

## Care and Prevention of Ankle Sprains

By members of the US Soccer Sports Medicine Committee

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The basic anatomy of the ankle and mechanism of the most common ankle sprain, the inversion sprain that damages the outside of the ankle, was described. In this issue, we will describe how ankle sprains can be prevented and rehabilitated.

### Prevention

Prevention of an injury is always best. But it is quite difficult to prevent some of the mechanisms described in the last issue. The only way to not land on the foot of another player is to not go near another player. The only way to not roll your ankle over in a divot is to not step on the field. But there are some things that can be done to make the ankles less prone to injury.

The first option is to strengthen all the muscles around your lower leg, especially a muscle group known as the peroneals. These muscles run down the fibula on the outside of the leg and attach on various areas of the foot. Stronger peroneals can minimize the amount of inversion reducing the chance for injury. Research has demonstrated this. Also, improving the flexibility of the calf muscles and proprioceptive training should be a part of any ankle-strengthening program. These are done by stretching the calf and balancing on one leg at a time. People whose feet pronate (roll in and flatten) while running should wear a shoe that limits pronation. These features are common in selected running shoes, but not any kind of soccer shoes. But given the hard ground of the south, playing in flats is not unreasonable so care should be taken in selection of a running shoe. Ankle bracing also is considered.

Players have the choice of taping, lace-up braces or more rigid plastic braces. Tape works itself loose in about 30 minutes leaving the tape worthless by the end of warm-up. However, lace-up braces can be tightened as they work loose. Rigid braces are excellent, but many soccer players feel, wrongly, these braces will inhibit their play. A Scandinavian league wore rigid braces one season and demonstrated an astounding reduction in ankle sprains.

### Treatment

Once an ankle is sprained, a fairly standard treatment procedure begins. First, the athlete is unweighted, the ankle elevated and ice is applied and held in place by an elastic strap. The acronym is RICE: rest, ice, compression and elevation. This should minimize the amount of swelling. But remember swelling is the body's attempt to immobilize the ankle and protect the damaged ligaments.

After a physician has ruled out further damage, the athlete begins rehabilitation. The athlete bears weight as tolerated by pain. Some form of immobilization may be prescribed. Walking or jogging in a pool is good because normal gait can be achieved early due to the buoyancy of the water. Cycling is also an option to increase plantar (point toe down) and dorsi (point toe up) flexion range of motion.

Stair climbing machines should be avoided. Re-training the muscle senses (called proprioceptive re-education) is extremely important. A doctor or therapist will teach these methods. Depending on the severity of sprain, a player can be out of play for anywhere from 1 week to 2 months.

This sports science article comes from the Sports Medicine Section at the Duke University Medical Center and UNC Hospitals. The authors are members of the US Soccer Sports Medicine Committee including from UNC Dr. William E. Garrett, Jr (US National Teams Physician and Committee Chairman), and John Lohnes. From Duke are Dr. Don Kirkendall (exercise physiologist) and Patty Marchak (athletic trainer for 1996 US Women's Olympic Team).