calf Muscle Pain

Podiatry Practioner: Nick Haley
Practice: Feet n Motion Podiatry
Physiotherapist: Doug Claridge
Practice: Russley Physiotherapy
Patient: Unknown

The calf muscle is made up of the soleus, gastrocnemius and plantaris muscles (tricepts surae). They join together at the Achilles tendon and insert into the calcaneus. Calf muscle strain is a common injury. In this case, on examination and assessment the patient was diagnosed with a different condition where calf muscle pain was a contributing factor.

Current Situation

The patient first presented to Russley Physiotherapy complaining of pain in his calf muscle. The patient is an ex-rugby player who now plays social touch. He has started running again to increase his fitness, however he has had issues with his calf muscles for years.

Every time he increases activity, he ends up with pain similar to a pulled calf muscle. The patient's pain is now starting to linger with diffuse tenderness along the muscle belly and surrounding structures.

This is frustrating for him, and he wants to get the issue sorted once and for all. Some of the patient's problems were stemming from his feet, and as part of his treatment he was referred to a Podiatrist.

Assessment

Balance test
The patient stands on one leg and establishes balance. In this position the foot and leg alignment are similar to that when walking.

It is evident the patient's foot overpronates slightly, which causes his big toe to grip to stabilise his foot. This stresses the flexor halluces longus muscle, which runs along the shin near the calf muscle, causing the patient's calf pain. The patient's knee drops in – a combination of poor foot alignment and weak gluteal muscles.

Jacks Test
This clinical test assesses the ension in the plantar fascia associated with heel lift and propulsion. It indicates whether or not joint changes are occurring in the big toe joint.

The patient had some restrictions which could have influenced his flexor hallucis longus muscle to overload causing pain.

Podiatry assessment
Manual muscle testing of the flexor hallucis longus, produced a similar pain to what the patient experiences when running.

Generalised biomechanical testing of the foot revealed a plantar flexed 1st ray, this can put more strain through the flexor hallucis longus muscle. It was also noted during gait analysis his gluteus medius muscles were weak.

Diagnosis

Together the Podiatrist and the Physiotherapist diagnosed the patient with medial tibial stress syndrome, some flexor hallucis longus muscle belly inflammation, with tibialis posterior involvement. All of these muscles attach along side the calf muscle into the shin bone which is why the patient mainly felt this in his calf muscle area.

Causes

Poor footwear - the patient's shoes were worn and did not provide him with enough support. He liked how they looked but they were not suitable for his foot type.
Sudden increase in training – rather than building up his running slowly the patient dived right in, overloading his muscles and attributing to his injury. Weak and tight calf (gastrocnemius) muscles. Sharp and heavy heel strike when running.

Treatment

For this injury to recover fully the patient needs to back off from running to allow the initial inflammation to settle. He is fine to walk, swim or cycle in the meantime.

Initially, the physio used taping to settle the patient's flexor hallucis longus pain. The patient was fitted with a new pair of running shoes - Adidas Supernova's.

The Podiatrist fitted the patient with Original Dual Hard Formthotics, with some reduction in the rear foot control.

A kinetic wedge was added to allow 1st ray alignment to be the same as other toe joints, reducing stress through the flexor hallucis longus tendon.

Stretches and strengthening for the patient's weak gluteal and calf muscles were also issued.

Running technique coaching was also provided by the Podiatrist to prevent future injury.