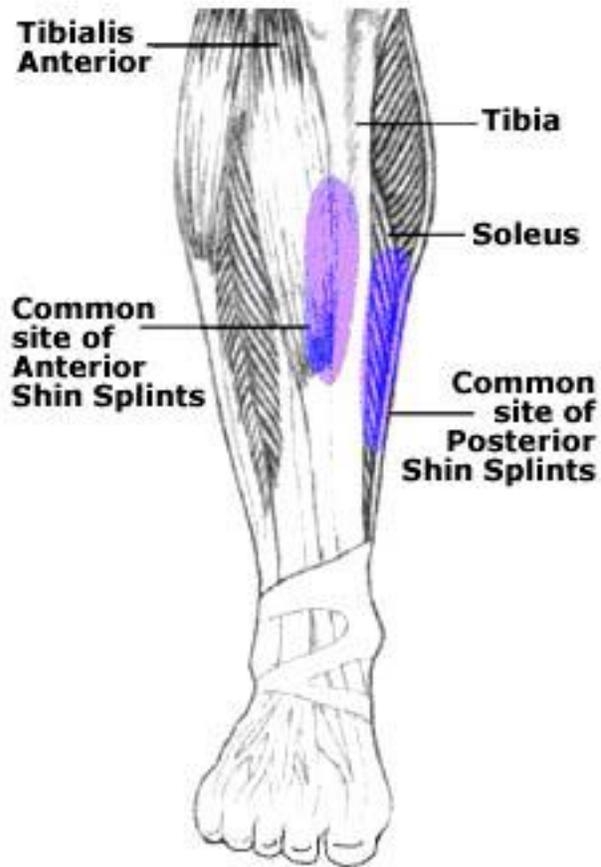


Shin splints



What Is Shin Splints?

Description: This term usually applies to pain in the front of the leg, occurring anywhere between the ankle and the knee. However, it can also refer to pain in the inner side of the lower leg.

What Causes Shin Splints: The *main cause* of these injuries is [pronation](#). This is a biomechanical defect of the foot that is sometimes responsible for pain in the foot, ankle, leg, knee, hip, and lower back muscles that overwork in an attempt to maintain the foot in a normal alignment with the leg. When this normal alignment is not maintained, then the foot becomes unstable. This instability of the foot cause more stress on the leg muscles. This continued "over usage" by the leg muscles will cause pain, swelling, tears within the muscle, and eventually the muscle will tear away from the tibia (the shin), or stress fractures may occur.

What are the Symptoms: There are two types of shin splints:

1. [Anterior Shin Splints](#) (pain in the front of the lower leg, on the shin bone or tibia).
2. [Posterior Shin Splints](#) or [Medial Shin Splints](#) produces pain in the inside of the leg (on the inner surface of the shin bone or tibia).

Pain in both of these areas usually begins as a dull aching pain after prolonged walking, running, or jumping. If left untreated, the pain becomes sharp and intense with all weight-bearing activities. The pain may become so intense that people describe the pain as "if the muscle is being ripped off of my bone." Rest generally relieves the pain. Other serious problems of the lower leg, such as stress fractures, are usually painful even while resting.

Anterior Shin Splints: The muscle in the front of the leg which usually becomes painful is the Tibialis Anterior Muscle, which is encased in a thin sheath. This muscle attaches to the foot, and flexes your foot upward, or back towards the shin; and as long as the foot is in proper alignment with the leg, the muscle functions efficiently and pain-free. However, when the foot is pronated (the foot rolls outward at the ankle and you walk more on its inner aspect), the Tibialis Anterior Muscle twists within its sheath. This twisting of the muscle within its sheath can cause tiny tears in the muscle, or the muscle rubs abnormally against its sheath, and produces inflammation and pain.

Posterior Shin Splints: The muscles most affected in this type of pain are the Soleus and the Tibialis Posterior. In the leg, these muscles are firmly attached around the back of the knee. They run down the back and inner side of the leg, and attach to the foot. If the foot is in a proper alignment to the leg, these muscles function efficiently and pain-free. However, when the foot is pronated (the foot rolls outward at the ankle and you walk more on the inner aspect of the foot), these muscles are forced to become twisted as they attach to their respective foot structures. The twisting of these muscles can cause tiny tears in the muscles, or the muscles become "pulled" and inflamed. This will produce pain.

Stress fractures - Repeated stresses on the bones can result in tiny, almost invisible breaks in the bone structure called microfractures. Normally, the body has time to heal the microfractures before they start to cause problems. However, overtraining and poor conditioning can aggravate the microfractures so they are unable to heal. The microfractures become larger (but still very fine) stress fractures.

Sometimes, the stress fractures are so fine that they don't show up on normal X-rays. But if the injury site is not rested, the stress fractures can continue to increase in size until a cast or other immobilization is needed.

What will physiotherapy consist of?

Massage encompasses a variety of techniques and is given with sufficient pressure through the superficial tissue to reach the deep lying structures. It is used to increase blood flow, decrease swelling, reduce muscle spasm and promote normal tissue repair.

Deep friction is an aggressive massage technique. It is applied across the tissue fibres. Pressure is given as deeply as possible. This technique is initially painful but can cause a numbing effect. It can be used to break down scar tissue, restore normal movement and prepare the injured structure for mobilisation or manipulation.

Mobilisation is a manual technique where the joint and soft tissues are gently moved by the physiotherapist to restore normal range, lubricate joint surfaces, and relieve pain.

Ultrasonic Therapy transmits sound waves through the tissues stimulating the body's chemical reactions and therefore healing process, just as shaking a test tube in the laboratory speeds up a chemical reaction. It reduces tissue spasm, accelerates the healing process and results in pain relief.

