

Anterior Cruciate Ligament Injury

What is it?

The anterior cruciate ligament is one of four important ligaments in the knee. The ligaments act like ropes to hold the knee in place. There are two collateral ligaments, one sits on either side of the knee, while the two cruciate ligaments sit inside the knee. The anterior cruciate ligament (ACL) is especially important for providing rotatory stability. Without the support of the ACL, the knee is at high risk of rotating on itself and collapsing. Note figure 1.

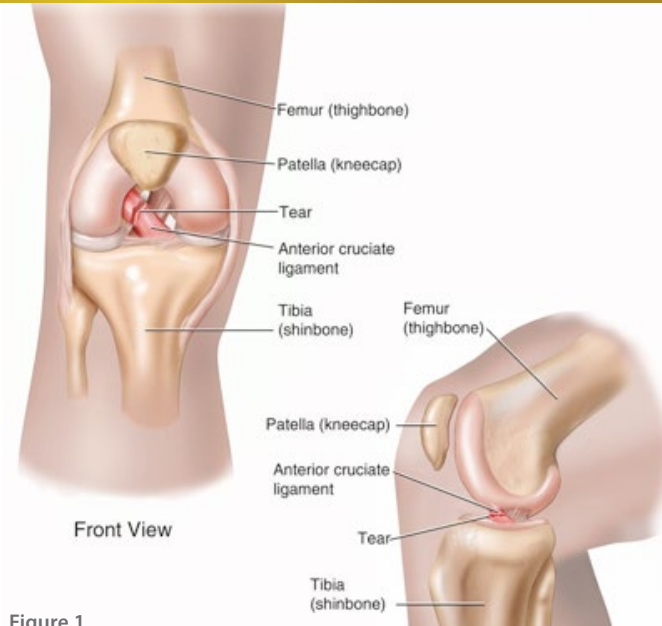


Figure 1

What are the symptoms?

When the ACL ruptures there will often be a pop and a feeling that the knee is unstable or giving out. Usually there is a large amount of swelling on the knee within a few hours.

After the initial swelling has passed most people are able to walk quite comfortably but may feel unsteady on it especially when changing direction. The knee may continue to have episodes of giving way.

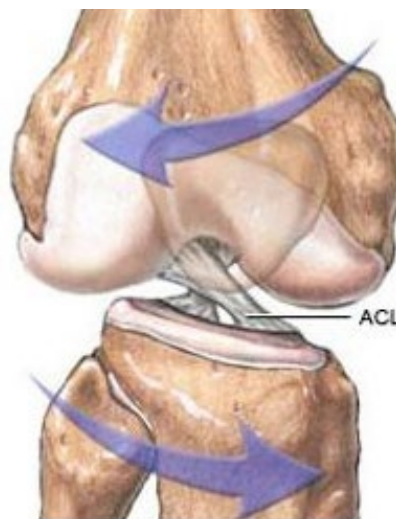


Figure 2

How did I get it?

ACL ruptures can be divided into two types. Non-contact injuries and contact injuries.

Non-contact injuries are more common and make up > 90% of ACL ruptures. The injury can occur on landing from a jump, pivoting or suddenly changing direction. Often it is surprising how mild and normal the movement is. Changing direction and landing on one leg puts a rotational force through the knee. The muscles and ACL have to resist that force. Note figure 2. Injuries such as these can be due to high force or high repetition. Most of these injuries are due to high repetition i.e. the movement that causes injury is a normal movement such as a quick change of direction which is performed countless times during training and play.

Contact injuries make up only a small fraction of total ACL injuries. They usually occur from a direct blow to the knee, where the knee is hyperextended (over straightened and forced back) or hit from the outside and forced to collapse inwards. These injuries are usually due to a high force mechanism rather than a high repetition mechanism. Watch the accompanying video to see a typical cause of this injury.



Go online for more information

<http://www.youtube.com/watch?v=eWceE2WK74A>

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What should I do?

There is usually a lot of bleeding, swelling and inflammation associated with an ACL injury. It is useful in the early stages to try to decrease the amount of swelling. Early management should involve RICE treatment (Rest, Ice, Compression, Elevation).

There are many injuries that you can train through or around but this is not one of them. To continue to attempt to play on or train with such an injury will compromise recovery and might lead to a permanent disability.

Rest involves ceasing the activity and limiting the amount of weight you put through your leg. Limited walking is usually well tolerated and safe. Crutches can be used if there is



difficulty walking. Often a knee brace is necessary and makes walking feel secure.

Ice is very useful initially and helps decrease the amount of swelling. Usually 10 mins on, 10 mins off, 10

mins on every 2 hours is effective and decreases the likelihood of nerve damage from ice burn.

Compression and elevation also helps to decrease the amount of swelling.



How is a diagnosis made?

Diagnosis is usually made with history and examination. Usually an x-ray is ordered to rule out any bone damage associated with ACL injury. If the symptoms and examination findings are not classic, an MRI will sometimes be required. If there is a lot of pain and swelling it can make the examination tests difficult to interpret, so you may need to return at a later time to re-evaluate the knee when the swelling has reduced.

What does rehab involve?

Rehab will involve a prolonged period of regaining range of motion in the affected knee, increasing strength and retraining the muscles on how and when to contract.

The extent and type of rehab you have will depend on whether your injury is managed operatively or non-operatively and how soon after injury your surgery is performed. In general, if you are young and keen to return to your sport which requires significant "change of direction" requirements then surgical reconstruction may be considered a reasonable option. The likelihood of performing high volumes of rapid, forceful change of direction without

collapse in someone without an ACL is low. Professional athletes often have surgery immediately after injury but this is often not necessary for non-elite athletes. **Delaying surgery by a few weeks to get the swelling down and perform some physiotherapy prior to the surgery is thought to improve post-operative comfort and outcomes.**

If your goals do not involve high volumes of rapid change of direction then the need for surgery is less critical. It is often worthwhile trying non-operative management initially. If there are subsequent episodes of instability (your leg collapses on you) or subtle instability (you feel unsteady / nervous on it or it feels like it might give way but doesn't) then proceeding to surgical reconstruction is the best option.

Do you have a question?

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