The Centers for Advanced Orthopaedics

The Orthopaedic Foot & Ankle Center

Stress Fractures

Stress fractures are a type of overuse injury. These tiny cracks in your bones develop when your muscles become overtired (fatigued) and can no longer absorb the shock of repeated impacts. When this happens, the muscles transfer the stress to the bones, creating a small crack or fracture. Most stress fractures occur in the weight-bearing bones of the foot and lower leg. The most commonly affected site is the second or third of the long bones (metatarsals) between the toes and the midfoot. Stress fractures also can occur in the heel, the outer bone of the lower leg (fibula) and the navicular, a bone on the top of the midfoot.

Who's at risk?

- Athletes in high-impact sports (runners)
- Adolescents with immature bone
- Female athletes, who have abnormal menstrual cycles resulting in decreasing bone mass
- Military recruits in active training programs
- Adults with osteoporosis

Causes of stress fractures

- Doing too much too soon
- Improper sports equipment
- Shoes that are too worn or stiff
- A change of surface
- Errors in training or technique
- Altered shape of your foot (flatfoot or bunions)

Signs and symptoms

- Pain that develops gradually, increases with weight-bearing activity, and diminishes with rest
- Swelling on the top of the foot or the outside ankle
- Tenderness to touch at the site of the fracture
- Possible bruising

Diagnosing a stress fracture

If you suspect a stress fracture in your foot or ankle, stop the activity and rest the foot. Ignoring the pain can have serious consequences, and the bone may break completely. Apply an ice pack and elevate the foot above the level of your heart. Try not to put weight on the foot until after you see a doctor.

Treating stress fractures

Treatment will depend on the location of the stress fracture. Most stress fractures will heal if you reduce your level of activity and wear protective footwear for two to four weeks. Your orthopaedist may recommend that you wear a stiff-soled shoe. Athletes should switch to a low-impact sport such as swimming or bicycle riding. Your doctor may apply a cast or boot to your foot or recommend that you use crutches until the bone heals. Stress fractures that don't heal properly can develop into breaks in the bones. In some cases, you may need surgery to ensure proper healing.