



ACL RECONSTRUCTION PATIENT INFORMATION

This leaflet is designed to explain the treatment and recovery process following your ACL RECONSTRUCTION.

Some of the terms may be unknown to you and the procedures complex. Please do not hesitate to talk to your doctor or physiotherapist and ask them any questions.

Most injuries to the ACL happen when playing sport such as football, squash, tennis or skiing. It can also occur after all types of other injuries including a fall or road traffic accident. The most common injury to the ACL that needs surgery is a full tear to the ligament.

Why you might need an operation

A ligament is a strip of strong tissue that holds bones together.

In the knee, the anterior cruciate ligament (ACL) is one of four important ligaments connecting the bones of the knee joint. It holds the bottom of the thigh bone (femur) to the top of the shin bone (tibia) so that it keeps the joint stable.

In addition to its supporting function, the ACL provides important feedback that directly affects sense of joint position, and stabilisation of the joint. This is known as **proprioception**.

A tear can be partial or complete. Sometimes other ligaments, along with the menisci and articular cartilage in the knee joint, are injured at the same time. The meniscal cartilage is the shock absorber and the articular cartilage is a smooth protective layer that allows the bones to glide smoothly over each other.

The ACL does not normally heal by itself and as such may lead to recurrent episodes of instability in your knee (commonly felt like your knee is going to give or actually giving way).

Treatment Options

If you have a tear to your anterior cruciate ligament, you can be treated with surgery and also by non-surgical means.

Many patients perform very well with simply physiotherapy. This is aimed at strengthening the muscles around your knee, and many people are able to return to the level of function they had prior to the injury.

Sometimes patients opt to use a brace to stabilise their knee so they can return to activities such as skiing.

However some people will need surgery due to their knee being unstable. Surgery is aimed at returning the patient to full activity without the knee giving way. It is also thought that performing the operation decreases the risk of the patient developing arthritis of the knee earlier than normal, although there is some controversy regarding this.

Deciding to have surgery –

The decision to have knee surgery will depend on the extent of damage to your anterior cruciate ligament (ACL) and whether it affects your quality of life.

If your knee doesn't feel unstable and you don't have an active lifestyle, you may decide not to have ACL surgery.

However, you should be aware that delaying surgery could result in further damage to your knee.

One study of people with ACL tears found that their risk of damaging the injured knee increased by 1% for every month between the injury occurring and surgery.

Things to consider - When deciding whether to have ACL surgery, the following factors should be taken into consideration:

Your age – older people who aren't very active may be less likely to need surgery
Your lifestyle – for example, whether you'll be able to follow the rehabilitation programme after having surgery. **How often you play sports** – you may need to have surgery if you play sports regularly. **Your occupation** – for example, whether you do any form of manual labour

How unstable your knee is – if your knee is very unstable, you're at increased risk of doing further damage if you don't have surgery

Whether you have any other injuries – for example, your menisci (small discs of cartilage that act as shock absorbers) may also be torn and may heal better when repaired at the same time as ACL reconstruction

What does the operation involve

If surgery is required.

We reconstruct the ligament by replacing it with a graft taken from tissues around the knee.

Different tissues can be used and the two most common types are:

- hamstring tendons. These tendons run from the back of the knee on the inner side, all the way up the thigh and can usually be felt as firm cords.
- strip of the patellar tendon, this tendon runs from the bottom of the kneecap (the patella) to the top of the shin bone (the tibia) at the front of the knee.

They are equally strong but the hamstring graft is associated with fewer complications. Current research data suggests that results are similar for the different grafts. Rehabilitation is the same for each type of procedure and is essential in regaining both the strength and proprioception required for a near normal knee.

A device called an endobutton and metal or plastic screws are used to fix the graft. These fixation devices do not need to be removed. Although sometimes extra fixation staples may be required and these sometimes need to be removed.

The operation has a high success rate with 85 to 90% of patients after five years considering their knee to be functioning normally or near normally.

The surgery is designed to allow individuals to return to full contact sports activities **but** unfortunately this can be unpredictable. It is important to emphasise that the new ligament is not a “normal” ligament.

Recreating stability with the graft is only one aspect of attempting to improve knee function after injury. Other problems such as joint surface damage or meniscal tears may co-exist, which can interfere with the joint's ability to tolerate the use associated with sport and other arduous activities. Wear and tear arthritis is associated with ligament injury and is not necessarily prevented by reconstruction surgery.

Problems can occur. Some are minor but some may need another operation. Please ensure you understand these before surgery.

