

PILGRIM HOSPITAL

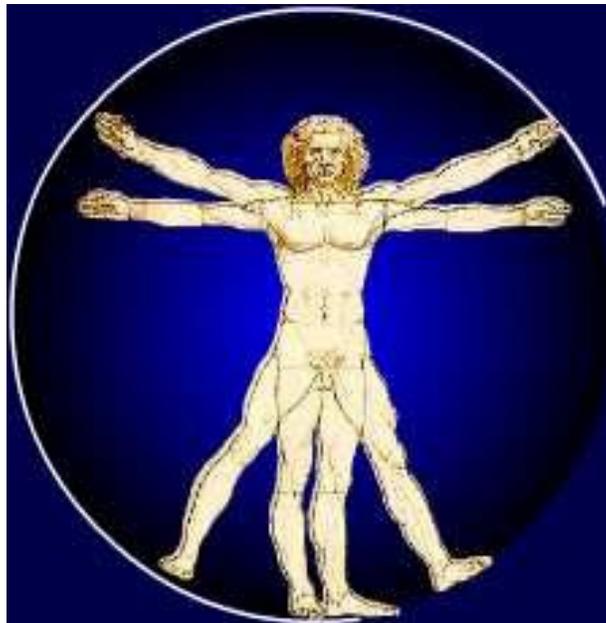
Department of Orthopaedics

ACL RECONSTRUCTION

Patient Information & Exercise Folder

Mr D Raj

Consultant Orthopaedic Surgeon (Lower Limb)



Pilgrim Hospital, Sibsey Road, Boston Lincolnshire PE21 9QS

Louth County Hospital, Louth, Lincolnshire LN11 0LU

Tel. 0845 6439597

Email: contact@medskills.co.uk

www.Dipakraj.co.uk

Anterior cruciate ligament (ACL) reconstruction

Published by Bupa's health information team, September 2009.

This factsheet is for people who are planning to have anterior cruciate ligament (ACL) reconstruction, or who would like information about it.

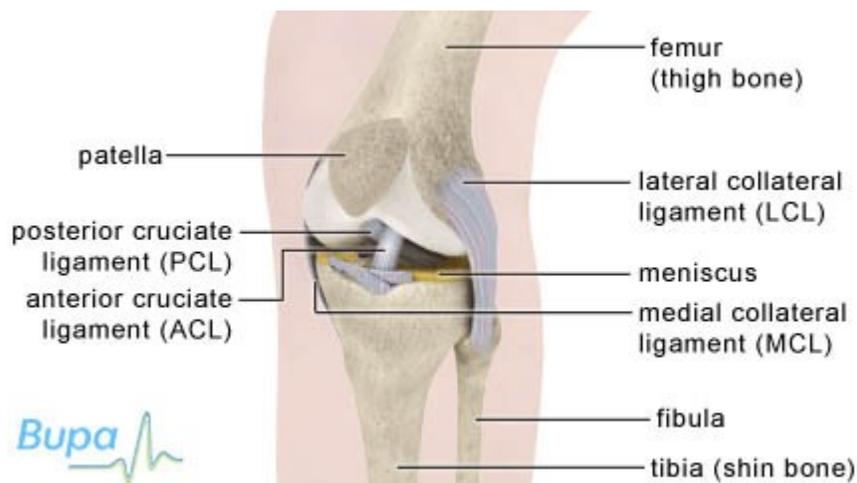
An ACL reconstruction involves replacing the anterior cruciate ligament in the knee. It's done to improve the stability and the function of the knee, often after an injury.

Your care will be adapted to meet your individual needs and may differ from what is described here. So it's important that you follow your surgeon's advice.

- [About ACL reconstruction](#)
- [What are the alternatives?](#)
- [Preparing for your operation](#)
- [About the operation](#)
- [What to expect afterwards](#)
- [Recovering from ACL reconstruction](#)
- [What are the risks?](#)
- [Questions and answers](#)
- [Related topics](#)
- [Further information](#)
- [Sources](#)

About ACL reconstruction

The anterior cruciate ligament (ACL) is a strong ligament that runs through the centre of the knee. It controls the stability and the movement of the knee. It's usually damaged by twisting or overextending the knee, often combined with slowing down very quickly, especially during sports. The common causes are football and skiing.



The different parts of the knee

ACL reconstruction involves replacing the anterior cruciate ligament of the knee with a graft. The graft is usually a section of tendon taken from another part of your knee, but sometimes it's a donor graft (allograft). At

the moment, synthetic grafts are not recommended. Your surgeon will discuss the different graft options with you.

