

Shin Pain

Shin pain is an extremely common complaint among athletes. The term 'shin splints' or 'medial tibial stress syndrome' has been used by many to describe generic pain in the shin, however, with much improved diagnostic tools a more specific diagnosis can now be made.

Shin pain generally involves one or more of the following three processes:

1. Bone stress

This is a continuum of increased bone damage that exists from bone strain to stress fracture.

2. Inflammation (Tenoperiostitis) – Typical Shin Splint complaint

Inflammation occurs where the muscles of the medial (inside) shin insert into the tibia. Typically the deep calf muscle, known as the Soleus, and the Posterior Tibialis.

3. Raised compartment pressure

The lower part of the leg has a number of compartments each surrounded by a thick fascia and as a result can become swollen and painful when over used and inflamed.

These aren't three different diagnoses, as two or three of these types of condition can all exist together. It is not uncommon to see a patient with chronic bone inflammation combined with a compartment syndrome.

Signs, Symptoms & Causes

Differentiating between the three

	Bone stress	Inflammation	Compartment syndrome
Pain	<ul style="list-style-type: none"> ○ Localised ○ Acute or sharp 	<ul style="list-style-type: none"> ○ Medial (inside) border of the tibia (shin bone) ○ Pain can vary 	<ul style="list-style-type: none"> ○ Aches ○ Tightness ○ Vague feeling in the lower



			leg
Related to exercise	<ul style="list-style-type: none"> ○ Constant or increasing ○ Worse with impact 	<ul style="list-style-type: none"> ○ Improves as you warm up 	<ul style="list-style-type: none"> ○ Increases with exercise ○ Decreases with rest
Symptoms	<ul style="list-style-type: none"> ○ Aches at night ○ Can be worse in the morning 	<ul style="list-style-type: none"> ○ Worse in the morning and after exercise 	<ul style="list-style-type: none"> ○ Occasional muscle weakness
Tenderness	<ul style="list-style-type: none"> ○ Local bony tenderness 	<ul style="list-style-type: none"> ○ Medial border of tibia 	<ul style="list-style-type: none"> ○ Generally minimal

One of the major causes of all three injuries is abnormal biomechanics. How you plant your foot (gait) has a huge bearing on how the rest of the body works.

With regard to shin pain, if you have an exceptionally pronated foot, the muscles in the lower limb become hugely overworked and can cause any of the three conditions mentioned above.

Those with a rigid foot and very little shock absorption will increase impact pressure on the bone and can increase the chance of incurring a fracture.

Treatment

Initial management of shin pain involves rest, anti-inflammatory modalities and a reduction of the stresses which caused the condition in the first place.

New trainers, raised mileage, increased speed and power work to name a few.

If these training stresses can be modified and the condition has been identified early enough this may be all that is required.

If not, however, further assistance from an injury specialist is required. Please email [info@thesportsspecialist](mailto:info@thesportsspecialist.co.uk) for further details.

Furthermore, a biomechanical assessment of the lower limb is essential and prescription of an orthotic should be made where necessary. [Click here for more details](http://www.thesportsspecialist.co.uk/podiatry)
www.thesportsspecialist.co.uk/podiatry

It is also worth stretching out the calf muscles. Tight calves will restrict motion in the ankle and increase the tendency for excessive pronation.



Insert video clip

Below is a summary of treatment modalities and advice to aid the recovery from any one of the above conditions of the shin.

Bone stress

If you believe you are suffering from a possible fracture, seek medical advice as soon as possible for confirmation.

Once confirmed, follow these guidelines and/or consult an injury specialist.

Rest (sometime a period of total non weight bearing is required. 4-8 weeks of **rest from sports activity** required for fracture to heal or bony tenderness to disappear.

There is no reason why you cannot perform cardiovascular exercise that is non weight bearing, swimming for example or running in the water with a buoyancy aid around your waist.

Once pain free with walking and no bony tenderness is present, **gradual progression** of impact is introduced.

Tissue around the fracture site can become thickened so **soft tissue massage** to the area is certainly worth considering.

As mentioned before, **abnormal biomechanics** play a large part in the cause of this injury so **gait analysis** and a prescriptive orthotic inner soles may well be necessary.

Excessive training can also be to blame so a training regime overhaul may be required. **Consult your coach or sports specialist** for advice on this. Email info@thesportsspecialist.co.uk for details.

Inflammation

If after the initial treatment of rest, ice and anti inflammatories hasn't improved symptoms you may need to seek advice and treatment from an injury specialist.



An effective form of treatment for this condition is deep tissue therapy, whereby varying massage techniques are used to release thickened and tight fibres. Ultrasound and cupping techniques can also be effective.

Compartment syndromes – Anterior and Posterior

Treatment consists initially of a reduction in exercise combined with deep massage therapy. Again, biomechanical assessment is critical to prevent future problems.

If this conservative form of treatment fails, then surgery may be required. A fasciotomy, which is the release of the fascial sheath that surrounds the compartment, is a common procedure but can be deemed insufficient as the sheath can reform. Surgery, therefore, may be in the form of a fasciectomy, a fasciotomy procedure plus the removal of a window of fascial sheath.

To Summarise:

- ⇒ If pain improves after warming up and with continued exercise, then periosteal problems are most likely.
- ⇒ If pain worsens with exercise and is accompanied by a feeling of tension, then compartment syndrome may be present.
- ⇒ If the pain is increased by jumping activities or if there is pain at rest or a night ache, a stress fracture must be considered.
- ⇒ A pain that disappears quickly with rest is indicative of compartment syndrome. The presence of numbness or a 'dead' feeling in the leg or pins and needles in the foot is also suggestive of compartment syndrome.

Follow the rule, if in doubt....seek medical advice from a sports specialist