

# SHIN SPLINTS - MEDIAL TIBIAL STRESS SYNDROME

Medial Tibial Stress Syndrome (MTSS) is a common overuse injury of the lower extremity. It typically occurs in runners and other athletes that are exposed to intensive weight bearing activities. It presents as exercise induced pain over the anterior tibia and is an early stress injury in the continuum of tibial stress fractures.

Large increases in load, volume and high impact exercise can risk the development of MTSS.

Females tend to have a higher risk. Patients exhibiting a positive Navicular Drop Test, a stiff hip with external rotation and any muscle imbalances or inflexibility and weakness of the Triceps Surae, which is prone to fatigue causing a change to running mechanics. Running on hard or uneven surfaces and bad running shoes also contribute to developing MTSS.

## CLINICAL PRESENTATION OF MTSS

## <u>HISTORY</u>

- Increasing pain during exercise to the medial tibial border. Usually the mid/lower third.
- Pain persists for hours after exercise.
- Pain decreases once warmed up.
- As the condition progresses, earlier onset of pain with training.

#### EXAMINATION

- Intensive tenderness to palpate the medial mid/lower border of the Tibia
- Pes Planus Flat foot
- Tight achilles tendon
- A One Hop Test Distinguishes between MTSS and a Stress Fracture: A patient with MTSS can hop at least ten times on the affected leg whereas a patient with a fracture will be unable to do this due to intense pain.
- Provocative Test Pain with resisted plantar flexion

### MANAGEMENT

Treatment tends to be conservative. Rest and activity modification with less repetitive, load bearing exercise is required. The duration of rest required for resolution of symptoms is variable depending on the individual.

Other therapies available, (with low quality evidence), include lontophoresis, Phonophoresis, Ice Massage, Ultrasound Therapy, Periosteal Pecking, and Shockwave Therapy.

Complications: Recurrence common after returning to heavy activity.

#### PHYSIOTHERAPY

- Patient Education
- Graded loading programme
- Correct functional gait and biomechanics " Running Retraining "
- Possible orthotics

### ACUTE PHASE

- 2 6 weeks of rest
- Possible medication ? Anti Inflammatories
- Ice packs
- Ultrasound
- Soft tissue mobilisations

Steroid injections are contraindicated

## SUB ACUTE PHASE

- Modify training conditions
- Address biomechanical abnormalities.
- Change of training conditions: Decreased running distance, intensity and frequency by 50%. Avoid hills and uneven surfaces.
- Introduce low impact and cross-training exercises. Intensity and duration may be slowly increased after a few weeks. Add sport specific activities and gentle hills. Needs to all remain pain free.
- Introduction of a stretching and strengthening, (eccentric), calf exercise program to prevent muscle fatigue.
- Strengthening programme for core, gluteal and hip muscles. Thuis can help improve running mechanics and prevent further injury.
- Proprioceptive training. Improved balance will increase the efficiency of joint and postural stability. This helps the body to react to running surface incongruities.
- Appropriate footwear with good shock absorption can help prevent a new or re injury.

It is important to change the athletes shoes every 250 - 500 miles, a distance at which most shoes lose up to 40% of their shock absorbing capabilities.

- In the case of biomechanical problems of the foot, individuals may benefit from Orthotics. An over the counter orthosis, (flexible or semi rigid), can help with excessive foot pronation and pes planus. A cast or a pneumatic brace may be necessary in severe cases.
- Manual therapy can be used to control several biomechanical abnormalities of the spine, sacroiliac joint and various muscle imbalances. They are often used to prevent relapsing to the old injury.
- Acupuncture
- Ultrasound Therapy
- Shock Wave therapy Efficiency is not yet proved.