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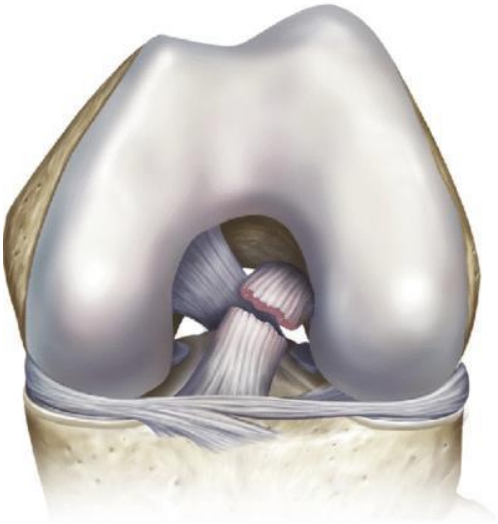
Anterior Cruciate Ligament (ACL) Injury, Surgery and Rehabilitation



Patient Information Leaflet

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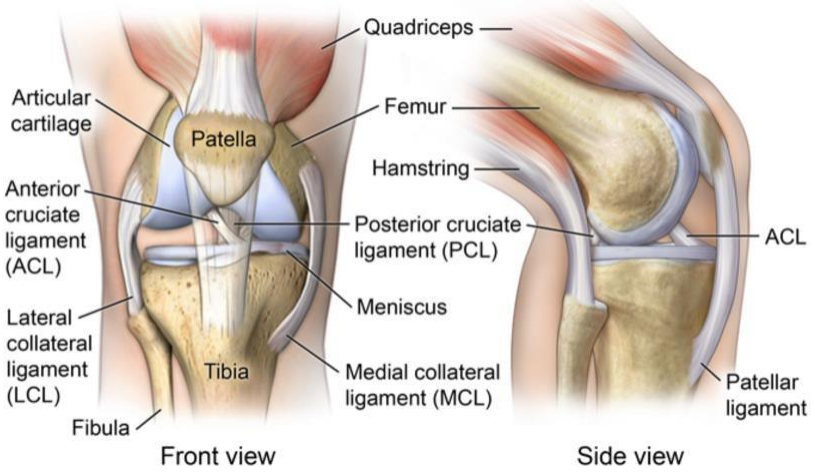
What is an ACL (anterior cruciate ligament)?

The ACL is one of two ligaments within the knee joint that connects the femur (thigh bone) and tibia (shin bone) preventing excess forward and backward, and rotational movement of the knee. After an ACL injury, some people feel like the knee gives way. If this is an ongoing problem, there is a potential for more damage to the knee over time.

Once torn the ACL does not normally heal so you are left with a knee that is potentially more unstable than before.



How have I injured it?

An ACL injury most commonly occurs through a twisting injury of the knee, with or without contact with another person. You may also have injured another structure within the knee at the same time, such as the meniscus (shock absorber cartilage) or collateral ligament (side ligament).

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What happens now?

You will have been assessed by the orthopaedic team in the acute knee clinic (specialist knee surgeon and physiotherapist). If an ACL injury is thought to be likely then an MRI scan will be organised in most cases. This allows confirmation of the injury, and assessment of any other injuries. This will not delay treatment as the priority is to regain motion and strength in the leg, through physiotherapy treatment.
After the MRI you will be reviewed by our orthopaedic team to discuss treatment options moving forwards.

Do I need surgery?

Following assessment by the team young athletic patients often decide to opt for early surgery. If you have associated injuries that need surgery such as a meniscal tear it may be beneficial to reconstruct the ACL at the same time.

In less active and older patients it is worth trying physiotherapy first to see if muscle strengthening can compensate for the missing ligament
Whatever decision is made regarding surgery rehabilitation is a key step and a course of physiotherapy should be initiated immediately.
After the injury has settled and you have had physiotherapy if you experience giving way of the knee joint then surgery to reconstruct the missing ligament will be needed.

The risk of not having surgery is that your knee could give way further injuring your knee and risking damage to the meniscus. It has been shown that the risk of meniscal tears in patients who have ACL injuries is about 10% per year.

Can the damage be repaired?

