



Clinic Newsletter

Ankle Injuries

A sprained ankle is one of the most common injuries caused by participation in sports. It refers to soft tissue damage (mainly ligaments) around the ankle, usually caused by an inversion injury (where the ankle is twisted inwards) or an eversion injury (where the ankle is twisted outwards). Because of the position of the bones around the ankle, the inversion injury is far more common. This injury causes damage to the lateral ligaments on the outside of the ankle.



The most commonly injured ligament is the Anterior Talo-fibular (ATF) ligament which, as the name suggests, joins the fibular and talus bones together. If the force to the ankle is more severe, the Calcaneo Fibular ligament (between the Calcaneus and Fibula) is also damaged. The Posterior Talo-fibular (PTF) ligament is very rarely damaged in comparison to the other two ligaments.

In the case of an eversion injury, the damage occurs on the medial (inside) of the ankle. The ligament on the inside of the ankle is called the Deltoid ligament and is very strong. It is so strong in fact that the bone on the inside of the ankle can be pulled off (an avulsion fracture) before the ligament is damaged.



As well as damage to the ligaments, the capsule which surrounds the ankle joint is also damaged. The damage causes bleeding within the tissues and the ankle begins to swell up and can be extremely painful.

Ankle sprains can be classified as follows:

- First degree, where only a few ligament fibres are damaged
- Second degree refers to more extensive damage to the ligament with associated swelling
- Third degree refers to a complete rupture of the ligament with swelling and a possible joint dislocation

In the more severe injuries there may be associated bone injury and it is wise to get an X-ray to determine whether there is a fracture.

Sprained Ankle Injury Signs & Symptoms

With a first degree sprain there is pain when turning the foot in or out, and also pain when the damaged area is touched.

With a second degree sprain the pain is more severe, there is swelling all around the area and it is painful to walk.

With third degree sprain the pain is excruciating and walking is impossible. There is gross swelling and there may be deformity if the ankle is dislocated.

Treatment

In the first 48-72 hours following the injury it is important to follow the PRICE protocol - protection, rest, ice, compression and elevation (never apply ice directly to the skin).

Ice packs for a period of twenty minutes every couple of hours may help with the pain but pain-relieving medication may also be necessary.

It is important not to put too much weight on the damaged ankle, so walking should be avoided if possible.

Where a fracture is suspected an X-ray should be carried out at A&E. It should be borne in mind that some hairline fractures do not show up on X-ray until about 10-14 days after the injury, so if the pain persists, medical attention should be sought.

In the case of a second degree sprain, crutches should be used to protect the injured ankle. However, it is important not to be on the crutches for longer than necessary, and as soon as the pain allows, the patient should begin to gently put weight through the ankle by walking.

Once the patient is able to walk on the ankle, more active rehabilitation can be started.

Julia Williams
MEng. BSc(Hons)OstMed
ND MRN
Osteopath • Naturopath
Cranial Osteopath

Centre of Wellbeing
Chambers House
Moffat
DG10 9ED

52 Harley Street
London
W1G 9PY

☎ **07966 243459**
juliaosteopath@mac.com
www.juliawilliams.co.uk

Sprained Ankle Prevention & Rehabilitation

What you can do:

- Wear an ankle support for protection
- Get help and advice from an Osteopath (or physio) who can help relieve soft tissue discomfort and teach effective rehabilitation exercises
- Use a wobble board for ankle strengthening

Ankle instability is characterised by ankle weakness and giving way, even though the ankle ligaments are intact and the joint is mechanically stable. It is due to an impairment of proprioception, which leads to a lack of balance and ankle joint position sense. Proprioception is the mechanism by which nerve receptors in skin, muscle, ligament and joint tissue relay information to the brain about body position sense, where this information is quickly processed and movement strategies are formulated and executed using nerve signals to muscles. This mechanism can help you 'catch yourself' when you are about to turn your ankle.

In the unstable ankle these receptors may have been damaged directly during an ankle sprain. This impaired proprioceptive ability may, therefore, lead to a delay in protective muscle activity and the resultant loss of postural awareness and stability around a joint. This may explain why recurrent ankle sprains are so common.

Initial rehabilitation exercises depend on the degree of injury and pain suffered, but usually begin with:

- Improving the range of movement
- Non weight-bearing strengthening exercises to achieve symmetry of movement and strength
- Progressing to weight-bearing exercises through all ranges of movement
- Proprioceptive exercises from standing on one leg, progressing to use of a wobble board

A Wobble Board together with Ankle Braces are commonly used in the rehabilitation of ankle instability. Wobble Boards are designed to assist the re-education of the proprioceptive system by improving sensory receptor function. Previous research has also shown that wobble board training improves single leg stance ability and balance; while other studies have suggested that patients with ankle instability who underwent wobble board training experienced significantly fewer recurrent sprains during a follow-up period than those who did not follow the training programme.

Taping and Bracing the ankle can also help to reduce recurrent ankle injury. Previous research has shown the injury incidence in students with taped ankles was 4.9 ankle sprains per 1000 participant games, compared with 2.6 ankle sprains per 1000 participant games in students wearing ankle braces. This compared with 32.8 ankle sprains per 1000 participant games in students that had no taping or bracing.

Ankle Arthritis is relatively uncommon but may be secondary to previous injuries including fractures or repeated sprains. It is treated in a similar way to the unstable ankle with plenty of external support whilst staying as active as possible to keep muscular support strong.



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