The operation is normally performed using a narrow, tube-like telescopic camera called an arthroscope. This means that the surgeon will only make several small cuts to examine the inside of the knee and to replace your torn ACL. Getting the donor graft will also need one or two additional small cuts in the skin.

What are the alternatives?

For some people, ACL reconstruction isn't necessary. Knee instability can often be managed by appropriate physiotherapy, maintenance exercises and by stopping vigorous sports. However, if your symptoms interfere with your everyday life and sporting activities, and physiotherapy hasn't helped, ACL reconstruction is an option.

Preparing for your operation

Your surgeon will explain how to prepare for your operation. For example, if you smoke, you will be asked to stop as smoking increases your risk of getting a chest and wound infection, which can slow your recovery.

ACL reconstruction can be done under general anaesthesia, which means that you will be asleep during the procedure, with an overnight stay. The operation can also be done under local or regional anaesthesia as a day case. This completely blocks feeling from the knee and the leg, and you will stay awake during the operation. You may be offered sedation with a regional anaesthetic to help you relax during the operation.

If you're having a general anaesthetic, you will be asked to follow fasting instructions. Typically you must not eat or drink for about six hours before a general anaesthetic. However, some anaesthetists allow occasional sips of water until two hours beforehand.

At the hospital your nurse may check your heart rate and blood pressure, and test your urine.

Your surgeon will ask you to sign a consent form. This confirms that you understand the risks, benefits and possible alternatives to the procedure and have given your permission for it to go ahead.

About the operation

A number of small incisions (usually less than 10mm long) are made in the skin over the knee that is being treated. Your surgeon will insert the arthroscope and other surgical instruments into the knee through these cuts. Sterile fluid is put into the joint to help extend the joint and get a clearer picture of the inside of the joint. Your surgeon will then trim the torn ligament and prepare the knee for the replacement graft.

A graft will usually be taken from your patella tendon, which connects your knee cap and shin bone, or from part of your hamstring tendon. Your surgeon will then drill a tunnel up through your upper shin bone (tibia) and lower thigh bone (femur), diagonally from the inside of your knee to the outside, above your knee.

The graft will be inserted in the tunnel, attached to the bones and fixed in place, usually with screws. The incisions are closed with stitches or adhesive strips. The operation usually lasts one to two hours.

What to expect afterwards

You will need to rest until the effects of the anaesthetic have passed. General anaesthesia temporarily affects your coordination and reasoning skills, so you must not drive, drink alcohol, operate machinery or sign legal documents for 48 hours afterwards. If you're in any doubt about driving, contact your motor insurer so that you're aware of their recommendations, and always follow your surgeon's advice.

After a regional anaesthetic it may take several hours before the feeling comes back into the treated knee. Take special care not to bump or knock the area.

When you feel ready, you can begin to drink and eat, starting with clear fluids. Dressings will cover the small wounds and a bandage will support your knee and help to control swelling. You will be encouraged to move your knee soon after surgery to stop the joint becoming stiff.

You will need to arrange for someone to drive you home. You should try to have a friend or relative stay with you for the first 24 hours.

Your nurse will give you some advice about caring for your healing wounds before you go home. You may be given a date for a follow-up appointment.

You will also see a physiotherapist who will give you some exercises to do while you recover. The amount of physiotherapy you need varies, so follow the advice of your physiotherapist and surgeon.

Recovering from ACL reconstruction

It can take between six and 12 months for you to recover your knee function after an ACL reconstruction. However, this depends on the individual so you should follow your surgeon's advice on returning to your usual physical activities and sports. You must also follow your surgeon's advice about driving and returning to work. You shouldn't drive until you're confident that you could perform an emergency stop without discomfort.

If you need pain relief, you can take over-the-counter painkillers such as paracetamol or ibuprofen. Always read the patient information that comes with your medicine and if you have any questions, ask your pharmacist for advice.

You can also apply ice packs (eg frozen peas wrapped in a towel) to your knee to help reduce any pain and swelling. Don't apply ice directly to your skin as it can damage your skin.

What are the risks?

Anterior cruciate ligament reconstruction is commonly performed and generally safe. However, in order to make an informed decision and give your consent, you need to be aware of the possible side-effects and the risk of complications of this procedure.

Side-effects

These are the unwanted but mostly temporary effects you may get after having the procedure.

You should expect some pain, stiffness, swelling and bruising around your treated knee. This is likely to last for some weeks and will gradually improve as the knee heals and as you get back to your normal day-to-day activities.

