Castleknock GAA club member and Chartered Physiotherapist, James Sherry MISCP, has prepared an informative article on Ankle Sprains and how best to treat them.

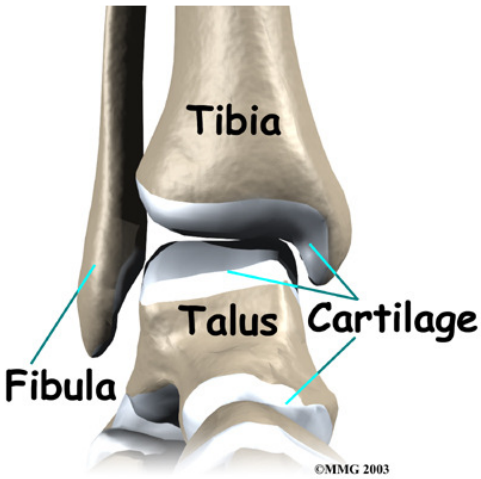
To book a physiotherapy appointment contact James on ***087-7553451*** *or email james_sherry8@hotmail.com*

Ankle Sprains:

A sprained ankle is an injury that occurs when you roll, twist or turn your ankle in an awkward way. This can stretch or tear the tough bands of tissue (ligaments) that help hold your ankle bones together. A large majority of these injuries are sustained during sporting activity; in fact ankle sprains have been shown to be the most common injury in a total of 24 different sports (Fong, 2007). They are particularly common in sports that involve change of direction or jumping, with high incidences reported in Gaelic football and hurling (Watson, 1999).

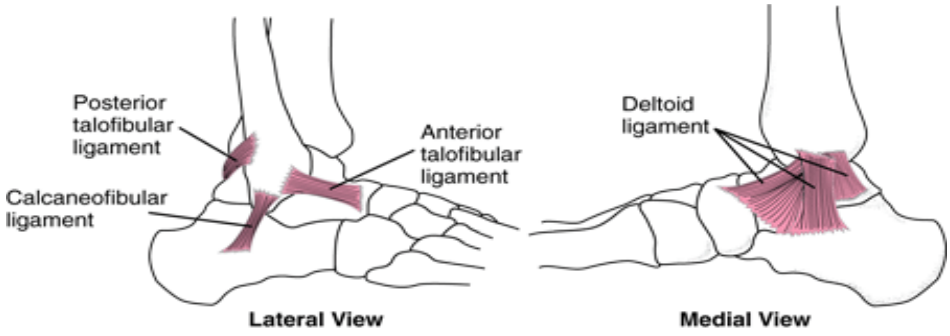
The ankle joint connects the bones of the lower leg to the foot. It is made up of three different points of contact between four bones – the Tibia, Fibula, Talus and Calcaneus (see Image 1). The arrangement of the bones allows the ankle joint to move in four directions – Plantarflexion, Dorsiflexion, Inversion and Eversion.

Image 1.



The ankle is supported by several strong ligaments (see Image 2). The Deltoid ligament lies on the medial (inside) aspect of the ankle with three ligaments supporting the lateral aspect including the Anterior Talofibular ligament (ATFL) which is the most commonly injured ligament in a sprained ankle. The ankle ligaments act as support structures and serve to prevent excessive and damaging movement occurring at the ankle joint.

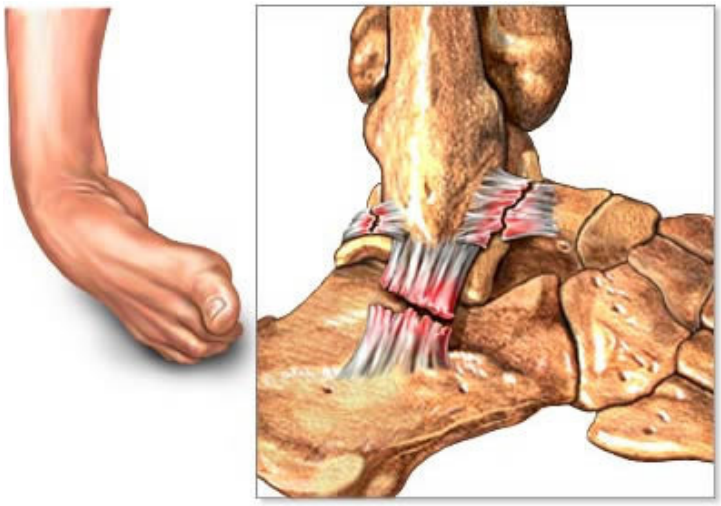
Image 2.



