

## **Stress Fractures**

### **Training Impacts Leg Injuries**

Stress fractures are common overuse athletic injuries that occur in both the upper and lower leg. The upper part of the thigh bone and the mid part of the lower leg bone are the more common sites for stress fractures especially in females. Contributing factors include a sudden increase in the quantity or intensity of training, rapid introduction of a new activity into a training program, inappropriate footwear, issues with training surfaces. Low bone density, dietary deficiencies, biomechanical faults such as flat feet, fallen arches, poor technique when performing any repetitive routine also influence their development. Bones adapt to the forces that are applied to them. Although there are numerous risk factors that contribute to the development of stress fractures, they generally result from repeated overloading of the bone that exceeds its remodeling capability

Pain at the start of an activity is the primary complaint. Symptoms include pain that is most severe during exercise, but also at rest. It can be located over a specific area of a bone or when a specific bony area is pressed or tapped. Athletes often report a recent increase or change in training activity and present with front groin pain. Feeling the fracture in the lower leg bone is easier because there is not much muscle tissue on the front of the “shin” bone and the injury site is usually very sore. It’s important to ask the athlete about previous stress fracture history, as 60% of patients with stress fractures have had one previously. Pain can be felt in the upper leg area by rotating the hip joint in and out.

From a prevention standpoint, an athlete’s diet needs to be sufficient in both calories and calcium to maintain a healthy bone mass (bone density). Too much salt, protein, phosphorus, caffeine and alcohol decreases the body’s ability to absorb calcium. The Recommended Dietary Allowances (RDA) for calcium is 1300 mg/day for males and females 9-18 years old and 1000mg/day aged 19-30 years old. Some vitamins and minerals are useful if dietary intake is inadequate. Calcium supplements of up to 1500mg/day are helpful. Vitamin D assists in the absorption of calcium from the intestines and in bone remodeling and as does Vitamin C with bioflavonoid. Silica and magnesium are also important minerals for the repair of bones and soft tissue.

In general, most stress fractures are treated conservatively. First, it is important to identify and correct the causes of the stress fracture. Non-operative therapy includes non-steroidal (ibuprofen/naproxen) anti-inflammatory drugs, an aggressive icing program and activity modification. Treatment includes modified activity for four to eight weeks until pain-free. Activities of daily living are permitted but impact or repetitive activities are usually avoided. Cross training and non-weight bearing aerobic activities are encouraged. Once pain has resolved, then a gradual return to the offending exercise is permitted. Rarely does treatment involve surgery. When pain begins, immediate evaluation by a certified athletic trainer or orthopaedic surgeon is critical to a successful treatment plan.