

Case Study

Medial Tibial Stress Syndrome

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Patient: Netball player in her 20's

Medial tibial stress syndrome (MTSS), often referred to as "shin splints" is a frequent overuse lower extremity injury, characterised usually by exercise induced pain along the posteromedial aspect of the distal two thirds of the tibia. "Shin splints" is a general term to describe a number of different potential pathologies. There are several predisposing factors for MTSS; having a poor technique, improper warmup routine, increasing training schedules before being ready to do, or high impact sports contribute as does training on hard surfaces or uneven terrain. A previous leg injury may increase risk of issues. Biomechanical factors can contribute in addition to footwear suitability and design for the activity being undertaken.

Current Situation

The patient presented with pain in her shins, as well as few other issues. The patient is active and in her early 20's. She is a social netball player and in addition to this has just joined a training group.

Over the past 4 weeks she has increased her exercise greatly with interval training and running 3-4 times a week, 5-8km per run. She is experiencing diffuse tenderness along the medial border of the tibia. It is worse with increased activity and subsides with rest.

The patient is frustrated as she had to reduce her running because of the pain and wants to keep training as much as she can.

Assessment

I undertook a range of tests to identify what was causing the patient's pain, including the following:

The Balance Test

This relates to proprioception and postural stability, it also provides a good indication of the level of pronation the patient has.

This test clearly identified the patient significantly over pronates and she grips with her big toe to try and stabilise the foot. It was also evident her foot over pronation was influencing her lower limb alignment negatively.

The Forefoot Stability Test

This test relates to propulsion. During this test, the patient complained of pain up her left shin. Further and more specific manual muscle testing of the posterior tibialis tendon and of the flexor hallucis longus again brought on this pain. This test reinforced the compensations resulting from her over pronation are what have led to her injury.

In addition to these tests, I undertook a series of standard alignment, strength and injury specific tests to diagnose the patient.

Diagnosis

My diagnosis is the patient has Medial Tibial Stress Syndrome.

Causes

This has been caused by a number of things:

- Footwear - The patient's running shoe are worn out, and the cross trainers used for Netball may look pretty, but they offer her no support.
- The patient is an "over pronator." Some pronation is good as you need this to adapt to un-even surfaces and terrain, however, when this movement is excessive, it puts a lot more strain through shins, ankles and feet.
- The sharp increase in the patient's training programme has really brought the first two issues to a head.

Treatment

R.I.C.E

The first step is to treat the pain with Rest, Ice, Compression and Elevation. I have recommended the patient ease back on her running until she is pain free and replace this with cycling or walking. In the meantime, she should be able to continue with her other activities.

New Footwear

I have recommended ASICS 2160 running shoes for her running and Asics cross trainers for use at netball and other non-running activities. These will provide her good support and create an excellent foundation for Formthotics.

Formthotics

I have fitted the patient with Original Red Dual Formthotics and have added a self-adhesive arch pad to minimise the excessive pronation and offload the effected muscles. I will continue to see the patient and adjust the Formthotics as her foot strengthens and her pain reduces.

I have recommended calf stretching and strengthening exercise for the patient to ensure she remains injury free long term.

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