

Ankle Sprains and the Athlete

Reports estimate that 25,000 Americans suffer from an ankle sprain each day. Ankle sprains account for almost half of all sports injuries and are a common reason why athletes take time off from activities. Accurate diagnosis is critical, as some studies suggest that 40 percent of ankle sprains are misdiagnosed or poorly treated leading to chronic ankle pain and disability. Self-education is therefore important in order to decrease the risk of this disabling complication.

What is an ankle sprain?

An ankle sprain is an injury to one or more of the ligaments in the ankle. These strong fibrous bands hold together the bones of the ankle and are prone to injury during strenuous movement and repetitive activity. There are two categories of ankle ligaments: those on the outer and those on the inner surfaces of the ankle. The most common sites of injury are in the outer – or “lateral” – ankle ligaments.

Common Causes

More than 80 percent of ankle sprains are a result of inversion, or inward rolling, of the ankle. This is commonly experienced in athletic activities that involve running, pivoting and jumping. While sudden, forceful movements are certainly the cause of many ankle sprains, low-grade repetitive trauma can also weaken and injure ankle ligaments. Risk factors include previous ankle sprains/fractures and “flat feet.”

Evaluation and Diagnosis

Obtaining a thorough, detailed history of events is critical in the evaluation of ankle pain in order to lead to an accurate diagnosis. Immediate evaluation is important to determine if there are any other injuries such as a fracture. Common signs and symptoms of an ankle sprain include swelling, pain, instability and bruising. Numbness or severe weakness may suggest a related nerve injury. Examination of the ankle for evidence of instability and localizing pain is part of the initial assessment. Clinicians may often obtain x-rays or MRIs for further evaluation. A widely validated and sensitive rule of the thumb for assessing ankle sprains is known as the Ottawa Ankle Rules. These rules recommend imaging for possible fracture if there is pain on the side of the ankle with palpation and the patient is unable to walk four steps without pain. Ankle sprains are generally categorized into three grades:

Grade I: The most common type; these are associated with a mild degree of swelling and pain related to stretching of the ligament.

Grade II: More commonly seen in athletic injuries, these are associated with a moderate degree of swelling and pain and are related to an incomplete tear of the ligaments.

Grade III: The most severe of ankle sprains; these are associated with significant swelling and pain and are related to complete tear of the ligaments.

Initial Treatment and Prognosis

After an accurate diagnosis is obtained, treatment will vary depending on the severity of injury. Early and comprehensive treatment remains the best predictor of a good recovery. Initial treatment includes four common concepts referred to as R.I.C.E. (Rest, Ice, Compression, and Elevation). Relative rest or discontinuation of athletics is often necessary. Ice massage for 20-minute intervals for at least an hour, along with compression and elevation, can help reduce swelling and pain. A thorough evaluation by a medical expert will help determine other possible treatments, including bracing, taping and anti-inflammatory medications.

Prognosis is directly related to the severity of injury. Immediate evaluation and treatment will often lead to an increased chance of complete recovery. Surgery is rarely necessary, as most ankle sprains will heal with conservative management.

Rehabilitation

A comprehensive rehabilitation program is a critical part in the treatment of ankle sprains. With the guidance of an experienced physical therapist or athletic trainer, stretching and strengthening of the ankle joint and calf muscles will quicken the recovery time and decrease the risk of re-injury. Common rehabilitation strategies include walking or jogging in a pool, as the weight on the ankle is decreased. Cycling can also be a useful tool for strengthening, if there is little to no ankle pain with movement. Stair climbing machines should be avoided, as they may cause re-injury to the ankle. Re-training the muscle sensation (called proprioception) should be a critical component of any rehabilitation program. Balance training is an excellent rehabilitation technique that helps strengthen and stabilize the ankle, reducing the risk of re-injury. Returning to activities usually varies from one to two months, depending on the severity of injury.

Prevention of Re-Injury

Prevention in athletics is an important matter to discuss with a skilled sports medicine practitioner. Athletes may be given the choice of taping, lace-up braces or more rigid plastic braces. While most often used, tape may loosen with regular activity. Lace-up braces are helpful since they can be tightened throughout play. Rigid braces or air casts offer excellent protection, but may inhibit performance. A prevention strategy should be discussed with a sports medicine professional. Other important strategies for prevention of re-injury, especially in non-athletes, include wearing appropriate shoes. Tightly laced high-top shoes, for example, can offer some the same support that a lace-up brace would offer. The actual mechanism of re-injury prevention, however, remains controversial. Some experts believe that this supportive equipment protects ligaments to help prevent injury, while others believe that it simply provides a constant reminder of previous injury in trying to help avoid further ankle sprains.

Summary

Ankle sprains are one of the most common injuries in the athlete. Accurate and rapid diagnosis, comprehensive treatment, and rehabilitation are critical in reducing the risk of re-injury or chronic disabling ankle pain. Prevention of injury should be a part of any training and exercise plan. The ultimate goal of any treatment program is to improve function without inhibiting the athlete's performance.

Written for the American College of Sports Medicine by Victor Ibrahim, M.D., Zinovy Meyler, D.O., and Andre Panagos, M.D.