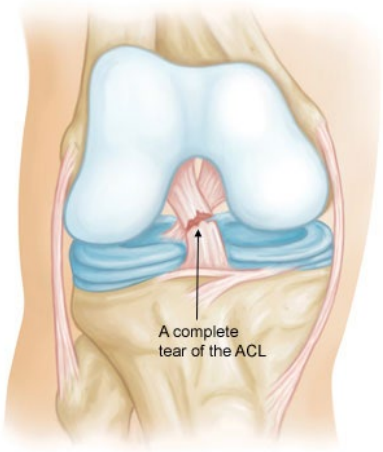
# Anterior Cruiate Ligament reconstruction

## What is the Anterior Cruciate Ligament (ACL)?

The knee is a complex joint which has the ability to bend and to twist. Knee ligaments help to control this movement by connecting the femur (thigh bone) and tibia (shin bone) and bracing the knee against abnormal movements. The Anterior Cruciate Ligament (ACL) connects the front of the shin bone to the back of the thigh bone so acts to control forward and backward movement of the knee.  It is also full of nerves which sense the movement of the joint and act as a signalling mechanism to the brain to help with balance and control of the joint and to prevent injury.

The ACL is typically injured during sharp changes in movement direction (especially when decelerating) or if the knee is forced backwards. It is therefore a common injury in sporting activities such as football or skiing. An audible “crack” or “pop”, pain and giving way of the knee, followed by immediate swelling of the knee (due to bleeding in the joint) are common symptoms of an ACL tear.




## Why would I need this procedure?  What are the alternatives?

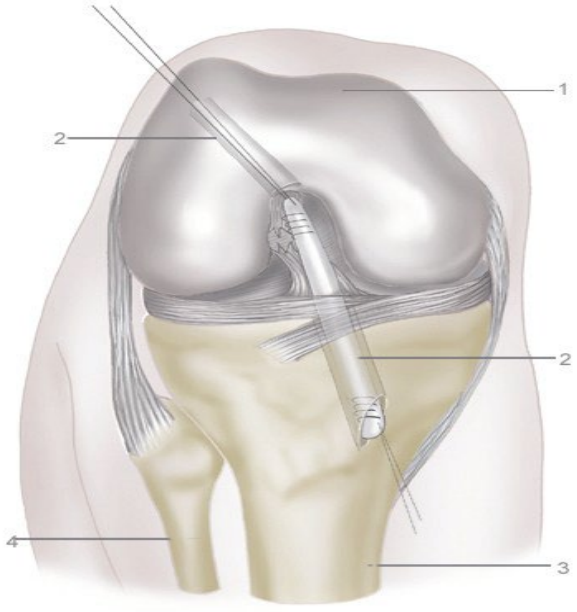
The ligament is unable to heal naturally once it has ruptured. Some people can manage to continue a normal life without the need for a ligament reconstruction. The ability to function without an intact ACL depends on many factors such as muscle strength and balance, as well as the level of activity that a person takes part in. Some people find that their knee is too painful and unstable to continue their normal life without having an ACL reconstruction. The decision to have knee surgery will depend on the extent of damage to your ACL and whether it's affecting your quality of life.

If your knee feels unstable and you are a highly active person engaged in jumping, cutting and pivoting sports then an ACL reconstruction is recommended due to the risk of subsequent meniscus and cartilage injury. 90% of people return to sport after surgery, 24% at their pre-injury level.

If your knee feel stable and you are an active person engaged in straight plane activities (running, cycling swimming) then a structured program of rehabilitation without surgery is an acceptable option.

## How is the Anterior Cruciate Ligament Reconstructed?

Anterior Cruciate Ligament reconstruction is performed under General Anaesthetic and usually as a Day case. You will arrive, have your operation and leave for home on the same day. You will not be able to drive home. It will take 60 to 90 minutes in the operating theatre. The skin around your knee is cleaned and sterilised. The surgeon will carefully examine the inside of your knee to check that your ACL is torn and look for damage to other parts of your knee. If there is other damage, your surgeon might repair it during the surgery or it may be treated after your operation. There are two different procedures for ACL reconstruction performed at East Sussex Healthcare NHS Trust; your Orthopaedic Surgeon will explain which one they will do -




**Repair of the Anterior Cruciate Ligament**

1 – Articulating surface of femur

2 - Graft pulled through channels in bone

3 – Tibia

4 - Fibula

## Hamstring Graft Procedure

In this procedure your surgeon will reconstruct your ligament by using four strands of your thigh muscle tendons (semitendinosis and gracilis). These strands are combined to make the graft suitably strong. A number of small incisions are made around your knee and an arthroscope (a thin, flexible camera) is used to see inside your knee. A tunnel is drilled from the shin bone to the thigh bone following the original path of the ACL. The graft is then threaded though and held in place with screws or other fixation device. The graft will then act as the ACL. The incisions are then closed with removable stitches or Steristrips and the knee padded and bandaged.

