Shun shin problems

DANIEL LAWRENCE LOOKS AT THE THREE MOST COMMON CAUSES OF SHIN PAIN

SHIN pain commonly affects athletes who participate in distance running events and is commonly termed "shin splints". However, therapists are phasing out this nondescript terminology as it avoids a proper diagnosis. If you include all of the potential causes, including the rare and unusual, you will find more than 40 different triggers for pain in this area.

The three most common origins are: stress fractures, medial tibial traction periostitis (MTTP) and compartment syndrome. All of these injuries are caused by repetitive strain or overuse and are linked to common biomechanical faults of the feet with both high and low arches increasing the risk of shin pain.

Muscle fatigue is one of the other proposed risk factors. When you run, the muscles in your lower leg absorb the high-impact forces and as these muscles fatigue their ability to absorb these forces reduces and tissue breakdown starts to occur. The forces can be transferred from the muscles to the shin bones (tibia and fibula) and this can lead to increased bone stress, which may develop, into a stress fracture. Stress fractures, MTTP and compartment syndrome all cause pain in a similar area, but there are some key differences in the signs and symptoms.

If you are struggling to recover, it is possible that you could have more than one cause of shin pain. I would recommend consulting your GP or medical professional if you are concerned about the length or severity of your symptoms.

Stress fractures

These are small fractures that are too small to be detected on an X-Ray. An MRI or CT scan are required to detect the fracture. However, these scans can be expensive and the waiting list can be long. Diagnosis can be achieved through recognition and consideration of the symptoms with the possible addition of further tests from a therapist.

In a classic case of a stress fracture, a gradual onset of focused shin pain will initially be aggravated by exercise and worsen until pain is felt while walking and even at rest. When feeling the shin bone, pain is felt in a specific area. Stress fractures will also cause pain following the vibrations from a tuning fork or from the absorption of therapeutic ultrasound. They are not as reliable as MRI scans but are much quicker and cheaper and allow you to proceed with a treatment programme.

The inside of the tibia bone is a popular sore point for many athletes

Treatment begins with an initial period of rest. In severe cases crutches may be required but most moderate cases simply require a change from impact activities to non-weight bearing activities such as swimming, cycling, rowing or training on an elliptical machine. A graded return to training should be performed alongside initial risk factor modifications to avoid future occurrences. The following should be considered: training surface, footwear, foot biomechanics, current level of fitness and training technique.

Females should also be aware of the link between stress fractures and the cessation of the menstrual cycle (amenorrhea). It is recommended that female athletes seek further medical advice if they have the symptoms of a stress fracture in tandem with an altered or non-existent menstrual cycle.

Medial tibial traction periostitis

MTTP is caused by excessive muscle traction and inflammation of the bone surface (periostitis), causing pain inside the lower third of the shin. MTTP is most prevalent in runners and differs from stress fractures because of the diffuse spread of the pain as opposed to the more localised pain found with a stress fracture. With MTTP the pain usually decreases during a warm-up and the athlete's symptoms are not noticeably exacerbated until the day following exertion.

Treatment should aim to reduce pain and identify the cause of MTTP. In addition, stretching of the ankle and shin muscles should provide some relief, but heat therapies should be used cautiously as they can aggravate the inflammation. Furthermore, massage and other soft-tissue therapies have proven to be useful for this condition.

Compartment syndrome

The muscles in the lower leg are grouped into tough, inexpandable compartments. If the muscles in this compartment become inflamed from overuse they'll expand and the pressure within the compartment will increase, causing pain and stiffness with exertion. This most frequently affects the anterior compartment with pain over the front of the shin, although other compartments can also be affected. Treatments are based around a soft-tissue approach and include: massage, stretching, ice, taping and sometimes surgery.

All three of these conditions have similar treatments, which consist of reducing pain and avoiding future problems through activity modification. The table below can be used as a quick reference guide to help you differentiate your symptoms. If your symptoms do not fit any of these descriptions then you may be suffering from one of the many other causes of shin pain and I would advise that you receive an assessment from a medical professional.

Condition	Pain location	Result of exercise	Special tests
Stress fracture	Focused pain on the inner lower third of the shin	Made worse by exercise and impact activities	Vibration Ultra sound
Medial tibial traction periostitis (MTTP)	Diffuse pain on the inner shin	Pain reduces during exercise	Worse in the morning
Compartment syndrome	Outer shin pain and tightness	Increases after a short period of exercise	Muscle weakness, Possible altered sensation