



# Medial Tibial Stress Syndrome (Shin Splints)

## What is Medial Tibial Stress Syndrome?

Medial Tibial Stress Syndrome (MTSS) is a condition that causes pain over the shin bone (the tibia.) It is the most common cause of "shin splints," which is the general term used to describe sports-related pain over that bone. It is usually due to overuse and occurs in athletes who participate in repetitive activities, especially running and jumping. It can also occur in athletes who have suddenly increased the duration or intensity of their training.

## How does it occur?

MTSS occurs with overuse because of irritation to the tendons of the tibia, particularly where they attach to the bone. Athletes who overuse the tibia bone are often runners and jumpers. Also, children who tend to overpronate their feet are more likely to develop MTSS. (Overpronation is when a child's foot flattens out more than normal when they walk or run.) It can also occur with running on a slanted surface or downhill or when one participates in a sport with frequent starts and stops, such as basketball.

## What are the symptoms?

Your child will complain of pain on their shin bone. The pain can be anything from dull and aching to intense. Earlier on in the course of the syndrome, the pain typically starts at the beginning of the workout, resolves during activity, and then returns upon completion of the exercise. In later stages of MTSS, pain is often sharper and is sustained throughout the workout. Typically, rest relieves the pain; although in very severe cases, the pain can occur throughout the day (without activity) and continue with rest.

## How is it diagnosed?

MTSS is diagnosed based on a review your child's symptoms and your doctor's physical examination of the lower leg. X-rays are normal in MTSS. If your doctor is unsure of the diagnosis, an x-ray or MRI may be used to rule out a stress fracture.

## How is it treated?

Your child will need a period of relative rest from their current activity, in order for the inflammation to resolve. The duration of rest depends on the patient and the severity of the bone pain; however, three to four weeks is a reasonable estimate. Ice is very helpful in, both, relieving the inflammation and the pain. It can be used for up to 15 minutes per hour when sore. If your child's doctor determines that the patient is overpronating, orthotic shoe inserts can be helpful. In some cases, your child's doctor may prescribe anti-inflammatory medication.

## When can my child return to full activity?

The goal is to return your child to his/her sport or activity as quickly and safely as possible. However, if your child returns to activities too soon or runs/plays through the pain, the injury may often worsen; specifically in the case of MTSS, developing a stress fracture. Everyone recovers from injury at a different rate. Your child's return to sport or activity will be determined by how soon his/her injury resolves, not by how many days or weeks it has been since the injury occurred. In general, the longer your child has had symptoms before starting treatment, the longer it will take for the injury to heal. Your child may return safely to his/her sport or activity when each of the following is true:



1. Your child has no pain at rest.
2. Your child is able to walk without pain.
3. Your child is able to jog without pain.
4. Your child is able to run without pain.
5. Your child is able to jump without pain.
6. Your child has no pain after activity.

#### **How can MTSS be prevented?**

- Wearing running shoes that fit well, that are specific for your child's sport, and that do not have worn-out soles. Running shoes should also be replaced every 350-500 miles or every 6 months.
- Consider cross-training (such as incorporating swimming or biking into the training routine) so that there is less impact on the shins.
- Stretching calf muscles is very important. Stretches should be done several times throughout the day, especially after exercise. Stretches should be held for 30 seconds, without bouncing during the stretch. Strengthening calf and thigh muscles as part of a training program is also helpful.
- It is also important to rest at the first sign of pain. Do not run or play through the pain. The injury will not heal without rest and can lead to a more severe injury, such as a stress fracture.