It is very unusual to attempt to repair a damaged ACL as it does not reliably heal. The normal surgery is to reconstruct the ACL. This means to use another structure as a substitute for the ACL, to reproduce its function.

This normally involves using either: two of your own hamstring tendons (from muscles from the back of the thigh), or part of your patella tendon (between the kneecap and the tibia (shinbone) just in front of your knee).

Which of these we choose will be discussed with you based on your needs.

Will I notice where this tendon has come from?

Aside from the scar, you should not notice any functional difference. Only elite level sprinters notice any loss of power from use of a tendon graft. You can expect some pain from the site the tendon is taken from, but this should improve with time. Some patients who have a patella tendon graft do complain of pain on kneeling. If your job involves a lot of kneeling for example a joiner then a different graft may be you best option.

How long will the operation take?

An ACL reconstruction takes approximately an hour, but this can vary depending on the need for any additional procedures. Having an anaesthetic beforehand, and recovery afterwards, means it will normally be roughly 3 hours from leaving the ward to returning to the ward after surgery.

What are the risks of surgery?

All surgery has some element of risk, the main risks in ACL reconstruction are:

- Bleeding – usually minimal as a tourniquet is routinely used on the thigh during surgery, it would be very unusual to have any significant blood loss
- Infection – all surgery carries risk of infection, the risk of an infection

in the knee after ACL reconstruction is less than 1 in 400

- Nerve injury – numbness around scars is relatively common, but damage to larger nerves supplying the muscles of the leg is very uncommon
- Swelling – very common immediately after surgery, this should he expected to settle in the first few weeks after the operation but can recur due to excess activity/re-rupture
- Stiffness – the knee will initially feel stiff
  and this would be expected to improve to full movement at around 6-12 weeks
- Deep vein thrombosis (blood clots) – being less mobile and having an operation on the leg increases risk for DVT, and we will give you medication to thin the blood for a short period after surgery if felt to be required by your surgeon
- Re-rupture – a return to activity before being ready, or another big injury to the knee can cause re-rupture. If this happens your surgeon will discuss the options, but further surgery may be required

What happens after the operation?

Pain/swelling
You will have discomfort after the operation but the painkillers you are given to go home with will make the pain manageable. The Pain improves gradually over time and by 3 months should be very mild.

The knee can be swollen from the surgery itself, or in response to activity after surgery, this should settle and will be monitored by the surgeon and physiotherapist. If it doesn't settle you may need more investigation, or to slow down with rehab.

The following can help to reduce swelling:

- Regular rest: do not walk or stand for long periods, short episodes of activity are better
- Regular icing for 10-15 minutes every 2-3 hours (use an ice pack wrapped in a damp towel to prevent an ice burn; do not apply ice packs to numb areas of skin or directly onto wounds)

- Elevate the leg above your chest when resting (**do not** rest a pillow just under the knee as this can prevent full straightening and slow recovery)

Discharge from hospital

The aim is for every patient to go home on the same day of surgery. The physiotherapist will ensure you are safe enough, using crutches, to manage at home.

If you live alone it is advised that someone stay with you for the first 24 hours.

Occasionally, people need to stay overnight after surgery, depending on how you are feeling, how uncomfortable you are, how you are able to manage with crutches, or if the surgery has happened later in the day.

Follow up as organised for you as follows:

- Physiotherapy outpatients within 10 days
- Wound check with GP practice at 14 days
- Orthopaedic follow up at 2 months

Brace

Some patients are placed in a brace after ACL reconstruction. This is normally to aid in pain relief/mobility, or if we have also performed another procedure on the knee (such as for another ligament injury, or meniscus tear). If you are in a brace, there will be specific instructions for how much movement is allowed, how much weight you can put on the leg, and how long it needs to be on for. Your surgeon will instruct you.

Walking

Unless there is a specific reason not to, as mentioned above, you will be allowed to walk with as much weight as you are comfortable with on your operated leg, using crutches to assist you to begin. Your physiotherapist will advise when it is appropriate to reduce the use of your crutches at your outpatient appointment but all patients will need them or the first 2 weeks.

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Stitches

If you have any stitches in your wounds, these are normally the kind that do not need removal. You will normally have steristrips and sticky dressings over the wounds, and do not need to change these yourself unless instructed.