Complications include:

- Failure to provide enough stability in the knee to allow return to full sporting activities.
- Altered sensation from where the graft was taken.
- Complications of deep vein thrombosis (clot formation in your legs and lungs) which may lead to further admission to hospital and even death in rare occasions (1 in a 1000).
- Wound Infection – We take great precautions to minimise the risk of infection, before, during and after surgery, but a small proportion of patients (around 2%) develop a significant wound infection. This may require further surgery, but may also lead to failure of the reconstruction.
- Knee Pain – Patients sometimes experience different types of knee pain which can be common.
- Knee Stiffness – Which may lead to further surgery
- As with any operation, there is a very small risk of complications related to the general anaesthetic including death.

After arthroscopic surgery, see a doctor urgently if you:

- Have severe and progressively worsening pain or swelling in the knee, particularly if the joint is also hot, tender or red. (This may indicate bleeding or infection in the joint).
- Develop a high temperature.
- See fluid, pus or excessive blood coming from the site of the incision

Rehabilitation guidelines

Rehabilitation is vital in helping you regain use of your knee. The overall rehabilitation plan

emphasises education and exercises, early knee extension, unrestricted weight bearing

and balance exercises. **Please note that after Surgery Patients will not usually be allowed to go back to unrestricted sport for around 9 months.**

Rehabilitation before the operation

Rehabilitation before surgery ensures that you and your knee are ready for the operation.

- Ensure full range of movement and maintain quadriceps/hamstring muscle strength before surgery.
- Usually seen in the physiotherapy department for education and knee assessment.
- Admitted on day of surgery for general fitness examination for general anaesthetic.
- Assessed and examined on the ward by surgeon – opportunity to ask questions.
- Complete outcome measure questionnaires.

On the day of the operation

You will be assessed for general fitness for general anaesthetic and examined by your surgeon.

After the operation, you will be seen by a physiotherapist and instructed in how to use elbow crutches and details of the follow exercises.

This is what will happen on the day you have surgery.

- Light dressing: Mepore & gauze pad and light crepe bandage.
- You may have a brace/splint on your knee after the operation – depending on factors linked to the surgery.
- Pain killers: Intra-operative local anaesthetic into wounds and knee joint. Regular painkillers encouraged.
- You will be seen by a physiotherapy team member and instructed in use of crutches and details of the following exercises.

After the operation - exercises

Start the following exercises while lying in bed with the knee straight

- Actively tighten the thigh muscles
- Actively tighten the gluteal (buttock) muscles
- Aim to stand out of bed on evening of operation, with supervision and using crutches.

After the operation - day one

- Check x-ray taken (sometimes taken in theatre)
- Reduce dressing
- Mobilise weight bearing as tolerated using crutches

- Avoid active exercises with the leg unsupported (open chain exercises) from 30 degrees flexion to full extension for the first six weeks.
- Exercise routine as instructed by the physiotherapist to be performed regularly
- Straightening exercise: "pillow hangs": resting ankle on a pillow and pushing leg straight to match the normal side to prevent build up of scar tissue around the graft **(avoid forced hyperextension)**.
- Bending exercises: active/passive over the edge of the bed using the other leg for support and small range swinging action if possible
- Heel slides lying on the bed
- Patella mobilisations: Gently move the knee cap up and down and from side to side to prevent tightening from scar tissue
- Leg lift exercises in side lying to encourage core control.
- Discharge from hospital on day one if progressing well.

After going home

Follow these instructions:

- Keep wound dry until healed.
- Sutures/clips out at 10 days (out patients department)
- Review in clinic after two weeks.
- Outpatient physiotherapy arranged
- Advice to return to work at two to six weeks.
- Remember to expect bruising down shin and lower leg

Discharge goals

- Range of movement from zero degrees (NOT Hyperextension) to nearly 90 degrees of knee bending
- Independent mobility on crutches
- Discomfort controlled by pain killer tablets

Outpatient exercise programme

Rehabilitation after leaving hospital is divided into different phases. These phases and the rehabilitation goals are presented below. There are many different exercises available to achieve the goals and these are tailored to each individual by the physiotherapy team. Various examples are outlined in each section.

Please note some aspects of your rehab, may not follow the below protocols exactly.

Aims – Weeks 0 to six

The aim of this phase is to allow the knee to recover from surgery. Allow the bruising and swelling to settle and regain confidence with walking, depending less on the crutches. At the end of six weeks we aim for a range of movement (0 degrees to at least 90 degrees knee flexion) (**avoid forced hyperextension**) and to start proprioceptive exercises while allowing for swelling of the knee to settle.