Ankle ligament sprains are among the most common injuries in GAA players. A 6-month prospective study of injuries in Gaelic footballers was conducted by *Wilson et al.* in 2006. There were nearly twice as many injuries during matches as during training. The ankle was found to be the most commonly injured site (13.3%) followed by the quadriceps and hamstring muscles (both 12.2%). It was found that ankle injuries were five times as common in matches as in training.

As previously mentioned the ATFL is the most commonly injured ligament in a sprained ankle. Up to 73% of ankle sprains involve isolated rupture of the ATFL (Fong et al 2009). Damage occurs to this ligament when the ankle is forcefully inverted (or turned inwards) which is what happens when you roll over onto the outside of your foot (see Image 3). The ATFL can withstand the lowest amount of force of any of the ankle ligaments and therefore it is the most likely to tear first.

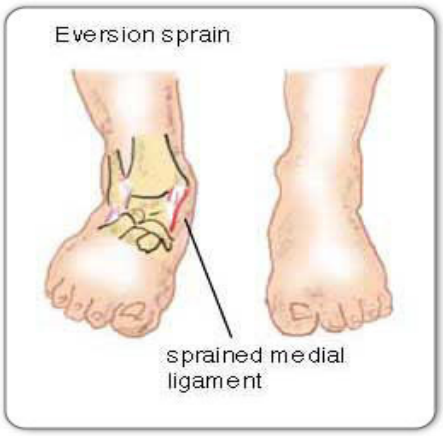
Image 3.



The deltoid ligament can sustain damage through excessive movement in the opposite direction (see Image 4). However due to the anatomy of the ankle, we generally have much

less eversion range of movement. The position of the fibula relative to the ankle prevents excessive eversion and so the deltoid ligament is injured less frequently.

Image 4.



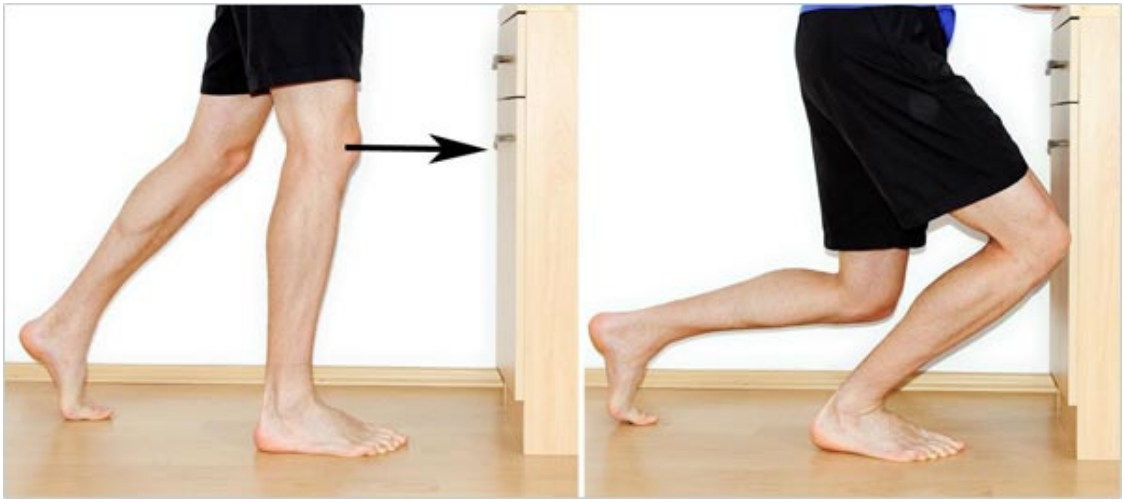
The activities involved in GAA games place significant amounts of pressure and strain on the ankle joint. Continuous changing of direction, stop-start movements, jumping and the general speed of the game require high levels of strength and stability around the ankle joint in order to perform at an optimal level. A lot of research has been carried out in order to identify potential causes of ankle sprains in a range of sports. There are both external and internal factors involved in identifying the risk of an ankle injury.

Extrinsic factors for ankle injury can include poor quality training surfaces, ill fitting footwear or inappropriate training drills/intensity when the player is unprepared. A case could also be made to suggest that too much grip on the sole of football boots may increase the likelihood of rolling over on the ankle by allowing less leeway when trying to change direction at speed.

