

## Anterior Cruciate Ligament (ACL) Injury.

### The knee.

The knees of soccer players come under enormous stress and strong healthy knees are crucial in preventing injury and performance. The knee is essentially a modified hinge joint located where the end of the femur (thigh bone) joins to the tibia (shin bone) (See Figure 1).

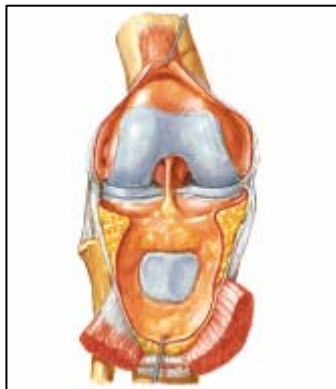


Figure 1: Knee



Figure 1: Knee

The knee has essentially four main ligaments holding it in place, one at each side to stop the bones sliding sideways (the collaterals) and two crossing over in the middle to stop the bones sliding forwards and backwards (the cruciates).

- 1) Medial collateral ligament (MCL) – runs along the inner part of the knee and prevents bending inwards (See Figure 2).
- 2) Lateral collateral ligament (LCL) – runs along the outer part of the knee and prevents bending outwards (See Figure 2).
- 3) Anterior cruciate ligament (ACL) – lies in the middle of the knee. It prevents the tibia sliding forwards in front of the femur. It also provides rotational stability to the knee (See Figure 2).
- 4) Posterior cruciate ligament (PCL) - works in conjunction with the ACL. It prevents the tibia sliding backwards under the femur (See Figure 2).



Figure 2: Knee Ligaments

The ACL and PCL cross each other inside the knee forming an “X” - this is why they are called the cruciate ligaments (See Figure 2).

### What is an Anterior Cruciate Ligament (ACL) injury?



Figure 3:  
Torn ACL.

The ACL is located inside the knee joint and stabilizes the joint by preventing the shinbone from sliding forwards beneath the thighbone. An anterior cruciate ligament (ACL) injury involves extreme stretching or tearing of the anterior cruciate ligament of the knee. A hard twist, or excessive pressure or force on the ACL can tear it, so that the knee gives out and can no longer support the body. A tear may be complete or partial (See Figure 3). Women are more likely to suffer an ACL tear than men. The cause for this is not yet completely understood, but is thought to have something to do with differences in anatomy as well as muscular functioning. Adults who tear their ACL usually do so in the middle of the ligament or pull the ligament off the bone – these injuries do not heal by themselves. Children are more likely to pull off their ACL with a piece of bone - these injuries often do well with appropriate management.

### What are the symptoms?

Usually a soccer player suffers an ACL injury when they twist or turn during a game or when they are involved in a tackle. There is immediate pain at the time of injury and the player may experience a sensation of a ‘pop’. Almost always the player will be unable to continue playing. Most players notice swelling straight away, which is caused by bleeding within the joint. Later, when the swelling has decreased there may be instability in the joint – the player’s knee may feel unsteady or it wants to give away. The player will feel pain when they bend their leg.

ACL injuries are occasionally associated with other injuries. The “unhappy triad” is a classic example of this.

The “unhappy triad” is when the ACL is torn at the same time as the MCL and the medial cartilage (one of the shock absorbers on the knee). This type of injury is sometimes seen in soccer players (See Figure 4). However, ACL injuries commonly occur in isolation.



Figure 4:  
unhappy triad

### Causes.

ACL tears can be due to contact or non-contact injuries. A blow to the side of the knee, such as when playing soccer, may result in an ACL tear. Alternatively, coming to a quick stop, combined with a direction change while running, pivoting and jumping, or over-extending the knee (all common while playing soccer), can also cause injury to the ACL (See Figure 5).



Figure 5: ACL Injury

### What can the player do?

The player should initially rest from soccer – it is highly unlikely that they will be able to continue playing. If the player is in severe pain and has difficulty walking crutches may be necessary. The player should use the RICE (Rest, Ice, Compression, Elevation) method of treatment to reduce the swelling and pain. The player should see a sports injury professional for advice on a diagnosis and rehabilitation.

### What can a sports injury professional do?

Initially a sports injury professional (a sports doctor or physiotherapist) can confirm the diagnosis. If the sports injury professional suspects an ACL rupture, they may refer the player for surgery. However, some recreational soccer players may manage without surgery if they work hard on muscle strengthening and rehabilitation. Surgery is generally recommended for a competitive soccer player. An orthopaedic surgeon will then make a decision regarding surgery. Surgery will involve reconstructing the ligament from a tendon elsewhere around the knee.



Rehabilitation should start from the time of injury, not necessarily from the time of surgery. This will promote a faster recovery following surgery. Rehabilitation will involve seeing a physiotherapist who will advise on the appropriate management plan. Rehabilitation will involve strengthening, stretching, and proprioception – as well as treatment aimed at reducing the swelling and pain (See Figure 6).



Figure 6: ACL Rehabilitation.

Some people are able to live and function normally with a torn ACL. However, most soccer competitive players will require surgery. Usually the knee is unstable and may give out while playing soccer, causing pain. However a decision regarding surgery should be made in discussion with an orthopaedic surgeon and is dependent on the player's specific situation. Surgery is typically the best option- if a soccer player wishes to continue playing.

### **How long is a player out of training or playing?**

A soccer player who has sustained a ruptured ACL can be expected to be out of training and playing for 6 – 9 months after surgery. There are however, a number of factors that can influence this time including age, fitness and the players desire to rehabilitate. A sports physiotherapist will design an appropriate rehabilitation program for the player and help them through the rehabilitation. Usually progress is steady with a gradual return to walking, running, then training and finally to playing.

