

Medial Tibial Stress Syndrome (Shin Splints)

Medial Tibial Stress Syndrome (MTSS) is an overuse injury seen commonly in sports involving running. It is one of a number of different conditions that are sometimes labelled 'shin splints', another name for this condition is medial tibial traction periostitis.

Symptoms

Patients will often experience pain and tenderness to touch in the lower leg, particularly along the inside of the shin bone (tibia). As the condition becomes more severe, there may be some swelling and/or redness and lumps along the shin and pain when the foot is pointed downwards.

In the early stages, pain occurs during the first part of the training session and then goes away as you warm-up, pain often returns after exercise or the next morning. As the condition worsens the time spent with pain increases, the symptoms become increasingly debilitating to the point where everyday activities (eg. walking up stairs, steep hills) are acutely painful and finally pain can be present even at rest and at night.

How does it occur?

Physical activity places stresses on muscles, tendons and bones and microscopic damage that may occur during these activities heals during periods of rest. If stress is too high or rest periods inadequate, the rate of healing may be outstripped by the rate of damage and symptoms will become steadily worse. In the case of MTSS damage is usually at the site of attachment of the lower leg muscles to the shin bone. If the condition is left untreated and painful activities continued, damage will progress and a stress fracture may result.

In the majority of patients with MTSS, the cause can be traced back to excessive training with inadequate recovery, most commonly after a period of increased intensity or frequency. Distance runners, military personnel, dancers and people starting an exercise program are at particular risk.

The greater the shock through the lower limb, the higher the likelihood of damage to the tissues. Shock may be increased by running on hard surfaces (surfaces in order of increasing hardness: soft grass, smooth dirt, asphalt, concrete pavement), by running downhill or by worn-out shoes. Some biomechanical factors can also increase stress on the tissues, these include: tight calves and hamstrings, stiff ankle and foot joints, weak calf muscles, bow-legs, flat feet and high arches.

Management

Rest is critical to successful treatment of MTSS, stresses must be reduced to allow time for tissues to heal, this means that running must be stopped completely for a period (generally 2-8 weeks depending on the stage of the injury). Aerobic fitness can be maintained with swimming, cycling and water-running. When dry-land running is resumed, a slow and gradual progression of surface hardness, running duration and intensity is necessary to reduce the risk of recurrence. Return to running needs to be carefully planned, a written program should be developed with your physiotherapist.

Your physiotherapist may recommend that you consult a pharmacist concerning some anti-inflammatory medication and will have you apply ice and possibly a compressive elastic bandage to reduce inflammation. Specific soft tissue massage techniques will help to release tension in the muscles and surrounding tissue (fascia).

Biomechanical issues will be addressed as appropriate and treatment may include calf and hamstring stretches, strength exercises, taping to unload tissues, ankle mobilisation and advice on footwear or orthotic prescription.

What to expect

Running should be stopped until tenderness along the bone disappears, this will take a minimum of two weeks and up to eight weeks if there is a stress fracture. Soft tissue treatment and correction of biomechanical problems will be addressed during this time and aerobic fitness can be maintained with swimming, cycling and water running.

Physiotherapy Tips

1. Discontinue running while there is pain along the shin bone.
2. Apply ice to painful, swollen or red areas.
3. Maintain fitness cycling or exercise in the water.
4. Stretch calves/hamstrings and replace worn shoes.
5. Carefully plan a progressive return to running, this will start with short runs on soft surfaces and involve long recovery periods between runs.

Other sources of shin pain

1. Chronic compartment syndrome.
2. Calf, peroneal or tibialis posterior muscle strain.