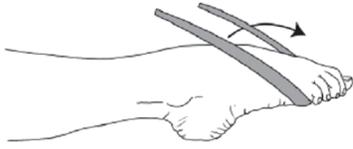
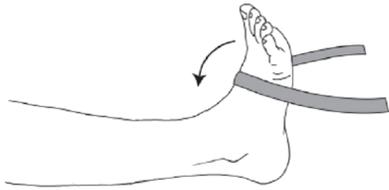


Exercises for the Foot and Lower Leg



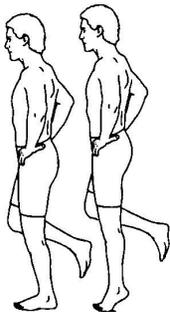
Sitting with your affected leg extended and a resistance band around your foot, flex the ankle downward against the resistance.



Sitting with your affected leg extended and a resistance band around your foot, flex your ankle upward against the resistance.



Sitting in a chair with your foot comfortably on the ground, gather up a towel with your toes. Then push away with your toes.



Balancing on the affected leg, raise your heel off of the ground in a slow and controlled motion.

Meet our Physicians



Felix "Buddy" Savoie III, MD

Dr. Buddy Savoie is a Louisiana native and a graduate of the Louisiana State University School of Medicine. Dr. Savoie completed his orthopaedic surgery residency in 1987 at the University of Mississippi Medical Center. He completed a fellowship in arthroscopy with the late Dr. Richard Caspari, Dr. John Meyer, and Dr.

Terry Whipple in Richmond, Virginia. He also completed an A-O international fellowship in Basel, Switzerland. Additionally, Dr. Savoie completed a hand microvascular fellowship at the Medical College of Wisconsin and the Mayo Clinic. He is known throughout the United States and overseas as an accomplished author and teacher. Dr. Savoie is board Certified in Orthopaedic Surgery and Sports Medicine. He is a long time member and an current Vice-President of the American Shoulder and Elbow Society. He is Chairman of the Department of Orthopaedics and Chief of the Section of Sports Medicine at Tulane. He is the Team Orthopaedist for Tulane University Athletics. He has special interests in shoulder and elbow surgery.



Mary Mulcahey, MD

Dr. Mary Mulcahey received her medical degree from the University of Rochester School of Medicine in Rochester, NY in 2006. She completed her orthopaedic residency at Brown University, followed by a fellowship in Orthopaedic Trauma at the same institution. Dr. Mulcahey then went on to do a fellowship

in sports medicine at San Diego Arthroscopy and Sports Medicine with Drs. James Tasto and James Esch. While in fellowship, she assisted with team coverage of the San Diego Padres (MLB) and San Diego State University. Dr. Mulcahey was in practice in the Department of Orthopaedic Surgery at Drexel University College of Medicine in Philadelphia for 4 years before joining the faculty at Tulane. While in Philadelphia, she provided coverage for professional boxing and mixed martial arts. Dr. Mulcahey has a strong interest in women's health and she is the Director of the Women's Sports Medicine Program at Tulane University. Her clinical interests include arthroscopy of the shoulder and knee, and sports medicine. She practices at Tulane Institute of Sports Medicine in uptown New Orleans and at Tulane Lakeside Hospital for Women and Children in Metairie.

Tulane

INSTITUTE OF
Sports Medicine

Your Guide to Stress Fractures



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Stress Fracture

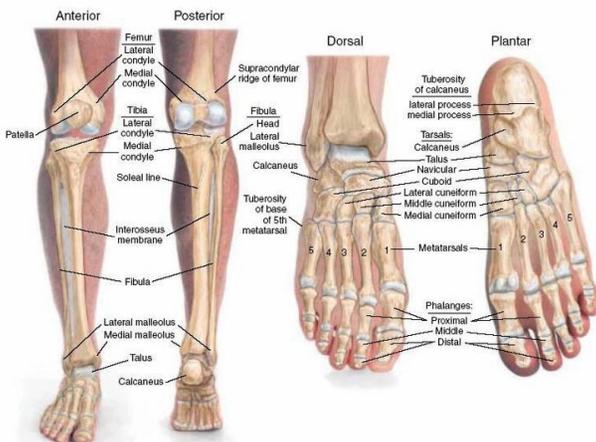
Overview

A stress fracture (repetitive stress reaction) is an over-use injury. It occurs when muscles become fatigued and are unable to absorb added shock. Eventually, the fatigued muscle transfers the overload of stress to the bone and bone formation can't keep up with bone resorption causing a tiny crack called a stress fracture.

What Causes Stress Fracture

Stress fractures often are the result of increasing the amount or intensity of an activity too rapidly. They also can be caused by the impact of an unfamiliar surface (a tennis player who has switched surfaces from a soft clay court to a hard court); improper equipment (a runner using worn or less flexible shoes); and increased physical stress (a basketball player who has had a substantial increase in playing time). Stress fractures typically occur in the Tibia (shin bone) or metatarsals (foot bones) in runners and athletes that play on hard surfaces, but they can also occur in the arms of gymnasts and athletes that impact their arms often.

Anatomy



Are Women More Susceptible Than Men?

Stress fractures affect people of all ages who participate in repetitive sporting activities, like running. Medical studies have shown that female athletes seem to experience more stress fractures than their male counterparts. Many orthopaedic surgeons attribute this to a condition referred to as "the female athlete triad": energy availability, irregular menstrual function, and low bone mineral density. As a female's bone mass decreases, her chances of getting a stress fracture increase.

Symptoms

Pain with activity is the most common complaint with a stress fracture. This pain subsides with rest. Often times runners will experience pain on the inside of the tibia while running. Initially this pain may be over a broad area and is often called Medial Tibial Stress Syndrome or "shin splints". The pain may reduce down to a specific focal area as this condition progresses.

Diagnosis

It is very important that during the medical examination the doctor evaluates the patient's risk factors for stress fracture. X-rays are commonly used to evaluate for stress fracture. Sometimes, the stress fracture cannot be seen on regular x-rays or will not show up for several weeks after the pain starts. Occasionally, a bone scan or magnetic resonance imaging (MRI) will be necessary.



Treatment

The most important treatment is rest. Individuals need to rest from the activity that caused the stress fracture, and engage in a pain-free activity during the six to eight weeks it takes most stress fractures to heal.

Non impact training such as bike or swimming can be used to maintain fitness while resting from impact forces.

If the activity that caused the stress fracture is resumed too quickly, larger, harder-to-heal stress fractures can develop. Re-injury also could lead to chronic problems where the stress fracture might never heal properly.

In addition to rest, shoe inserts or braces may be used to help these injuries heal.

Prevention

- When participating in any new sports activity, set incremental goals. For example, do not immediately set out to run five miles a day; instead, gradually build up your mileage on a weekly basis.
- Cross-training -- alternating activities that accomplish the same fitness goals -- can help to prevent injuries like stress fractures. Instead of running every day to meet cardiovascular goals, run on even days and bike on odd days. Add some strength training and flexibility exercises to the mix for the most benefit.
- Maintain a healthy diet. Make sure you incorporate calcium- and Vitamin D-rich foods in your meals.
- Use the proper equipment. Do not wear old or worn running shoes.
- If pain or swelling occurs, immediately stop the activity and rest for a few days. If continued pain persists, see an orthopaedic surgeon.
- It is important to remember that if you recognize the symptoms early and treat them appropriately, you can return to sports at your normal playing level.