

Ankle sprains – Inversion injury

Injuries to the ankle can occur very easily without what would be considered 'significant trauma'. Whilst ankle sprains are common injuries in sport, they can also occur as easily during everyday activity. Simply turning your ankle on a stone or missing a step coming down stairs could potentially result in an ankle sprain. Though sprains are not exclusive to the outside (lateral aspect) of the ankle, they are the most common, approximately 85% of all ankle sprains. Injuries sustained to the soft tissue on the lateral aspect of the ankle are typically caused by what is called an inversion injury. This type of injury is caused when an individual 'rolls' their ankle, often as a result of tripping or landing on the outside of their foot causing the ankle to roll outwards whilst the foot turns inwards over-stressing ligaments and tendons on the lateral aspect of the ankle. When the ligaments and tendons are stretched beyond their elastic limit this causes tears within the structures.

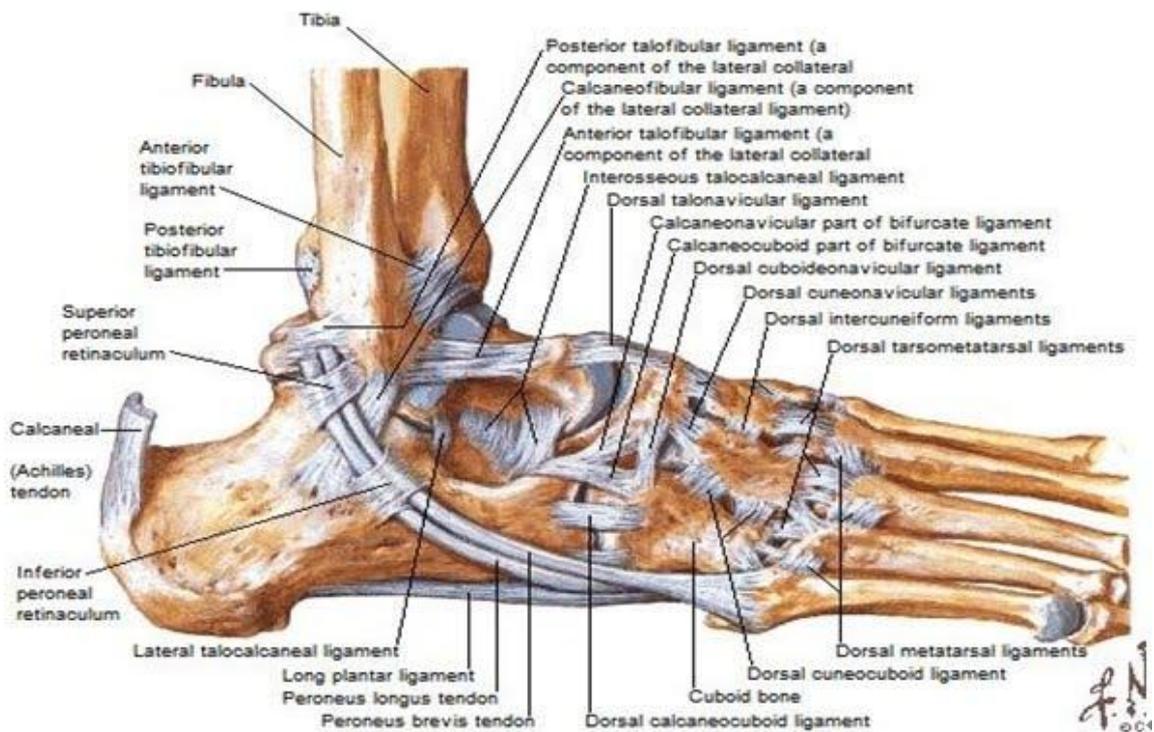


Image: Direction of ankle movement in inversion ankle injuries

Structures typically injured

There are primarily three ligaments on the lateral aspect of the ankle, the anterior talofibular ligament (ATFL), the calcanofibular ligament (CFL) and the posterior talofibular ligament (PTFL). Of these ligaments the most commonly injured ligament is the ATFL. If the injury is very forceful in nature an avulsion fracture of the fibula can occur. This is when a fragment of the fibula is pulled away by the ATFL. Peroneal tendons also pass around the underside of the lateral malleolus (bony point on the outside of the ankle). These structures can also be strained during an ankle inversion injury. Fibrous tissue called retinaculum helps to hold tendons in place and in more severe sprains these can also be injured.

Ligaments and Tendons of Right Ankle Lateral View



Clinical presentation of the injury

- Immediate pain will be felt in the ankle. The majority of pain is likely to be felt on the outside of the ankle however initially the whole joint may feel painful.
- Depending on the severity of the injury the patient may find it difficult to put full weight through the injured leg. Partial weight-bearing is in-keeping with ligament sprain, whereas fracture would likely result in non weight-bearing of the injured leg.
- Swelling will likely present quickly and certainly within the first 12-24 hours the ankle and foot will be inflamed.
- Bruising can present either side of the ankle, lower leg and down the foot to your toes.
- There should be no specific tenderness over the bones. Should there be acute tenderness over the lower tibia or fibula then an X-ray is recommended.
- Pointing your toes and turning the foot inwards will reproduce pain on the outside of the ankle in lateral ligament sprain.
- For more specific ligament instability testing would need to be carried out by a healthcare professional if required.

Self-management strategies

- In the first 48-72 hours utilise the PRICE (protection, rest, ice, compression and elevation) principle to try and reduce pain and inflammation. Ice should be applied for approximately 15 minutes 3 times per day. Ensure any ice application is covered with a damp towel to prevent ice burn.
- Early active range of movement (ROM) exercises of the toe/foot/ankle within limits of pain to try and promote increased movement.
- Over the first 7-14 days slowly increase walking, whilst gradually increasing weight bearing through the injured leg.
- Continue to progress ROM exercises and introduce calf stretches and strengthening (heel raises and resistance band exercises) to improve range and stability of the ankle.
- Walking practise to ensure that the movement of the injured leg is replicating that of the uninjured side.
- At this stage strapping the ankle or wearing a brace can help to promote early rehab whilst minimising the risk of re-injury. Strapping techniques can be found online.
- In the 2-4 week period following injury, introduce and progress balance exercises to help improve function and stability of the ankle. This can develop from standing on one leg, to doing it with eyes shut, single leg squats to hopping. Introducing uneven surfaces to balance exercises will further test and strengthen the ankle though should only begin if all other balance exercises can be completed comfortably.
- Progress to jogging activity and change of direction exercises that will help with return to normal function.

A multitude of videos can be found online demonstrating ankle strapping techniques and various exercises for ankle rehabilitation at different stages of recovery.