Willems et al (2005) found that lower overall cardiovascular fitness levels and slower running speed were recorded in men who sustained ankle sprains. Other factors identified included deficits in balance, decreased dorsiflexion range of movement and decreased strength and reaction time in the muscles around the foot and ankle. These factors are particularly important in GAA games given the pressure placed on the ankle joint. It is necessary to have good balance to ensure you can control your foot and avoid rolling the ankle. A good level of muscle strength is required to ensure the ankle is well supported and to avoid the early onset of fatigue which can increase your likelihood of picking up an injury.

You can test out your own flexibility by using the following exercise:

Knee to Wall Test:
Place the big toe of one foot 6cm away from a wall. Bend your knee until it touches off the wall. Continue to gradually move your toe away from the wall and repeat the test until you can no longer touch the wall with your knee. Record the distance of your toe to the wall at this point. Ensure that your heel stays in contact with the floor at all times. A distance of 9-12cm is considered a good score. If you record a distance of less than 6cm it is considered inflexible and may be an indication that you should attend your Chartered Physiotherapist to commence a flexibility programme.



If you suffer an injury to your ankle you should initially follow the **RICE** protocol. You will need to **R**est from any activity which aggravates the pain in your ankle. **I**ce the affected area as soon as possible after the incident. Apply the ice wrapped in a damp towel and keep it in contact with the ankle for 15-20minutes. In the early stages of healing (within 48 hours of injury), you can apply an ice pack in 20 minute increments every 2-4 hours. Placing a **C**ompression bandage around the ankle may also help to support the joint in the acute stages. **E**levating the foot as often as possible will serve to control some of the swelling that can occur after an ankle sprain. Following these steps will help reduce your pain, swelling and any bleeding within the tissues, preventing further damage and speeding up the recovery process.

This type of injury mechanism also has the potential to result in a fracture to one of the bones in the foot or ankle. If you are unable to walk for four steps and have significant swelling or severe pain on either side of the ankle joint you should seek treatment in an Emergency department in order to have an X-Ray carried out.

You will need to be assessed by your Chartered Physiotherapist to determine which structure has been injured, the extent of the damage, the likely recovery time and the best course of management for your injury. Your Chartered Physiotherapist will perform several tests in

order to identify if any of the ankle ligaments have been torn.

Initial treatment is likely to involve very gentle range of movement exercises, soft tissue massage and light stretching in order to prevent excessive stiffening of the joint in the acute stage. As your pain levels and ability to move improve you will begin to work on the strength in the muscles around the ankle. When appropriate your Physiotherapist will introduce higher level exercises designed to improve the balance and proprioception around your ankle. This can involve exercises on wobble disks or balance cushions in order to challenge your ankle appropriately before returning to football or hurling. Running, sprinting, agility and change of direction drills also need to be incorporated to prepare you to meet the demands of your sport.

It is extremely important to avoid rushing your rehabilitation when it comes to ankle injuries. Your Physiotherapist will advise you when it is safe to return to sport once you have cleared all of the return to play criteria. Returning to play without having sufficient levels of leg strength, control, balance and proprioception can put you at significantly higher risk of suffering a recurrence of your initial injury.

Clanton et al (2012) reported that that up to 80% of people who sustain an ankle sprain will suffer from recurrences of the injury and up to 72% can develop chronic instability. 74% of patients who suffered an inversion injury to the ankle had persisting symptoms between 1.5 and 4 years after the injury. These figures show just how important it is to properly rehabilitate your ankle injury prior to returning to training and games.

Research has suggested areas to focus on in order to prevent ankle sprain injuries.

- Cardio Respiratory Endurance training.
- Running Speed Exercises.
- Balance and Co-ordination.
- Calf and Dorsiflexion muscle strength and endurance.

- Side to side movement and agility drills.
- Regular stretching and mobility exercises for all leg muscles.
- Wobble Board and Balance Disc Training.
- Landing Technique Exercises.

(Fong et al 2009. Willems et al 2005)

Your Chartered Physiotherapist will be able to provide you with information on how best to combine the above training aspects in order to reduce the risk of you injuring your ankle in the future.

Castleknock GAA club have set up a Chartered Physiotherapy service lead by James Sherry M.I.S.C.P. This clinic is open to all club members and takes place in the Castleknock Hotel every Saturday. Treatment sessions are available by appointment only. James specialises in the diagnosis and treatment of back and neck pain and sports injuries with over 10 years' experience working in private and public practice.

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