Tibial Stress Fracture

There are two main bones in the lower leg, the tibia and fibula. The larger tibia bone is responsible for load-bearing, while the smaller fibula is responsible for attaching muscles. Either can end up with a stress fracture in them, but the tibia is by far the most common of the two. The most common location is a couple inches above the bony part on the inside part of the ankle along the tibia bone.

A lot of small impacts on the bone, regardless of how small, can cause a cumulative effect to end up building up.

Common Causes of Tibial Stress Fracture:

- **Over-use** – increasing running distance or frequency too quickly over a short period of time.
- **Over-use in Professional Athletes** – constant training and running can lead to stress fractures.
- **Change in Gait** – a change in walking or running gait can spread load differently though the legs and can lead to lots of different issues, one of them being stress fracture.
- **Running Long Distances on Hard Surfaces** – changing surfaces may be beneficial, or taking rest days. Sudden changes in your running surface can increase the chance of your getting one of these fractures.

How is a Tibial Stress Fracture Diagnosed?

Tibial stress fractures are not altogether easy to diagnose, and the diagnosis may be made by way of a clinical judgment. First, a history is taken, and if there is evidence of over-load or repetitive stress to the tibia, this will make diagnosis easier. A physical exam will take place. A skilled practitioner will be able to feel the tibial shaft and determine if there is likely to be a fracture.

The line between a stress fracture and no stress fracture is quite grey. So some practitioners refer to the injury as a stress reaction. The first stages of the stress reaction are bone bruising and inflammation, usually after one particularly heavy training session or long run. This can develop into a stress fracture.

If the diagnosis is unclear, or the athlete is a professional or serious athlete, they may choose to undergo an MRI or CT scan. MRI is usually considered more effective at picking up stress fractures compared to an x-ray, which can cause false positives.

Tibial Stress Fracture Anatomy

The tibia is the main lower leg bone, and the larger of the two bones. Next to the tibia sits the fibula which is not involved in weight bearing to the same degree. This is why the tibia tends to suffer the stress fractures. If weight bearing is going laterally through the lower leg, the fibula may be susceptible too.

The main bony part of the tibia is called the shaft. The tibia articulates at the bottom with the ankle joint, and at the top with the knee joint.

How to Treat a Tibial Stress Fracture:

1. **Rest and Activity Modification**
   Give your body about eight weeks to heal from this type of injury. Avoid participating in any weight bearing exercises, especially when it comes to running. Substitute cycling or swimming,

but only if you are able to do it without pain. You can also use this opportunity to work on the upper part of your body. Running in water with a belt is an excellent alternative for running down the road.

2. **Exercises**
   Engage in exercises for maintaining flexibility and strength in the lower part of the leg, but only if they aren't painful. Also, you can try using wobble board training to increase strength. Training methods will need to be analyzed to determine if they are responsible for the injury.

3. **Electrotherapy**
   Low intensity pulsed ultrasound has been clinical shown to be beneficial for fracture repair, and using ultrasound over the bone has long been used by physiotherapists and other healthcare practitioners to speed up bone repair. Acupuncture can also be used over the fracture site to reduce pain.

Tips:

- Avoid changing your running surface too dramatically over long distances without the necessary training as this may lead to injury.
- Make sure you wear proper footwear whenever you head out for a run or walk.
- Give your bones time to heal after you head out for a run or walk.
- Weight bearing exercises are excellent for bone health. But the problem may arise if you are doing too much impact training.
- Don't try and do too much running if you are out of shape, or lack the fitness required. Start gently and build it up over a few weeks/months.
- Consult a sports coach to check good technique.
- Anti-inflammatory gels or ice can be useful to reduce inflammation over the shaft of the tibia.
- A gait scan or gait analysis can highlight any issues or lower limb biomechanical problems.