Pure Sports Medicine
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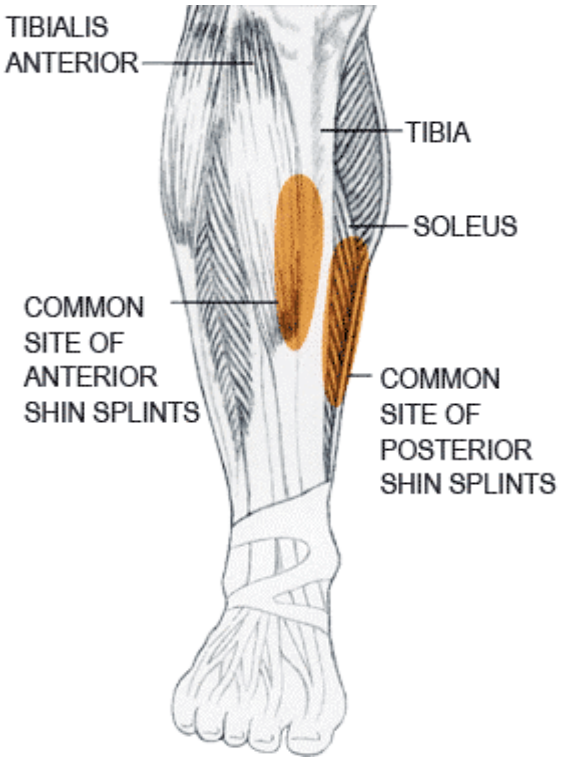
Shin splints: - Repetitive Overuse Injury



Two Types:

1. Anterior shin splints
2. Posterior shin splints

Type 1:

Anterior shin splints are caused by the overuse of tibialis anterior muscle and tendon (see picture). The tibialis anterior decelerates the foot at heel strike during the gait cycle, therefore it is prone to overuse from increased mileage during the training phase. The traction forces placed on the muscles of the lower leg can cause pain and inflammation along the shin.

Type 2:

Posterior shin splints involve inflammation of the tibialis posterior muscle (see picture). The role of the tibialis posterior is to support the arch as the body moves over the foot during the gait cycle. Overpronation of the foot places excessive loads on the tibialis posterior and stress is usually concentrated at its origin on the tibia.

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Symptoms:

- Tenderness and sometimes swelling
- Lower leg pain which goes during rest but returns when running starts.

Causes:

1. Overload
    - Commonly associated with runners caused by the impact of repeated landing of the foot onto pavement.
    - When muscles of the lower limb become fatigued and overloaded they lose their ability to absorb the impact/shock force placed upon them.
    - Factors causing overload:
        - Hard surfaces or change of running surface
        - Worn out, ill fitting shoes
        - Excessive up/downhill running
        - Sudden increase in exercise intensity

2. Biomechanical
    - Poor running style i.e. overpronation, excessive forward/back lean, excessive weight on ball of foot, running with toes pointed forwards
    - Tight inflexible muscles in lower leg
    - Weak postural stability i.e. core muscles, Gluteus medius

Treatment:

Acute stage (24/48 hours)

- Rest
- Ice, particularly when very painful to reduce inflammation
- Stretch muscles of the lower leg in particular: Tibialis posterior, Gastrocnemius, Soleus, and Tibialis anterior (see illustrations below)
- Wear shock absorbing insoles and a good pair of training shoes. Visit a specialist running store to ensure the correct fitting.
- Maintain fitness by doing non-weight bearing exercises e.g. swimming/cycling.
- Anti-inflammatories.

Post acute (48/72 hours)

- Application of heat
- Massage

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How massage can aid healing during post-acute phase:

Both types of shin splint are caused from overuse; massage is highly effective in the management of this problem. For anterior shin splints the therapist will concentrate on reducing tightness within the anterior compartment of the lower leg. With posterior the treatment will be focused on the tibialis posterior. In addition the therapist will address tightness in gastrocnemius, soleus, Achilles and plantar fascia to ensure release through the whole of the lower limb.
The pressure applied during treatment will be kept within the patients tolerance levels. The patient will usually experience an increase in soreness following the massage session but this will be followed by an improvement in their symptoms within several days.

Useful Stretches to reduce tension:

Stretch 1: for gastrocnemius

Stretch 2: for soleus

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Stretch 3: A more intense stretch can be gained by dropping the heel off a step. To isolate the soleus place a bend in the knee, for the gastrocnemius straighten the knee.

Stretch 4

Stretch 5

The two above stretches focus on lengthening through the tibialis anterior. **Stretch 4** will isolate the top section of the muscle and **Stretch 5** focuses further down towards the insertion.
Stretch 5 is quite difficult to achieve - place the hand flat on the sole of the foot and pull the toes towards you whilst at the same time tilting the foot outwards (away from the midline of the body).

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The above diagram illustrates self-massage for the tibialis posterior. Place the thumbs so that they are touching the shin bone and pull away (towards the body).

In addition you can massage the same area with ice to reduce inflammation. With an ice cube use circular motions until the ice has melted. Do not leave the ice static in one area keep your hand moving using circular

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