

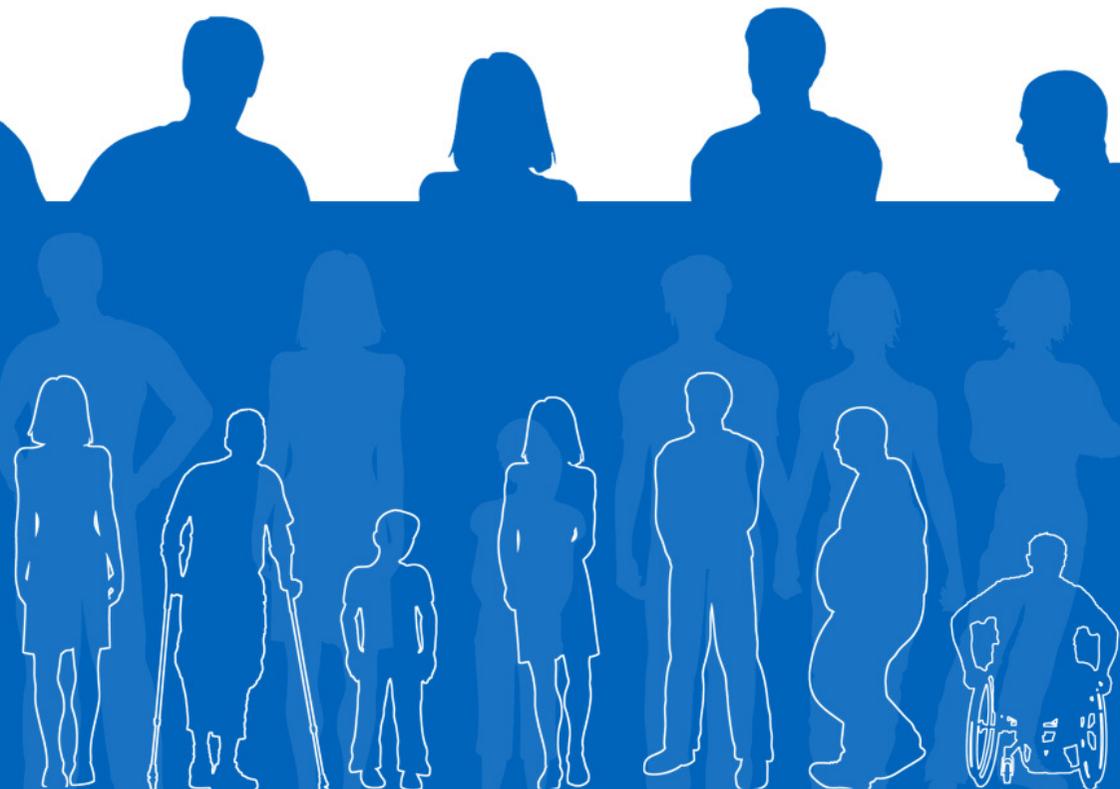


Royal National Orthopaedic Hospital



NHS Trust

A Patient's Guide to Post-Operative Physiotherapy Following Combined Anterior Cruciate Ligament Reconstruction and Cartilage Cell Transplantation of the Patella (Kneecap)



Introduction

The anterior cruciate ligament (ACL) is one of the main supporting ligaments of the knee. The ACL's main role is to keep the knee stable during rotational movements, for example, twisting, turning or side-stepping. It also provides important information to the muscles around the knee, which are involved in protecting the knee during activities.

Injuries to the ACL usually occur during a non-contact, twisting movement or a contact activity. A popping or snapping sensation can often be felt or heard. Immediate pain occurs and swelling within a few hours often occurs due to bleeding into the knee. Other injuries to the knee can occur at the same time including cartilage tears or damage to the joint surface.

Cartilage is the 'coating' covering the end of a bone. It allows smooth friction-free movement and protects the bone underneath.

Cartilage can be damaged as a result of trauma or abnormal wear. This area of damage is called a defect and can be treated by a surgical technique called ACI/MACI (cartilage cell transplantation).

