

Orthopaedic Connection

Women Get More Stress Fractures

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Transforming patient information into patient understanding.

I think I better explain what a stress fracture is because a lot of my patients don't have a clear understanding. So it follows that a lot of readers are somewhat unsure of it too. Well, here goes.

Stress fractures are breaks in bone that occur as a result of repetitive overuse, which causes the bone to fatigue.

It is a pretty simple definition, but it will serve to get us started. Why you ask, do I single out women in talking about stress fractures? Don't men or boys get stress fractures? Yes, but far less often than women do. I will get into why later.

Compared to men, women actually have a greater occurrence of several orthopaedic problems. A few of them are noncontact injury of the knee ACL, arthritis, osteoporosis and foot problems.

The number of school age women in organized sports in the last 25 years has exploded. A federal law commonly referred to only as Title IX has resulted in more than seven times as many young women participating in interscholastic sports than there were before the law passed.

I don't want to make this a physiology lesson, but some understanding is important. There is a lot more to it than an increased number of women in sports. Women have a pelvis shaped differently (not a surprise), decreased muscle fibers, decreased lung volume, heart size and cardiac output compared to men. Lastly, bone mineral density declines in women beginning around age 25, the long term result being osteoporosis.

On a cheerier note, absolute strength in women is nearly equal to that of men when defined relative to fat free weight, and resistance training results in similar relative gain in strength and muscle in women and men.

Now that you are a little more "comfortable" with stress fractures I want to get more detailed about why they happen. Don't worry I won't lose you!

In a stress fracture the skeleton, in a certain location, is unable to withstand repeated mechanical loading of that particular bone.

A fracture results from structural fatigue of the bone and the inability of the bone to repair the specific area of loading. During times of loading the bone is susceptible to microfracture and under continued, intense loading these microfractures can come together to form a stress fracture.

During periods of intense exercise bone formation can't keep up with normal daily bone resorption. In this situation, a stress fracture often occurs.

Here you all thought that bones were pretty inert, just there to hold us up! Not true, bones are very active metabolically. They are not just sitting there doing nothing as you might think when looking at an x-ray.

"There must be more to it than just intense loading of the bone."

Uh, yes there is. I guess we have to go a little deeper.

"What are the other factors?"

Other factors are hormone status, nutrition, physical fitness and previous fractures. Also family history, training programs and shoe equipment.

Hopefully you have become interested in stress fractures and will come back next week for more information on stress fractures.

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Dr. Haverbush