

STRESS FRACTURES

National Athletic Trainers Association

What is a stress fracture?

Each day, the body makes new bone to replace the bone that is broken down by the stress of everyday living. Usually, this process is balanced, with the body replacing the equal amount of bone lost. However, this balance may become upset. The body, due to several factors, may not produce sufficient bone. As a result, micro cracks, called stress fractures, can occur in the bone.

Factors that may affect the building process are too little sleep, a diet with inadequate calcium, a rare increase in activity. Sometimes stress fractures may result from minor trauma, like accidentally kicking on leg when running.

HOW WILL I KNOW IF I HAVE A STRESS FRACTURE?

Stress fractures produce pain in a limited area directly over the point of the bone by activity and are improved with rest.

On physical examination, there is pain when pressure is applied to the injured area. Hopping or jumping on a leg with a stress fracture will cause increased pain. Frequently, but not always, there is swelling around the injured area.

X-rays are not usually helpful in diagnosing an early stress fracture because the bone will look normal and the micro cracks are not visible. After several weeks rest to allow the bone to repair itself, a healing reaction callus can be seen on an x-ray.

The diagnosis of an early stress fracture can usually be confirmed by a bone scan. In this procedure, a substance normally used by the bone for repair is injected into the patient's bloodstream. After 2 or 3 hours, the patient is placed under a scanner to detect the amount of the substance distributed throughout the bones. All of the bones will absorb some of the substance, but if a bone is repairing a stress fracture, it will absorb none of it at the fracture site, and will appear darker than the other bones. A MRI may also be used to confirm the diagnosis.

HOW IS A STRESS FRACTURE TREATED?

A cast is usually not required for a stress fracture. Unlike a fracture caused by a blow to the body which injures the skin, muscle, and bone, a stress fracture involves only the bone. Therefore the skin and muscle provide protection for the injured bone.

If pain occurs while walking, crutches or a cane should be used to keep weight off the injured extremity. Returning to activity will be a gradual process. Swimming or biking, both non-weight bearing activities can be done in the early period after the stress fracture.

Gradually, impact activities like walking can be added. When the patient can walk rapidly without pain, running can be started. Jumping should only be done when running does not cause any pain. A gradual increase of stress to the bone is the key. Each

increase in activity should be done slowly and for short amounts of time. After a while, the activity can be done at a higher intensity and a longer duration. Eventually, the level of activity can be increased.

If, when advancing to the next level of intensity, pain occurs, the patient should return to the lower level for several days before trying again. The physician will guide the patient through these steps and can monitor the degree of fracture healing with x-rays.

It should be noted that while the normal amount of calcium required for bone repair is 1500 milligrams in postmenopausal women and 1000 milligrams for all other adults, increasing calcium intake above this level will not help the stress fracture heal more rapidly.

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