Interferential Therapy introduces a small electrical current into the tissues and can be used at varying frequencies for differing treatment effects. E.g. pain relief, muscle or nerve stimulation, promoting blood flow and reducing swelling/inflammation.

Other treatments that may be used

Laser Therapy emits beams of light into the tissues of the body, stimulating chemical reactions and having a similar effect to ultrasound though using light energy instead of sound energy.

Acupuncture is an oriental technique of introducing needles into the skin to increase or decrease energy flow to promote pain relief and healing.

Taping/Strapping may be used if thought necessary to restrict abnormal movement and prevent further damage.

Podiatry an analysis of the foot mechanics and structure during walking or running and correction as appropriate.

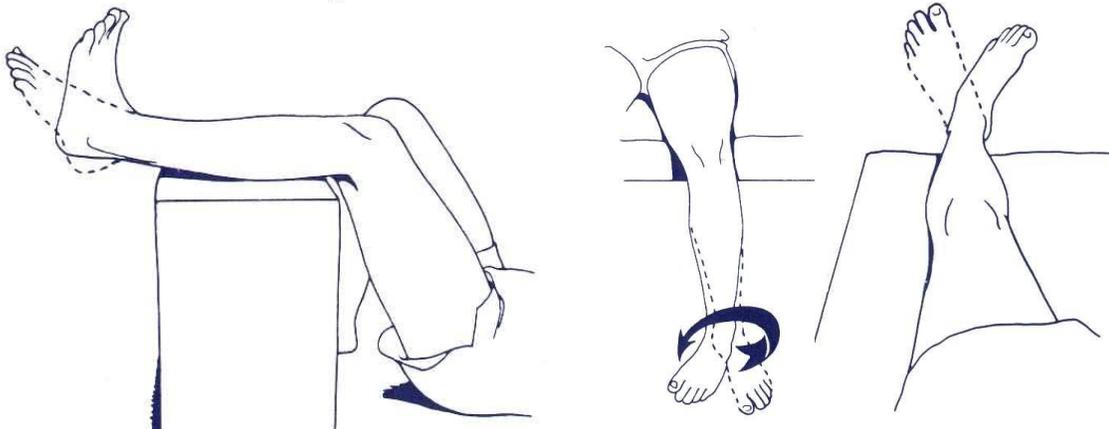
What should the patient do to help their condition?

Active Rest – keep active but avoid activities that aggravate your condition

Contrast bathing - From 5 days post injury apply a hot pack for 5 minutes followed by a cold pack for 5 minutes repeat for approximately 20 – 30 minutes.

Take ibuprofen/ analgesia - according to the directions on the packet, up to the maximum daily dose. It is not suitable for people who have a history of stomach ulcers, or for some people with asthma. If in doubt, ask your pharmacist for advice.

Exercise/Postural programme – comply with the prescribed exercise/postural programme. Your physio will instruct you as to which of the above exercises to begin with, when to add the others, as well as how to progress the exercises.



1. Foot pump up + down

2. Foot Circling

3. Foot pump in + out

Exercises 1-3

Pump the foot in the 4 differing directions for approximately 30 seconds

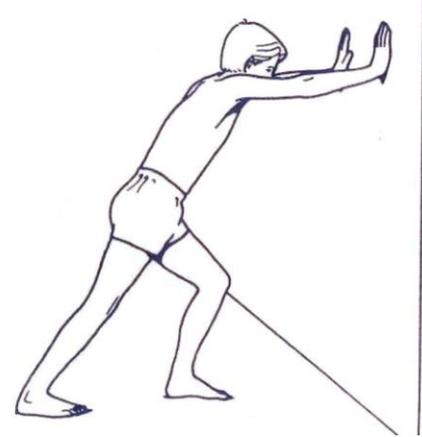
Do 10 reps and at least three times daily

Exercises 4-8

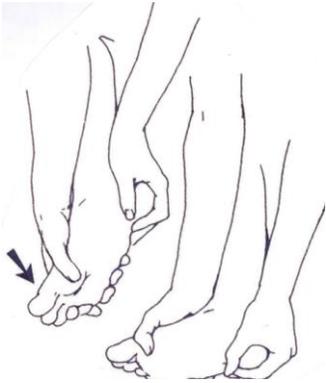
Stretch slowly into the desired direction and then hold for approximately 30 seconds, during this period the stretch should ease and you should keep going further into the stretch without jarring or bouncing.



4. Soleus Stretch



5. Gastrocnemius stretch



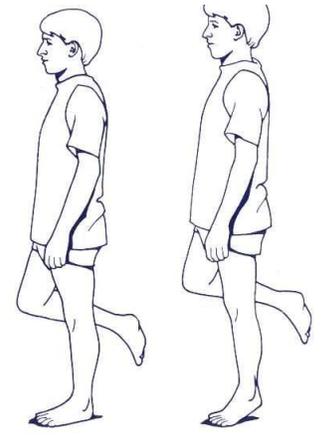
6. Plantarflexion stretch



7. Inversion and Eversion Stretch



8. Plantar Fascia Stretch



9. Balancing – Stand on one foot and try to balance for one minute. When able to do this try with the eyes closed, then on uneven surfaces and then going onto toes - Do 2-3 times daily

10. Calf raises – Rise up onto the ball of the foot as high as possible and hold for two seconds. Repeat 10 -15 times and do 2-3 times daily. You may also progress to doing this over the edge of a step.

What if physiotherapy does not help or resolve my condition? It is very rare that physiotherapy does not resolve this condition, in very extreme cases surgery is a possible option. This option can be discussed with your therapist if appropriate