## Bone - Patella Tendon – Bone Graft Procedure

In this procedure your surgeon will reconstruct the ligament by taking a piece of tendon (a graft) from your knee cap tendon (a Patella Tendon Graft). An incision is made in the front of your knee to enable the surgeon to insert the graft. A tunnel is drilled from the shin bone to the thigh bone following the original path of the ACL. The graft is then threaded through and held in place with screws or other fixation device. The graft will then act as your ACL. The incisions are then closed with removable stitches or Steristrips and the knee padded and bandaged.

## What are the potential risks and side effects?

ACL surgery fully restores the functioning of the knee in over 80% of cases. However, your knee may not be exactly like it was before the injury, and you may still have some pain and swelling in your knee. This may be due to secondary injuries in the knee sustained at the same

time as the ACL injury, or afterwards due to the abnormal movement pattern. As with all types of surgery, there are some small risks associated with knee surgery including infection, blood clot, knee pain, weakness and stiffness. There is a 3% risk of re-rupture with some needing revision surgery.

For more information about the risks of ACL surgery see the NHS Choices website: www.nhs.uk/Conditions/repairtotendon/Pages/Introduction.aspx

## What should I do before the operation?

Latest research has shown that patients who start exercises on their knee before their surgery tend to have better movement and strength after the procedure and make a quicker recovery . Please discuss with your consultant as to when will be the best time to begin Physiotherapy.

**As guided by your consultant it is important that you attend Physiotherapy so that you can start your exercises and ensure you are prepared for the surgery as soon as possible.**

It is important to prepare for any operation to reduce the risks of complications. There is information about how to do this at: https://www.cpoc.org.uk/patients.

## What should I do when I go home?

**Dressings** - You can remove the outer bandage and cotton wool yourself at home 48 hours after the surgery. The nurses will tell you how to look after your wound and arrange any further appointments you may need.

**Pain -** The knee may ache and swell following surgery. As a local anaesthetic has been put into your knee you may find you only start to feel pain in the evening after you leave hospital. To help reduce discomfort you may need to take regular painkillers, following the instructions on the packet. Do not exceed the stated dose. If you feel you need more help with controlling pain, you can discuss this with your General Practitioner.

**Swelling -** It is normal to get some swelling in your knee after the surgery. To reduce swelling in your leg you should rest with the leg elevated at regular intervals throughout the day. Use pillows or cushions to ensure your foot is above the level of your knee and your knee is above the level of your hip. Ice packs such as a bag of frozen peas wrapped in a tea towel will help to reduce swelling and can be applied, if needed, every hour for 10-15 minutes. Take care to move the ice pack if you feel excessive stinging to avoid ice burns.

**What to look out for after your surgery -** It is normal to experience some pain and swelling in the first few weeks after surgery, however if you experience any of the following, we would advise you to contact the ward for further advice:

- Oozing (fluid or pus) from the wound
- Sustained increased temperature.
- Increasing calf swelling and pain.
- Abnormal shortness of breath.
- Increasing knee pain that is unrelieved by medication or rest.

If you experience any other difficulties following your discharge not related to your operation please contact your General Practitioner.

**Mobility -** You will be provided with crutches to walk with after the surgery. You should continue to use your crutches until your Physiotherapist advises that you are safe and ready to progress to walking unaided. See the section “Walking with Crutches” later in this leaflet to remind you how to use the crutches.

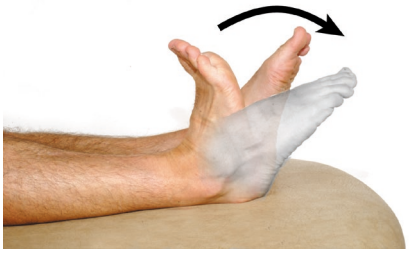
**Physiotherapy -** A successful recovery from your surgery depends not only on your surgeon, but on the work that you put in to your rehabilitation. The end result depends to a great extent on your discipline, motivation and perseverance in performing the exercise programme given to you by your physiotherapist. With your hard work you have an excellent chance to regain the strength, stability and confidence in your knee that you had before your injury.

## Basic Exercises

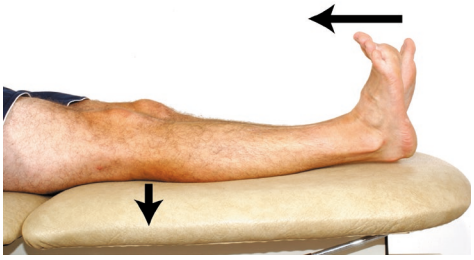
The following are the basic exercises that you will need to do before and after your surgery. Your physiotherapist will give you additional exercises to do after the surgery depending on your individual situation.

Start the following exercises as soon as you return to the ward after your surgery.

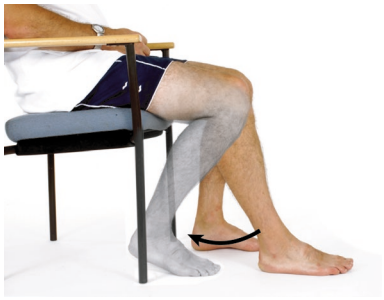
**Circulation exercise -** Keep your legs straight - pull your toes and feet up towards you, then push them down again. Repeat 10 times every hour during your hospital stay.



