

# Medial Tibial Stress Syndrome / "Shin Splints"

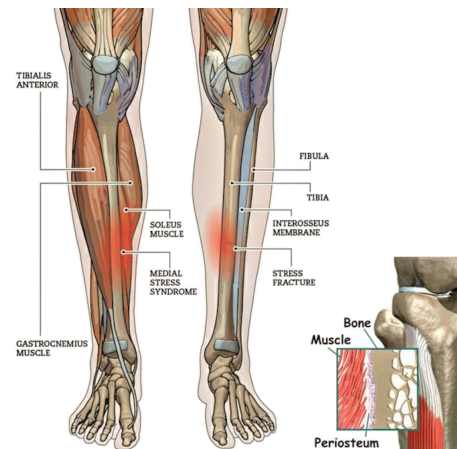
## What is MTSS?

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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