Complications

Complications are problems that occur during or after the operation. Most people aren't affected. The possible complications of any operation include an unexpected reaction to the anaesthetic, infection, excessive bleeding or developing a blood clot, usually in a vein in the leg (deep vein thrombosis).

Complications specific to ACL reconstruction include the following.

- Infection of the wound or joint. Antibiotics are given during surgery to help prevent this. Joint infections are rare following an ACL reconstruction, but if this happens you may need arthroscopic wash-out of the knee joint and a long course of antibiotics.
- A small risk of damage to nearby nerves or blood vessels. Nerve damage could result in altered sensation or loss of feeling in the skin over the knee.
- Over time, the graft may tear or stretch, or scar tissue may form around it. The screws that fix the graft in place may also come loose. If this happens, you may need further surgery.
- If the replacement tendon graft is taken from your patella or quadriceps tendon, there is a possibility that the tendon may become tender or painful (patella or quadriceps tendinosis) or that the kneecap may be more susceptible to cartilage damage or fracture in the future.

- For some people knee pain and function doesn't improve and further surgery may be needed.
- Limited straightening and bending of your knee usually improves with physiotherapy and exercising, but may occasionally need further surgery.
- Severe pain, stiffness and gradual loss of function of the knee (CRPS or Complex Regional Pain Syndrome): this is a rare condition and the cause is unknown. If this happens, it may take months or years for your knee to get better.

The exact risks are specific to you and differ for every person, so we have not included statistics here. Ask your surgeon to explain how these risks apply to you.

ACL REHABILITATION PROGRAMME

You should have a physiotherapy appointment at the time of discharge from the hospital. If you do not have an appointment within a week of discharge, please contact my secretary. You may be given a brace to use from 1 to 4 weeks post-operatively

WEEK ONE

In the first few days after surgery your knee will be swollen and you can expect some pain. For comfort and to speed up the removal of swelling follow the RICE programme.

REST as much as possible

ICE the knee at regular intervals for the first 48 hours

COMPRESSION – leave the knee bandaged for at least 48 hours or until swelling subsides

ELEVATION of your leg is recommended when sitting

EXERCISES

You are encouraged to develop a range of motion from full extension (0°) to 90° flexion. The exercises described below will help improve the condition of the muscle about the knee joint and enhance your stability.

Knee Stretch

Sit on a flat surface (floor, bed or lounge chair) with you leg straight out in front of you. Place a pillow or cushion under your heel. Relax the muscles in your leg and let gravity straighten the knee fully. Hold this position for as long as possible. You should spend 20 minutes twice per day in this position.

Knee Flexion

Sit on a table or high chair with the knee bent comfortably. Cross your operated leg over the top of your good leg at the ankle. Use your good leg to extend to 45° (half way to full extension) and then back to 90°. In a controlled manner do three sets of repetitions with one minute rests between each set. You should try two or three sessions each day aiming to get the knee bending easily to 90°.

Static Quadriceps

Sit or lie with the operated leg straight out in front of you – tighten thigh muscle and hold for 5 seconds. Repeat three sets of ten and perform ten times each day.

WALKING

If you have a splint or brace use it when walking. You do not need to wear your splint when sitting or sleeping. Crutches improve balance during walking. Use your crutches outside, particularly on uneven ground or when moving amongst people. At home you do not need to use your crutches. Practice walking without crutches in an uncluttered room, aiming for a heel toe walking pattern.

STANDING

- holding on to a table or other support, practice taking weight on the operated leg. For 30 seconds, hold a position with the knee as straight as possible with all your weight on the leg. Do this five times, having a rest of one minute between each set.
- to progress this exercise, maintain the one-legged stance and push up at the ankle to stand on your toes. Hold this position for 10 seconds.
- further progression of this exercise – start with a one-leg stance and the knee extended. Flex the knee about 30°, then extend. Do three sets of 10 repetitions.
- sideways step – holding on to a table or wall bar, feet apart approximately 45cm, step sideways slowly, two steps left then two steps right. Repeat these steps 20 times.

WEEK TWO TO FOUR

WALKING

Spend more time walking without crutches. Increase your walking outside up to 15-20 minutes per day. Take your crutches if necessary for longer walks on uneven terrain and amongst crowds. Practice walking sideways and backwards. Discontinue with your splint once you are confident walking without crutches.

EXERCISES

Continue your previous exercises from week one and progress.

Knee Stretch

You should now be able to stretch the knee fully straight without difficulty. If your knee is still tight you should spend more time on stretching to make sure the knee straightens fully.

