Anterior Cruciate Ligament (ACL) Injury

Partial Tear & Complete Rupture

What is the ACL?

The ACL is 1 of the 4 ligaments within the knee that acts to stabilise the knee joint.

Injury to the ACL (or any of the 4 ligaments) can cause a feeling of instability in the knee.

Causes of Injury

The most common causes of injury are:

- Suddenly slowing down from high speed and changing direction (cutting).
- Pivoting with your foot firmly planted.
- Landing awkwardly from a jump.
- Stopping suddenly.
- Receiving a direct blow to the knee or collision, such as a football tackle.

Risk Factors for Injury

Certain factors can put an individual at higher risk of ACL injury:

Gender - The rate of ACL injuries is three times higher in female athletes than in males. While the exact reason is unknown, some reasons include differences in muscle conditioning, control, and strength.

Certain Sports - ACL tears commonly occur in sports such as basketball, football, volleyball, skiing, and tennis. These sports require frequent and sudden deceleration, such as cutting, pivoting, or landing on one leg.
Previous ACL Rupture - The risk of tearing an ACL reconstruction is approximately 15% higher than the risk of tearing a normal ACL. One study notes that this risk is highest in the first year after the initial injury. The risk of an ACL tear in the opposite knee is also higher once the injury has occurred in the first.
Age - ACL tears are most common between the ages of 15 and 45, mostly due to the more active lifestyle and higher participation in sports.

Diagnosis of ACL Injury

Specific patterns of injury, a feeling of instability within the knee, and positive testing of the ACL by a clinician will all contribute to the diagnosis of ACL injury. This can be confirmed by an MRI scan of the knee.

Management of ACL Injury

Both nonsurgical and surgical treatment options may be used to treat ACL ruptures. Although surgery is sometimes necessary, not everyone who has an ACL rupture is a candidate for surgery.

Non-Surgical Management

Using the POLICE method immediately after injury where we want to be reducing the pain and inflammation with appropriate loading and rest.

- **Protection.** A period of rest can be beneficial to help your pain. Total rest should be limited to prevent loss of range of movement and muscular weakness.
- **Optimal Loading.** Early Activity promotes recovery. Gradually progress your activity quantity and intensity to optimise healing and prevent muscular loss.
- **Ice.** Applying ice for 20 minutes 3x a day may help to reduce your pain and can reduce your swelling.
- **Compression.** You can use compressive bandage to reduce any swelling. Make sure that this is applied evenly to the area.
- **Elevation.** Raise your injury above your heart during short periods of rest. This is to help your swelling and reduce your pain.

Knee Brace

This may be advised for individuals who have significant instability in the knee initially. They prevent side-to-side movement of the knee and are more commonly used when someone has an injury to more than one of the knee ligaments.

Rehabilitation

Rehabilitation is advised for all ACL injuries, whether these are complete ruptures or partial tears. Pain, swelling, muscle wasting, and reduced muscle control are all significant side effects of an injury. Early rehabilitation focuses on establishing full movement, muscle activity, and balance reactions to aid a return to full function.

Active individuals who plan to engage in activities or sports that do not involve sudden stops or turns, such as cycling and swimming, and those who do not have knee instability that affects their daily lives may find ACL rehabilitation enables them a full return to activity without the need for surgery.

Anyone who experiences persistent instability in the knee despite a period of rehabilitation may be advised to consider surgical reconstruction of the ACL.

Surgical Management

ACL surgery typically involves reconstructing the ligament using a graft, rather than repairing the torn ACL. The grafts used may be from tissue in the person's own body, or from donated tissue, and can come from 3 or 4 different tissue sites. These options will be discussed with you by your surgeon.

Within a day or two of surgery, post-operative physiotherapy rehabilitation will begin. Rehabilitation after surgery is essential to maximise long term success of the surgery, regain muscle strength, restore full range of motion, and establish a full return of balance and balance reactions.

It can take up to 6 months to regain strength and movement in the operated knee that is equal to the uninjured knee, and a return to contact sports is generally not recommended until 12 months after surgery.