

# Formthotics<sup>™</sup> Case Study

## Medial Tibial Stress Syndrome



**Foot Science**  
International

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In association with

**PODIATRYMED**

# Medial Tibial Stress Syndrome

Practitioner    Rebecca Gifford  
Practice        PodiatryMed, Christchurch, NZ  
Patient         Chelsea



- Chelsea presented with pain in her shins as well as few other issues.
- Chelsea is active and in her early 20's. She is 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, 5-8k per run.
- She is experiencing diffuse tenderness along the medial border of the tibia. It is worse with increased activity and subsides with rest.
- Chelsea is frustrated that she has had to reduce her running because of the pain and wants to keep training as much as she can.



I undertook a range of tests to identify what was causing Chelsea'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 that Chelsea significantly over pronates and that she grips with her big toe to try and stabilise the foot. It was also evident that her foot over pronation was influencing her lower limb alignment negatively.



## The Forefoot Stability Test

- This test relates to propulsion.
- During this test Chelsea 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 that the compensations resulting from her over pronation are what have lead to her injury.



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



My diagnosis is that Chelsea has Medial Tibial Stress Syndrome. This has been caused by a number of things:

- Footwear - Chelsea's running shoe are worn out and her cross trainers that she is using for Netball may be pretty, but they offer her no support.
- Chelsea 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 Chelsea training programme has really brought the first two issues to a head.



But the good news is the solutions and treatment are simple.

## R.I.C.E

- The first step is to treat the pain with Rest, ice, compression and elevation. I have recommended that Chelsea ease back on her running until she is pain free and replace this with cycling or walking. In the mean time she should be able to continue with her other activities.





## New shoes are a must for Chelsea.

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



## Formthotics™

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



I have recommended some stretching and strengthening exercise for Chelsea to ensure she remains injury free long term.

These include:

- Calf Raises
- Calf Stretches

