

Anterior Cruciate Ligament Reconstruction

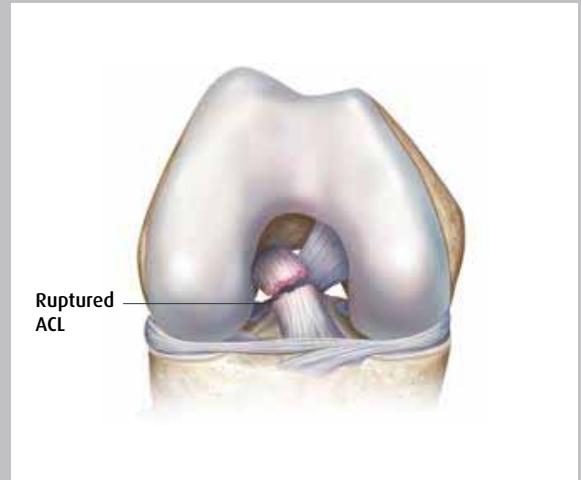
The Anterior Cruciate Ligament

The knee is the most complex joint within the body. It depends on 4 major ligaments for stability. There are two ligaments either side of the knee: the medial collateral ligament and the lateral collateral ligament, and two crossed ligaments within the knee the posterior cruciate ligament and the anterior cruciate ligament (ACL). The ACL runs through the centre of the knee from the back of the femur (thigh bone) to the front of the tibia (shin bone). The function of the ACL is in stabilising the knee especially in sidestepping, or pivoting. When the ACL is ruptured or torn the tibia moves abnormally such that the knee buckles or gives way.

Mechanism of Injury

The ACL is typically injured in a non-contact twisting movement involving rapid deceleration on the leg or a sudden changing of direction such as side stepping, or pivoting. The ACL can also be injured by a direct blow to the knee or hyperextension.

Injuries are associated with a popping sensation followed by the development of immediate swelling in the knee due to bleeding from the torn ligament. Depending on the exact mechanism of injury it is also possible to damage the cartilage within the knee or the other ligaments around the knee.



Rationale for treatment

Following a tear of the ACL your knee may have a tendency to give way when changing direction or pivoting. This can result in damage to the articular cartilage or the menisci of your knee. Surgical reconstruction is therefore indicated in individuals who wish to return to pivoting type sports and in individuals who have problems with giving way during daily activities.

Aims of surgery

The aim of surgery is to prevent the repeated episodes of giving way of the knee. Published results indicate that approximately 90% of patients consider their knee to function normally or nearly normally after surgery. Full contact sport is allowed after rehabilitation but not everyone gets back to their previous level of sport. Other problems such as joint surface damage or meniscal tears may co-exist which can interfere with the joints ability to tolerate the high loads associated with sport. Wear and tear arthritis that is associated with ligament injury is not necessarily prevented by the reconstruction.

The operation

Reconstruction of the ACL usually involves replacing it with a hamstring graft. Surgery is performed under general anaesthesia. The hamstring tendons are harvested through a small incision on the tibia and then prepared into a new ligament. The inside of the knee is prepared using an arthroscopic (Key-hole) technique. Tunnels are made in the tibia and femur and the old ACL is removed to allow space for the new graft.

The new ligament is secured within the tunnels using screws. These usually do not need to be removed. If there is a tear of the meniscus (cartilage) then this is excised or repaired during the procedure.



Graft pulled into tunnels

What is involved for you as a patient?

Before the operation

Rehabilitation begins pre operatively to ensure that you and your knee are ready for the operation.

- Ensure full range of movement, especially being able to fully straighten the knee.
- Exercises to maintain quadriceps and hamstring muscle strength.

Operative Day

- Healthy patients are admitted on the day of surgery.
- You will be assessed by your surgeon and consented for surgery. This provides an opportunity for any further questions that you may have.

Post operative instructions.

Your surgeon will visit you postoperatively and explain your surgery.

- Keep the wound dry for 7-10 days.
- Use of ice packs is recommended 10-15 mins x3 daily to relieve swelling.
- Analgesic (pain relieving) medication should be used as prescribed, particularly in the initial post-operative period.
- Dissolvable sutures, deep to the skin, require no further attention. Occasionally nylon skin stitches may be required. These require removal 7-10 days post insertion at your local GP surgery. Paper stitches and adhesive dressings should be left in situ until they detach naturally.

Return to work

- Desk work at 7-10 days.
- Light manual work at approximately 6 weeks
- Heavy manual work (ladder work etc) at 3 – 4 months.
- Driving is permitted when you are able to walk comfortably and you are in safe control of your vehicle. This is typically at 3-4 weeks.

Rehabilitation

Physiotherapy is commenced immediately post-operatively. There are five main rehabilitation phases

- Phase 1: Initial Post Op Phase (Range of movement exercises) - first 2 weeks
 - Phase 2: Proprioception Phase - weeks 3 - 6
 - Phase 3: Strength Phase - Weeks 6 - 12
 - Phase 4: Early Sport Training (non-contact) - 6 months
 - Phase 5: Return to Sport - 9 months.
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The decision to proceed to surgery is made when the advantages of surgery outweigh the potential disadvantages.

Local Complications

Graft failure	Re-rupture of the graft occurs in 5% of patients.
Continued instability	Failure to provide enough stability in the knee to allow return to full sporting activities. Either the ligament does not heal in a tight enough position to allow full confidence in the leg or there is associated damage inside the knee that prevents return to full function.
Infection	Surgery is carried out under strict germ free conditions in an operating theatre. Despite this infection occurs in 1 in 300 people. This may require further surgery and prolonged antibiotic treatment.
Clots in the leg (Deep venous thrombosis)	Although rare, this complication can be fatal if a clot travels to the lungs (Pulmonary embolism). Previous or family history of clots should be brought to the attention of the surgeon prior to your operation.
Numbness	Numbness at the side of the incisions can occur. This may be temporary or permanent.
Stiffness of the knee	Stiffening of the knee due to swelling causing difficulty in walking and pain on movement. Rarely some stiffness may be permanent.
Damage to structures around the knee	This is an extremely rare complication that can require further surgery.
Pain	The knee will be sore after the operation. Pain will improve with time. Rarely, pain will be a chronic problem and may be due to other complications listed above.

Medical Complications

Anaesthetic risks	Allergic reactions to medications and damage to nerves from nerve blocks can occur.
General complications	Following or during surgery there is a risk of heart attack, stroke, kidney failure and pneumonia. These risks are increased if you have current medical problems and can be potentially fatal.

You must not proceed to surgery until you are confident that you understand this procedure, particularly the complications.