

Stress Fractures: More Than Just Pain

by Nilpesh M. Patel, MD

Overuse injuries to the body are common and represent a large percentage of visits to the physician. Stress fractures are overuse injuries of the bone. These injuries were first described in military recruits in the 1800's and now are very commonly associated with athletes and repetitive activity. Some studies report a 20% incidence of stress fractures in long distance runners along with a 60% chance of having a second stress fracture once the first is diagnosed. Stress fractures are debilitating and affect performance.

Bone is unique and constantly remodels in response to stress. For example, a person on extended bed rest can develop decreased bone mineral density because they are not putting forces across their bone. On the other hand, athletes that safely and consistently load their bone increase the bone mineral density leading to strong healthy bones. The proper balance of remodeling helps maintain our bones. Factors that may affect this process include age, gender, hormonal factors, nutritional status, ethnicity, smoking, alcohol use, activity environment and activity level. Females are more at risk for stress fractures than males. African Americans seem to have less stress fractures than whites and Asian Americans. Activity level is important especially in athletes. Constant overload does not give time for the bone to properly remodel and can lead to stress fractures. Over half the stress fractures occur in the lower extremity and more commonly with activity that may involve repetitive foot impact such as track and field, gymnastics, tennis, and basketball. Identifying, treating and preventing stress fractures is important.

Pain that cannot be linked to a specific event but certain activity is usually the major complaint from patients with stress fractures. This pain can increase with time and may affect other aspects of life like sleep. Stress fractures in the arms and hands present with pain when loading and lifting objects with the upper extremity. A physician may be able to elicit the pain by pushing on the area of concern. Often, pain may only be associated with loading the bone. For example, a stress fracture of the hip can be difficult to feel but pain may start with just walking or running. Radiographs (x-rays) can identify certain stress fractures but are more commonly negative. Other imaging may be more helpful in diagnosing the injury and showing it in detail. These studies can include a 3- phase bone scan, MRI and/or CT scan.

Treatment for stress fractures is patient specific and may be a little different for everyone. It is based on the bone involved as well as findings on the studies ordered. Treatment generally includes a period of relative rest that can last for a few weeks to many months. During this period, it may be necessary to stop certain activities but not necessarily all activities. For example, a cross country runner diagnosed with a hip stress fracture may not be able to place weight on the affected leg but could start a rehabilitation program in a swimming pool sooner than running on land. It is important to discuss this with your doctor and develop a program that

helps heal the injury while preserving function. Another integral part of rehabilitation is prevention of future stress injuries.

Prevention involves addressing all the factors that put people at risk for stress fractures. Females are screened for eating disorders, amenorrhea, and osteoporosis. This combination, known as the “female athlete’s triad,” is thought to put female athletes at increased risk for stress fractures and may require a team effort of multiple physicians, athletes, and parents to address. A well rounded diet that incorporates calcium and vitamin-D rich foods may help. The athletic environment and equipment should be evaluated. Shoes should be changed when they show wear and at least every 300 to 500 miles. Shoe inserts may be necessary to properly place load on the foot. Soft clay courts for tennis are better for impact than hard courts. Running on grass and dirt trails may decrease stress through your feet as opposed to concrete. A proper training program is a key element in prevention. Cross-training is ideal. Create a program that mixes cardiovascular activity with resistance and flexibility exercises. A safe strengthening program helps build muscle and prevent fatigue, decreasing the stress put on bones. Gradually increase activity level instead of quickly reaching goals to prevent stress injuries. Work with your physician to create a rehabilitation that gets you safely back to play.

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