Driving

For most patients, you should not return to driving for 6 weeks. This may be reduced if you drive an automatic car, and your left knee has been operated on, providing you are able to demonstrate good control of knee movement. You must be able to safely control the car and perform an emergency stop. You must notify your insurance company about your surgery.

Working

Return to work depends on the nature of your job. Below is an approximate guide:

- Office work: 3 to 6 weeks
- Restricted duties (manual work): 6 to 12 weeks
- Manual work: 12 weeks to 6 months
- Forces: 9 to 12 months

Return to Sport

Time to return to sport can vary. No jogging until at least 3 months after surgery, and no return to sport training for a minimum of 6 months. However, the following apply:

- If rehab is prolonged at any stage this can be longer
- Contact sports should not commence before minimum 9 months
- Patients under 18 should not return before 12 months

The average time to return to sport is around 12 months.

What if I don't have an operation?

If the decision is to manage without surgery, you will be guided through rehabilitation with your physiotherapist with the same aims as if you did have an operation. It is sometimes possible to progress more quickly through rehab if you have not had surgery. If at any point you are not progressing as expected your physiotherapist will discuss arranging a review with your orthopaedic team.

What is the rehab process?

This can vary depending upon the graft used, any additional procedures required, and your own needs/requirements. The physiotherapists will guide you through the rehab, progressing through stages depending on time and your own specific needs. An average length of treatment with the physio team is 9 months but it can take 12-18 months to achieve the most out of your knee

Rehabilitation is an essential part of the process and without effective rehab, surgery will not be worthwhile. Motivation and commitment to the rehab process have a direct impact on outcome following injury/surgery and ability to return to normal function or sports.

Some simple exercises are described below to begin with prior to your first appointment with the physiotherapists after surgery. Most exercises in the early days are likely to be uncomfortable, however if these are particularly painful, stop and discuss with your physiotherapist.

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Post-operative exercises

1. **Active/assisted knee flexion:**

   Lay on your back having placed a sliding plastic bag or similar under your heel to reduce friction.

   

   Bend and straighten your hip and knee by sliding your foot up and down
   Repeat 10 times

2. **Static quadriceps**

   Lie on your back or sit with your legs straight in front of you.
   Tense your thigh muscle by squashing the back of your knee into the surface under your knee.

   Hold for 5 seconds. Repeat 10 times

3. **Straight leg raise**

   Lying on your back with one leg straight and the other leg bent.
   Exercise your straight leg by pulling the toes up, straightening the knee and lifting the leg 20cm off the floor/bed.

   

   Hold for 5 seconds and slowly relax.
   Repeat 10 times.
   (Can be varied by having the foot pointing upwards, inwards or outwards)

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4. Knee straightening

Place your ankle on a thick rolled up towel, so that your knee is as straight as possible. Now tense your thigh muscle by pushing the bac k of the knee down towards the bed.

Hold for 5 seconds. Repeat 10 times.

5. Patella mobilisation

Sit with your leg out straight in front of you. Hold your knee cap between your fingers and gently move the knee cap up, down and side to side.

Hold for 5 seconds each. Repeat 10 times.

6. Hamstring stretch

Sit on a chair with one leg straight in front of you.

Place your hands on your thigh just above the knee cap. Lean forwards keeping your back straight. Straighten your knee assisting the stretch with your hands
Hold for 3 seconds. Repeat 10 times

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When can I progress through rehab?

A rough guide for progression is below, but the physiotherapists will guide you through the details and you should not try to do more than instructed before being given the go ahead by surgeon/physiotherapist.

Phase 1 (aim to achieve at 2 weeks)

- Minimal/no swelling
- Walking with full weight through operated leg
- Ability to activate thigh muscles
- Good movement

Phase 2 (aim to achieve at 6 weeks)

- Maintain good movement
- No swelling with activity
- Walking without aids
- Progressing without worsening pain
- Able to squat with good muscle control

Phase 3 (aim to achieve at 12 weeks)

- Squat on one leg with good muscle control
- Stand on one leg with good balance
- Good muscle control on stair climbing

Phase 4 (aim to achieve at 6 -12 months)

- Establish a long term programme for maintenance of muscular control
- Begin sport specific training
- Achieve criteria for discharge/return to sport training