

Overuse Injuries

When most people think of injuries in sports, dislocations, fractures, and sprains come to mind. These particular injuries are due to a single, traumatic event known as acute injuries. In contrast, overuse injuries occur when there is repetitive, micro-trauma over time. Overuse injuries usually involve bone and tendons, which result in stress fractures and tendonitis.

How do overuse injuries occur?

The body has an amazing ability to adapt to the physical demands that are placed on it. When we exercise or train over time, we are able to run longer and get stronger. The body is able to do this adaptation through a process called remodeling. Remodeling involves both buildup and break down of the body's tissue. In the proper environment, there is a balance between these two processes. If a person trains too hard and too often, breakdown occurs more rapidly than buildup, resulting in an overuse injury.

What are the risk factors for overuse injuries?

Errors in training are the most common cause of overuse injuries. These errors include rapidly increasing training intensity, duration, or frequency. Poor form and technique can also result in an overuse injury.

Body structure can also place people at risk for overuse injuries. Flat or high arched feet, or having unequal leg lengths can place one at risk for overuse injuries. Muscle imbalances in strength and flexibility are also a risk factor for overuse injuries.

Equipment and training surfaces also have an impact on overuse injuries. Worn out shoes and hard surfaces, such as pavement, increase the risk of developing an overuse injury.

Female Athlete Triad is a condition that is associated with overuse injuries, in particular, stress fractures. The triad composes of disordered eating, disordered menstrual cycle, and decreased bone density. These three components are interrelated and affect each other. For more information, please refer to our Female Athlete Triad handout.

How are overuse injuries diagnosed?

Diagnosis is made after a thorough history and physical examination by a medical professional. Sometimes other tests are needed to confirm a diagnosis. Overuse injuries do not always show up on x-rays; however, bone scans and magnetic resonance images (MRIs) give us more information.

How are overuse injuries treated?

Treating overuse injuries is a two step process. First, a medical professional needs to treat the injury itself. This is done by a combination of medications, a period of immobilization, and activity modification. Treatment can combine these three methods, or just use one alone.

The second step is modifying the risk factor(s) that could have led to the overuse injury.

Training

- Do not increase intensity of work outs by more than 10% a week
- Cross train with different types of activities
- Referral to a sport-specific specialist to ensure proper form and technique

Body adaptations

- Proper footwear for foot type, possible orthotics, or heel lift
- Correct muscle imbalance through physical therapy and or stretching routine
- Develop and maintain core strengthening

Shoes and training surface

- Change running shoes every 350-500 miles depending on running style and weight
- Stay off pavement and train on a softer surface if possible