If the ACL is ruptured, the knee is likely to give way. This can improve with an appropriate exercise programme supervised by a physiotherapist. However, if the symptom of giving-way and the pain from the cartilage defect does not improve and is limiting function, surgery may be required. ACL reconstruction is an attempt to replace the stabilizing function of the ACL.

The operation

The operation is a two-stage procedure. Firstly keyhole surgery is performed to look at the defect and extract cartilage cells from a healthy area in the knee. The remains of the damaged ACL are removed. The cartilage cells are then treated in a laboratory for three to four weeks where they multiply.

A second operation is performed several weeks later (usually six weeks later although this will differ slightly from person to person). The ACL is reconstructed with another form of soft tissue, called a graft. A number of grafts are available to replace the ACL, but usually the hamstring or patella tendon is used. The surgeon will discuss the best type of graft for you. The cartilage cells are then placed into the defect. This is either done by fixing a patch over the defect and injecting the cells underneath (ACI) or by growing the cells on a membrane in the laboratory and fixing this into the defect (MACI).

They should eventually produce a form of cartilage very similar to the original cartilage.

Expected outcome

The expected outcome following combined cartilage cell transplantation and ACL reconstruction surgery is:

- Improved knee stability
- Reduced pain/joint clicking/locking
- Improved function/mobility
- Return to sporting activity
- Full recovery may take up to 18 months

What to expect following surgery

Brace

Following your second operation, your knee will be held straight in a brace to prevent you bending it, for one week after surgery. Your brace will then be unlocked to 30 degrees and you will be able to start bending exercises within this range. You will be shown how to re-lock the brace to hold your knee straight for walking and this will continue for four weeks. The physiotherapist will advise when you can increase the amount of bend at your knee and when your muscles are strong enough for the brace to be removed when walking.

Walking

You will be partial weight bearing (putting 50% of your weight through your leg) for two weeks after your surgery. You will require a walking aid, for example crutches, to help keep the weight off your leg. These will be given to you before you are discharged from hospital.

The physiotherapist will advise you when your muscles are strong enough and your knee flexible enough to discard your walking aid.

Stairs

You will be taught how to go up and down stairs with your crutches before you are discharged. The order you need to remember is:

Upstairs

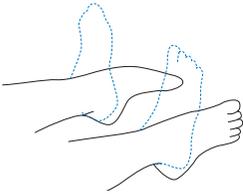
Non-operated leg first
Operated leg second
Crutch last

Downstairs

Crutch first
Operated leg second
Non-operated leg last

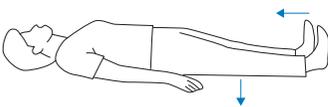
Exercises to do immediately after surgery

You will be taught exercises following your surgery. It is important that you carry out these exercises regularly every day to begin strengthening your muscles.



Lie or sit with your legs out straight.

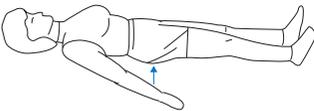
Pull your foot up then point it down briskly.
Repeat for two minutes every hour.



Lie or sit with your legs out straight.

Pull your foot up, tighten your thigh muscle and straighten your knee.

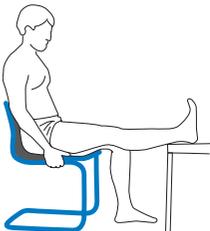
Hold for _____ seconds then relax.
Repeat _____ times.



Lie or sit with your legs out straight.

Squeeze your buttocks firmly together.

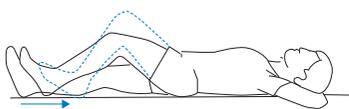
Hold for _____ seconds then relax.
Repeat _____ times.



When sitting, ensure your knee is fully supported and elevated high on a stool.

Exercises to do one week after surgery

It is important you carry out these exercises regularly every day to continue strengthening your muscles and begin moving your knee to prevent it stiffening.



Lie or sit with your legs out straight.

Bend your knee as far as possible within the limitations of your brace.

