

# Medial Tibial Stress Syndrome / "Shin Splints"

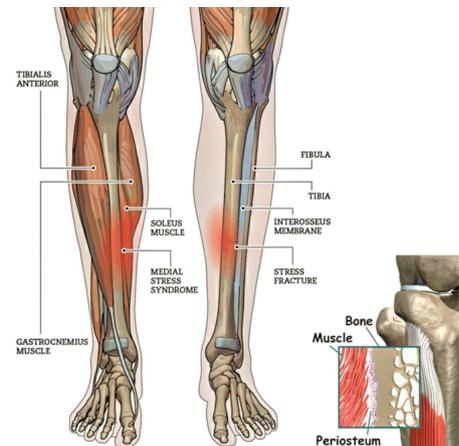
## What is MTSS?

MTSS is a painful repetitive stress injury that occurs in the lower leg, affecting the tibia (*shin bone*) and is responsible for up to 15% of all running related injuries.

## What Causes MTSS?

There are often a combination of factors that contribute to the development of MTSS. There are currently two primary theories as to the cause of the pain itself:

- \* The **periosteal traction mechanism** - the medial and deep leg muscles that originate along the border of the tibia (*flexor digitorum longus* and *soleus*) become overloaded which causes irritation and inflammation of the lining of the bone (periosteum)
- \* The **cortical stress theory** - inadequate shock absorption capability of the lower limb leads to micro-fracturing of the



## Symptoms/Characteristics

- \* Pain presents along the lower two thirds of the shin.
- \* During the initial stages pain can present intermittently and may be relieved after warming up or "running it off"
- \* Dull, diffuse ache along the lower two thirds of the inside of the tibia that increases in intensity over time. Pain levels can become that severe that even running a few steps is almost impossible.
- \* Swelling, redness and warmth along the tibial margins.

## Risk Factors

- \* **Pronation** (*inward rolling of the ankles and/or collapsing of the arch*) - Research has identified an association between pathologically excessive or inadequate amounts of pronation & MTSS.
- \* **Functional Hallux Limitus** - Reduced flexibility at the 1st MTPJ (*big toe joint*) leads to inefficient propulsion mechanics and can overload the Tibialis Posterior (*TP*), Flexor Digitorum Longus (*FDL*) and Soleus (*SOL*) muscles as they attempt to support the medial (*inner*) arch of the foot.
- \* **Muscular & Movement Imbalances** - Restrictions in ankle range of motion (*ROM*) reduces the shock absorbing capacity of the lower leg. Reduced ankle ROM can also result in compensatory gait patterns occurring in other areas of the lower extremity (*eg: increased pronation, valgus/inwards collapse of the knee, altered hip mechanics resulting in lower back pain*)
- \* **Gender** - As females have a larger % of FDL and SOL muscle attachment to the medial tibial border there is an increased likelihood of irritation occurring in this area.
- \* **Training Overload** - Sudden increases in training volume and/or running on hard, non-compliant surfaces (*eg: concrete, bitumen or treadmills*)
- \* **Incorrect Footwear** - Often a person is running in shoes that are inappropriate for their individual foot type and biomechanics.

## **Possible Treatments Based on Individual Biomechanical Assessment**

The first step to successful treatment is a thorough Biomechanical Assessment & obtaining a correct diagnosis. Forster Tuncurry Sports Podiatry utilises advanced biomechanical assessment technologies and implements assessment & treatment protocols in line with the very latest research, to ensure each and every patient receives the best possible care and treatment outcome.

**Exercise Therapies**

**Footwear**

**Orthotic Therapy**

**Laser Therapy (LLLT)**

**Dry Needling**

**Sports Strapping**

**Manual Therapies**

**Shockwave\***

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\*External referral for this service

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