- Control proprioceptive exercises and develop light endurance and strength training.
- Develop core stability to provide the framework to progress to full active function.
- Good muscle control in range.

Exercises:

Commence the exercise programme after being assessed and instructed by your outpatient physiotherapist.

- Stretching: Weight bearing calf stretches and hamstring stretches.
- Static hamstring/quadricepsholds: Lying/sitting knee at 60-90 degrees and push the heel into the bed.
- Lateral leg raises in side lying or squeeze a pillow between knees.
- Active knee bending lying on stomach.
- Walking practice, in front of mirror if available.
- Standing toe raises, double and single.

Six week goals –

- ROM at least 0-90 degrees flexion
- Minimal Pain and Swelling
- Concentric and Eccentric Muscle Control in Available Range

If the above goals are achieved

Aims – weeks six to 12

Regain quadriceps/hamstrings tone and definition.

Aim for full range of motion **including hyperextension** by nine to 12 weeks.

Normal full weight-bearing gait pattern

Progress is monitored and controlled by the physiotherapist according to the speed of recovery strength and control.

- Passive knee straightening with the back of the leg pressed against the bed and ice on knee for 10-15 minutes at the end of each exercise session.
- Hip extension by bridging. Also lying on front lifting leg straight and lifting the leg while flexed 90 degrees.
- Seated raises: Rise off a seat using hands for support until knee is bent to 60 degrees, then lower.
- Static bike to full movement with minimal resistance.
- Physio-ball sitting wall balance. Progress as required
- Gait re-education walking on toes/heels etc.
- Eyes closed balance on single leg work up to 90 seconds.
- Scar mobilisation if wound is healed.
- Start hydrotherapy as available.

Weeks six to 12.

Example exercises

- Continue with exercises as in weeks 0 to six.
- Step exercise progressed to forward and backward motion including eccentric control.
- Step machine working at a steady level.
- Graft re education drills; walking fast/slow, side, front and backward.

Progress to change in direction (**no twisting or pivoting**) and walking on a rope laid on the floor.

- Slow walking backwards on the treadmill. Start early jog training as control allows (on trampette or treadmill)

12 weeks review goals

- No swelling
- Full range of movement
- Confident feeling of stability
- Full muscle control

If the above goals are achieved

Aims – 12 weeks to six months

Running and cutting manoeuvres are introduced during this stage, building up to light sport training. This involves a progressive programme of slow and moderate speed-strength training and agility drills. Manual work should be possible within the restraints of the occupation.

Weeks 12 to six months

- Jog/run on the treadmill or on the pavement.
- Normal skipping introduced.
- Lunges.
- Physio ball squat work increasing vastus medialis and biceps femoris control.
- Hopping both single leg action, also side to side as tolerated.
- Mini trampette hopping.
- Jogging including gradual changes of direction building to grid type turns.
- Agility training: shuttle runs, ball dribbling and other sport drills promoted.
- Specific sports training aimed at the individual.
- At the six month stage ready for discharge from rehab and return to non contact sport.

Six month review goals

- Functional and strength tests 85% of normal side.
- Return to **non-contact sport/training**.
- Full pain-free ROM not affected after exercise
- No swelling ● Good proprioception ● Normal running gait

If the above goals are achieved

Months six to 12

Progress to sport training and develop strength/endurance level to establish a base for return to full sporting activity.

Typical times are as follows:

- Six to nine months – return to sport specific training.
- Nine to 12 months – return to unlimited contact sports.
- The time to regain pre-injury level of skill and performance is very variable but can take three to four months of training and playing.
- Guidance from the physiotherapist in regaining confidence in a sports environment by modifying training and specific drills can help with quicker return to contact or full level sport competition.

Outcome assessment

Finally, as part of our aim of monitoring the results of this surgery and to enable us to improve our performance, outcome measures will be recorded at the 12 month and at two years' review (either directly or via questionnaires sent by post).

With your help we also aim to review results at five and 10 years (via questionnaires sent by post).

FOR FURTHER INFORMATION PLEASE CONTACT YOUR SURGEON

- Please ring 0203 – 6332288 or email admin@theolympiaclinic.com

ALTERNATIVELY THE BELOW ARE USEFUL LINKS TO FIND OUT MORE

<http://www.nhs.uk/conditions/Pages/hub.aspx>

<http://www.mayoclinic.org/tests-procedures/acl-reconstruction/basics/definition/prc-20012625>

<http://orthoinfo.aaos.org/topic.cfm?topic=A00549>