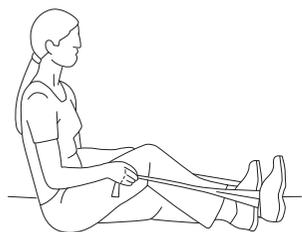
Repeat _____ times.



Sit in a chair.

Bend your knee as far as possible within the limitations of your brace.

Repeat _____ times.



Sit with your legs out straight.

Bend your knee as far as your brace will allow. Place an exercise band around the sole of your foot. Hold on to the ends of the band and slowly straighten your knee, pushing your foot into the resistance of the band.

If you do not have an exercise band then fold a pillow and place it against the end of your bed. Slowly straighten your knee, pushing your foot into the pillow.

Hold for _____ seconds then relax.

Repeat _____ times.

Things to look out for

It is important to monitor the size, colour, sensation and warmth of your leg after your operation.

Swelling

You can expect some swelling after surgery. To help manage your swelling you will need to follow the principles of **PRICE**.

P - protection. The physiotherapist will guide you on how to adjust your lifestyle to protect the knee in the first few weeks following surgery.

R - rest. For the first few weeks after your surgery, it is important to rest. Gradually increase your walking as your pain and swelling allows.

I - ice. Ice can be used to help manage your swelling. It should not be used if you have any numbness around the knee or a circulatory disorder. If using ice, it should be kept wrapped in a towel and only applied for up to 20 minutes at a time. Make sure that you review the skin while the ice is in place to monitor any adverse effects or signs of a burn. If there is any evidence of a marked redness/burn or it is too painful, then remove the ice immediately.

C - compression. A tubigrip bandage, if supplied by the physiotherapist or nurse, can be worn to apply compression to your knee and help to manage your swelling. If using a tubigrip bandage, remove it when in bed at night. If there is any increased pins and needles, numbness or changes to the colour of your skin when wearing the tubigrip bandage, then remove it immediately.

E - elevation. Rest with your leg raised high on a footstool with the knee fully supported to help drain the excess fluid.

Wound healing

If blood supply to the area is not good, wounds may be slower to heal. If a wound continues to ooze or becomes excessively red, hot or swollen, despite following the advice in this leaflet, then seek medical attention from your GP as there may be an infection.

Infection

Infection can occasionally occur in a small percentage of patients. Minor infections normally settle after a short course of antibiotics. If the infection is severe, then it is possible that further surgery may be required to remove infected tissue and a prolonged course of antibiotics may be needed.

Numbness or tingling

This can occur around the operation site as a result of minor nerve damage. Usually this is temporary, however, occasional patchy numbness or increased sensitivity may be permanent.

Scarring

Any surgery will leave a scar and occasionally this can cause pain and irritation. If this happens, please inform the consultant.

Blood clots

Deep Vein Thrombosis (DVT) or Pulmonary Embolus (PE) is rare. If you become breathless, develop chest pain or if you develop an excessively hot, painful, swollen calf, seek immediate medical attention at your local A & E Department.

SEEK MEDICAL ASSISTANCE ASAP IF YOU EXPERIENCE SEVERE PAIN, MASSIVE SWELLING, EXCESSIVE NUMBNESS OR PINS AND NEEDLES.

Follow up

Following your operation, ongoing physiotherapy will be arranged for you in your local area. Your local physiotherapist will guide you through your rehabilitation. You will also be seen by the doctors in clinic following your surgery.

General advice

Exercises should be pain-free. If your knee hurts or swells excessively then you may have done too much. Try cutting down the repetitions of exercises and follow the swelling management advice.

You should not progress to the next stage of rehabilitation until you are comfortable at your current level.

If you have followed the advice in this leaflet and your symptoms are not improving/getting worse, then seek medical attention from your GP or in an emergency, go to your local A & E Department.

If you have any queries about your physiotherapy, please contact your local physiotherapist or the Physiotherapy Department at the Royal National Orthopaedic Hospital on 020 8909 5820.

If you have any comments regarding this leaflet please contact the Clinical Governance Department on 020 8909 5628.

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10-56 RNOH © RNOH November 2010

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