What is it?
Ankle impingement is a condition that causes a painful limitation of ankle range of motion due to a soft-tissue or bony abnormality. Soft-tissue impingement results from irritation to the fibers that go around a joint (capsule), or the joint’s ligaments or cartilage, which may thicken over time. On the other hand, bony impingement results from improper healing of an injury leading to fibrosis (scarring) and osteophytes (bony fragments). In both instances, there is trapping of the soft tissues upon bending the ankle. In most cases, the impingement symptoms follow acute traumatic events, usually ankle sprains or small injuries, that accumulate over time from repetitive activities such as running and jumping.

Impingement of the ankle is typically divided into two main types:

- **Anterior ankle impingement:** This occurs in the anterior (front) part of the ankle and is very common in all athletes who sustain repetitive ankle dorsiflexion (bending up at the ankle joint), such as soccer players, football players, dancers, gymnasts, and runners. These patients report pain over the front-outside aspect of the ankle that is reproduced with cutting and pivoting movements.

- **Posterior ankle impingement:** This occurs in the posterior (back) part of the ankle and is common in athletes who sustain forced plantarflexion (bending down at the ankle joint). It is recognized most often in ballet dancers who stand in the demi pointe or en pointe positions, but can also be seen in runners and soccer players. It is also seen more frequently in athletes who have an accessory or extra bone in the back of the ankle, known as the os trigonum, as this can lead to pinching of the ankle capsule. These patients will usually complain of posterior heel pain.

Symptoms

- Ankle pain with specific motions (pointing the toe down in posterior impingement, bending the ankle up in anterior impingement)
- Limited ankle range of motion
- Ankle swelling

**Sports Medicine Evaluation and Treatment**
A sports medicine physician will ask the athlete questions about sports participation and what types of activities cause pain. A physical exam will be performed looking for abnormalities of the ankle. To confirm the diagnosis in some cases, a physician may consider an injection with numbing medication followed by repeating the test to see if the pain went away.

Imaging begins with ankle x-rays, although in some cases no abnormalities are seen. In posterior impingement, x-rays can identify the os trigonum or an elongated process of the calcaneus (heel bone). Ultrasound can be done to visualize thickening of the synovium (joint lining). Magnetic resonance imaging (MRI) can show bone marrow edema (swelling), abnormal soft tissue, or fibrous bands, but may be more helpful in ruling out other conditions in chronic ankle pain, such as tendonitis.
ANKLE IMPINGEMENT

Treatment begins with rest, ice, and anti-inflammation medications (for example, ibuprofen or naproxen). Exercises are important in order to strengthen the ankle muscles and tendons, as well as restore ankle stability. In persistent cases of ankle impingement, a steroid injection can be considered to further address the inflammation. Surgery may be indicated if all non-surgical measures fail. The choice of procedure depends on the type, severity, and nature of impingement.

Injury prevention.
• Restore ankle stability after ankle sprain
• Avoid prolonged “ankle up” (dorsiflexion) or “ankle down” (plantarflexion) positions when possible
• Correct technique where possible, especially in ballet dancers

Return to Sport
Return to activity or sport depends on the individual, but athletes with uncomplicated cases are able to return within a 4- to 6-week time frame. It may take longer for the pain to go away completely but this should not impact the ability to perform sport-specific activities prior to return. Ankle bracing, orthotic inserts, and shoe modification may be helpful for persistent cases.

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References
