

Syndesmotic Injury / High Ankle Sprain



The syndesmosis is the connection between the tibia and the fibula at the level of the ankle. Injury to the ligaments that connect these two bones is also known as a high ankle sprain. Unlike a standard ankle sprain, a high ankle sprain takes a longer time to heal and can require surgery in many cases. The tibia is the larger bone in the ankle and the fibula is the smaller bone that is located on the outside. Together they form a stable construct for the talus bone which is the bone that connects the foot to the ankle. If there is any instability or looseness of this connection between the tibia and fibula (syndesmosis) this may lead to abnormal loading of the talus bone leading to pain and swelling. Minor injuries can heal without surgery, but do require a period of immobilization, while near complete or complete disruptions often require surgery to stabilize the joint. Injury to the ligament on the inside of the ankle called the Deltoid ligament and the bone called the fibula can occur as well and is termed a Maissonvieu fracture and must be treated surgically. The ligaments between the bones are commonly affected with many ankle fractures.

A history helps to determine whether an ankle sprain is a “regular” sprain or a high ankle sprain. In severe cases where the ankle twists significantly or a more higher energy injury that may occur with contact sports or a fall down stairs, the lower ankle ligaments and the syndesmosis can be injured. If the foot rotates more to the outside during an injury - this can be more consistent with a high ankle sprain. Most commonly

ankle sprains results from the foot turning in relative to the ankle, and many patients term this as their “ankle went out”. On examination, there is pain located at the level of the ankle joint and above the ankle as well - where the connection between the tibia and fibula is located. A low ankle sprain commonly hurts at the tip of the little bone (fibula) - below the ankle joint. Both can occur during one injury and identifying the location of the pain helps to guide the next step. X-rays are taken to determine if there are any associated fractures and to see if there is any widening between the tibia and fibula. Additional imaging such as a MRI scan may be ordered to directly visualize the ligaments and determine the extent of the injury. Additionally, the MRI can evaluate for tendon and cartilage injury as well. For surgical planning in some cases a weight-bearing CT is considered to determine if there is dynamic instability of the joint, and we can perform this in our clinic at Northwestern.

Treatment of a high ankle sprain is dependent on the extent of the injury. In the case of a low grade sprain - where the ligaments are stretched but not completely torn, the use of walking boot for 6 weeks followed by a lace up ankle brace and physical therapy is a common course of treatment, with each patient being individualized based on their exact injury and pain level. If the injury is more severe and the ligaments are torn, in some cases if there is no dynamic instability (the bones stay aligned by CT and are not different compared to the normal leg), then a period of non-weightbearing can be considered. If the Deltoid ligament is involved (the inside ankle ligament) or there is dynamic widening, or widening between the bones on xray or MRI, then surgery may be considered to restore the alignment and stability of the ankle. Surgery is done with modern techniques including the use of the Tightrope and Internal brace to reconstruct the ligaments anatomically as opposed to simply putting a screw across in most cases.