

Syndesmosis Ankle Sprains

By Whitney Lowe, LMT

Ankle sprains are the most commonly occurring lower extremity soft-tissue injury. An estimated 85 percent of all ankle injuries involve ligament sprains. Of the various ligaments around the ankle, the majority of injuries occur to the ligaments on the lateral side of the ankle, primarily the anterior talofibular (Figure 1). If injuries are more severe, they may also include damage to the calcaneofibular ligament.

While the lateral ankle sprain is the most common ankle ligament injury, it is not the only one. Failure to recognize other types of ligamentous injury, such as a syndesmosis sprain, may lead to inappropriate treatment and prolonged disability.

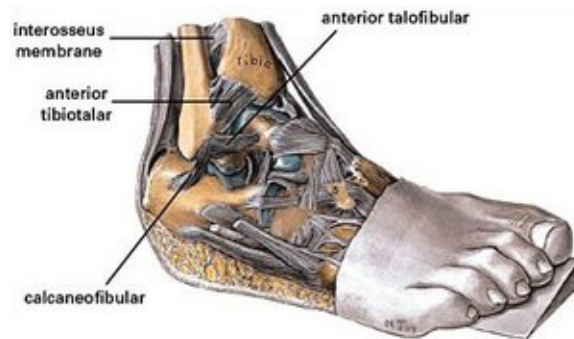


Figure 1. Anterior view of ankle ligaments. Mediclip image. ©1998, Villiams & Wilkins. All Rights Reserved.

Due to the number of joints in the ankle region numerous ligaments are needed to maintain joint stability. Most of the joints in the foot and ankle have significant movement capability; however, that same degree of mobility is not present in a syndesmosis joint. A syndesmosis is a fibrous joint with very little mobility where two bones are directly connected by ligaments or some other connective tissue membrane. The syndesmosis in the ankle where ligament sprains may occur is the distal tibiofibular syndesmosis. It is the

tough fibrous connection that holds the distal ends of the tibia and fibula together.

The distal tibiofibular syndesmosis is composed of several ligaments and connective tissues. They include the lower margin of the interosseous membrane, interosseous ligament, anterior tibiofibular ligament (Figure 1), and the posterior tibiofibular and transverse tibiofibular ligaments (Figure 2). Because the syndesmosis ligaments are more proximal than the other ligaments commonly injured in an ankle sprain, the syndesmosis injury is often called a "high ankle sprain."



Figure 2. Posterior view of right ankle ligaments. Medclip image. ©1998, Williams & Wilkins. All Rights Reserved. Injuries to the ankle syndesmosis are most likely to result from excessive rotation of the ankle (adduction or abduction of the foot), extremes of dorsiflexion, or combinations of dorsiflexion with adduction or abduction. The type of injury that produces syndesmosis sprain commonly occurs in sports played on turf with cleated shoes. For example, suppose an athlete has a cleated shoe that digs into the turf and keeps the ankle relatively immobile. If that person falls forward (causing dorsiflexion of the foot) at the same time that s/he is attempting to turn to the side (causing rotational stress in the ankle), injury to the syndesmosis is likely.

The common lateral ankle ligament injuries are usually not difficult to identify because the injured ligaments are superficial, making their palpation much easier; however, in the syndesmosis joint, palpation of the injured ligaments is not easy because other soft tissues obscure the ligaments. Therefore, several special orthopedic tests are used to help identify the syndesmosis sprain.

In addition to other important factors from the history, visual examination, and range-of-motion evaluations, the squeeze test and external rotation stress test may be used to evaluate syndesmotic injury. In the squeeze test, the distal tibia and fibula are gently squeezed together proximal to the syndesmosis joint.

If the client's pain is reproduced with this maneuver, damage to the syndesmosis ligaments is likely. In the external rotation stress test, the practitioner uses one hand to stabilize the tibia and fibula while the other hand gently externally rotates (abducts) the foot. The foot is in a neutral position or slightly dorsiflexed when the rotational movement is started. If this movement reproduces the client's primary pain, there is a good chance that the distal tibiofibular syndesmosis is involved in the injury.

It is important to recognize an injury to the ankle syndesmosis because an incorrectly identified problem may lead to errors in treatment or prolonged disability. If your client has sustained an ankle injury, identify the primary tissues injured so appropriate treatment can be provided. Refer the client if the injury appears more serious. Syndesmosis sprains may become chronic instability problems in the ankle if they are not properly evaluated and treated.

Resources

- Hockenbury R, Sammarco G. Evaluation and Treatment of Ankle Sprains. *Physician Sportsmed* 2001; 29(2).
 - Liu SH, Nguyen TM. Ankle sprains and other soft tissue injuries. *Curr Opin Rheumatol* 1999; 11(2): 132-137.
 - Norkin C, Levangie P. *Joint Structure and Function*. Philadelphia: F.A. Davis, 1983.
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