**Thigh Muscle (Quadriceps) Exercise 1 -** It is really important that you regain a fully straight knee after the surgery. Pull your foot up towards you and tighten your thigh muscle to push the back of your knee firmly into the bed. Hold for 5 seconds then relax. Repeat 10 times. Gradually build up to doing 20 repetitions, 4 times per day.



**Knee Flexion (Bend) Exercise -** Sit in a high chair or the edge of your bed. Bend your knee by taking your heel underneath you - if this is painful you can use your un-operated leg to gently help to slide your operated leg backwards. Be sure to sit evenly and try to bend the knee further each time. Repeat 10 times.

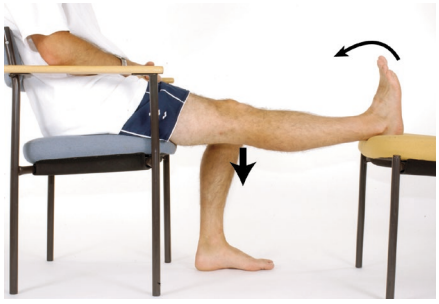


As soon as you are up and about safely you can start the following exercises.

**Shallow squat - with support from bed -** Whilst standing facing a work surface or table, lean forwards with your hands on the surface in front of you to take some of your body weight through your arms. Ensure your weight is distributed evenly on both of your legs with your arms supporting. When you can achieve this bend your knees to do a mini squat.

Only bend your knees to squat to a level which causes minimal pain and discomfort whilst maintaining equal weight on left and right legs. Repeat a mini squat 10 times. Gradually build up to doing 20 repetitions, 4 times per day.

**Knee Extension (Straightening) -** When sitting or lying place a rolled towel or foot stool under your heel so as to allow your knee to straighten without support behind it. Relax your leg until you can feel a stretch across the back of your knee. Hold this position for approx. 30 seconds. Gradually build up the length of time you hold this stretch until you can maintain it for 10 minutes, twice daily.



**Patella mobilisation (knee cap movements) -** When sitting or lying with your knee supported straight in front of you in a relaxed position. Gently move your knee cap from side to side. Repeat this 10 times, 4 times daily. Gradually build up the number of times you move your knee cap.  Ensure you do not irritate the scar sites whilst performing this exercise.

**Ice –** After completing your exercises (or at least 4 x daily) apply an ice pack/bag to the front of your knee. Ensure ice is not in direct contact to skin by using a thin towel to protect your skin. Apply ice for a maximum of 15 minutes at a time.

## For further advice regarding exercise and rehabilitation progression please discuss with your physiotherapist.

## How soon will I be able to resume normal activities?

**Driving -** You will not be able to drive for six weeks following the surgery. You will be advised that you are safe to return to driving at your follow-up appointment.

**Work –** On average most individuals return to work at approximately six weeks after their operation. There is however significant variation from person to person and time to return to

work is a topic you should discuss with your consultant. If your job is more physical and involves climbing, squatting or lots of stairs, you should wait until your outpatient follow-up to confirm that you are ready to return to your usual duties. If you need a certificate for work you can request this from your General Practitioner.

**Sport -** Returning to sport requires dedication to your rehabilitation programme and exercises provided by the physiotherapists. You will not be able to return to contact or competitive sport for at least six months after your surgery, and usually 9 to 12 months.

## Consent

**Although you consent for this treatment, you may at any time after that withdraw such consent. Please discuss this with your medical team.**

## Sources of information

If you have any questions regarding the information in this leaflet you can contact The Orthopaedic Research Unit at Conquest hospital 0300 131 4500

NHS Choices website - www.nhs.uk/Pages/HomePage.aspx

Van Grinsven, S., Van Cingel, R., Holla, C. & Van Loon, C. (2010). Evidence based rehabilitation following Anterior Cruciate Ligament Reconstruction. *Knee Surg Sports Traumat. And Arthrosc Vol18*, p1128-1144.

Cunha J and Solomon DJ (2022) ACL Prehabilitation Improves Postoperative Strength and Motion and Return to Sport in Athletes. Arthroscopy, Sports Medicine, and Rehabilitation 4(1):e65-e69. https://www.sciencedirect.com/science/article/pii/S2666061X21002169

## Important information

The information in this leaflet is for guidance purposes only and is not provided to replace professional clinical advice from a qualified practitioner.

## Your comments

We are always interested to hear your views about our leaflets. If you have any comments please contact the Patient Experience Team – Tel: 0300 131 4731 or by email at: esh-tr.patientexperience@nhs.net

## Other formats

**If you require any of the Trust leaflets in alternative formats, such as large print or alternative languages, please contact the Equality and Human Rights Department.**

**Tel: 0300 131 4500 Email: esh-tr.AccessibleInformation@nhs.net**

After reading this information are there any questions you would like to ask? Please list below and ask your nurse, doctor or practitioner.

## Reference

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| Next review date: | October 2025 |
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