Knee Flexion

Once you can flex the knee easily to 90° with support from your good leg, continue this exercise with your operated leg without support.

Hamstring

Lying on your stomach with your knee extended, cross your operated leg over your good leg at the ankle. Now flex and use the good leg to assist the motion. Do three sets and rest for one minute between sets.

STANDING

Progress your standing exercise by not holding a support. Increase the time you spend standing on one leg, flexing and extending 30°. As you are able, do this with your eyes closed.

EXERCYCLE

Once you can flex your knee easily to 90° you can begin exercycling. Put the seat up higher if necessary. Make it easy so you do not have to push hard on the pedals. Build up to at least 20 minutes a day.

POOL

If you have access to a pool this can be helpful for early rehabilitation. In the pool progress your walking exercises in chest deep water. Start kicking but do not kick hard.

DO NOT use breaststroke (frog) kick as this involves abnormal knee movement.

GYMNASIUM

If you have access to a gymnasium you can use the following equipment:

- stepping machine
- leg press – quadriceps (closed chain)
- leg curl – hamstrings
- rower

Make these exercises easy at first with little or no resistance and slow speed.

DRIVING

Once you are confident walking without crutches and without your splint you can start driving. You *must* have full control of your leg to be safe driving.

PHYSIOTHERAPY

At this stage you may need treatment to help regain full range of movement and strength. Arrange this through your Physiotherapist.

WEEK FOUR TO TEN

EXERCYCLE

You should be able to manage up to 30 minutes in one session. Add in some resistance for short periods to work your muscles harder.

WALKING

Walk up to 30 to 40 minutes each day. Increase your stride length and speed as you get more confident. Start figure eight walking with large 20 to 30 metre length figure eights. Do ten in each direction. As you get more confident, decrease the side of the figure eight to five to ten metres and increase your walking speed.

Square Walking: walk 20 paces then turn left, another 20 paces then turn left, another 20 paces then turn left and return to the start point. Do ten in each direction.

Walking Swerves: position ten objects (real or imaginary) at ten feet intervals directly in front of you. Weave between the objects. Progress this exercise by increasing the speed of walking.

JOGGING

Some people *may* be ready to start light jogging at six weeks following surgery. If you are quite comfortable cycling for up to 30 minutes you can start light jogging in a straight line on even ground. Ensure you do not limp by keeping stride short and slow.

EXERCISES

Your Physiotherapist will work through the following exercises with you:

- strengthening of lower abdominals and gluteals – to promote strength around the pelvis and so gain stability.
- walking with correct alignment and co-contraction (using gluteals, hamstrings and quadriceps) – may develop new pains if poor alignment, limping, or not tightening muscles correctly.
- gymnasium for closed kinetic chain exercise – leg press, squats, calf raises, phantom chair, step-up's and step-down's, lunges, hopping, skipping.
- balance on balance board, rebounder, exa -slide, swiss ball – poor balance could contribute to the risk of re-injury. You may need to be reviewed by a Sports Physician at this stage to ensure adequate progress is being made.

WEEK TEN TO SIXTEEN

EXERCYCLE / BICYCLE

Continue cycling to the limit of your tolerance.

JOGGING

You can increase your jogging as you gain confidence. Progress by incorporating sideways and backwards jogging. Progress by introducing figure eight and square jogging.

EXERCISES

Your Physiotherapist will work through the following exercises with you:

- gymnasium for open kinetic chain exercises – leg curl, hip extension, hip abduction.
- All gym exercises need to be progressed through various types of strengthening eg. concentric, eccentric, catch-exercises as well as varying speeds and directions of movement. A generalised gym programme for upper limb and trunk can be formalised with your trainer.

SPORTS SPECIFIC REHABILITATION

It is necessary to co-ordinate the strengthening and balance work so that specific drills can be practiced and perfected before a return to your particulate sport. These will include jumping and landing, hopping, carioca running and pylometrics.

The addition of ball skills and grids will precede a return to training sessions – initially training will be un-opposed and then against opposition as capable.

A fitness test including co-ordination, resisted movement, speed and balance will precede a return to sport.

NB: at *no* stage should exercises cause an increase in pain or swelling – if this happens discuss with your Physiotherapist who will normally suggest a return to the previous level of activity which was asymptomatic.

COMPETITIVE SPORT TRAINING

You can start training for competitive sport after six to twelve months from surgery, once you are confident in jogging and passed a fitness test.

COMPETITIVE CONTACT SPORT

You may be ready for competitive contact sport by nine to twelve months following surgery.