Anterior Cruciate Ligament (ACL) Reconstruction

An information guide
Anterior Cruciate Ligament (ACL) Reconstruction

Post-operative regime
The post-operative rehabilitation programme can be divided into 3 phases:

Phase 1 Early recovery (the first 2 weeks)
Phase 2 Initial strengthening (2 weeks – 6 weeks)
Phase 2 Functional recovery (6 weeks – 6 months)

Phase 1 (the first 2 weeks)
Anterior cruciate ligament (ACL) reconstruction is a major surgical procedure and the early postoperative period is obviously a very important phase in the recovery process. Every patient is different and progress can be very variable but there are a number of important principles which are critical to the success of the procedure.

1. Rest - The knee must be allowed to recover from the operation. The majority of the surgery is performed by keyhole surgery but a lot of work is done inside the knee joint including drilling the bones and trimming or fixing cartilage. Inevitably there will be pain, stiffness and swelling for the first two weeks. Rest is essential.

2. Elevation - Along with rest, elevation is very important in the early post-operative period. Swelling of the knee and leg together with bruising and inflammation in the shin, ankle and even the foot is very common. Sitting in a chair with the knees bent (as in the normal sitting position) should be avoided, ideally place the foot on a footstool. After returning home, regular application of ice
(e.g. bag of frozen peas wrapped in a tea towel) may be useful to ease pain and swelling.

3. **Full extension** - Regaining full extension (straightening) of the knee is vital to the success of the operation. Pillows should not be placed under the knee for comfort, but a pillow placed under the ankle and heel will allow the knee to fall back into full extension.

4. **Movement** - It is quite safe to move the knee immediately after surgery and you will be encouraged to do so. As stated previously, regaining full extension is of prime importance but it is also important to flex (bend) the knee. Most patients will be able to achieve 90° of flexion (a right angle) after a few days and the sooner movements return the better.

5. **Weight bearing** - Following surgery it is quite safe to take your full weight on the operated leg although you will probably find that initially full weight bearing is uncomfortable. Basically take as much weight on the leg as is comfortable and use crutches as needed.

**Day of surgery**
You will be admitted via the surgical day case unit for preoperative checks and signing of the consent form. You will have the operation in the morning to allow recovery for a few hours in the hospital on ward C3 or C4. Local anaesthetic and strong painkillers will be given during the operation to make you comfortable. However, some pain is to be expected, particularly in the thigh where the hamstring graft has been taken from. Once you have recovered from the general anaesthetic the physiotherapists will provide you with crutches and advise on use and assess how safe you are on them. Once you are deemed safe for discharge you will have painkillers to take home and you must have an adult with you for 24 hours after the general anaesthetic.
First post-operative day
The majority of the time will be spent resting in bed. The bulky bandage put on initially in the operating theatre can be removed. Place dressings on the wounds until the stitches are removed at two weeks. At rest the knee is kept as straight as possible and you will be instructed in exercises both to straighten and bend the knee actively (by yourself). It is quite safe to bend the knee. It is quite safe to put weight on the leg taking as much weight as is comfortable. You may, if you wish, sit out in a chair with the leg elevated. The physiotherapists will call you and answer any questions you may have.

Second and third post-operative days
You will gradually become more mobile. The movement in the knee will be increased as pain permits with no restriction on bending. Again the majority of the time is spent with the leg rested and elevated, in bed or sitting out in a chair.

Day 3 until 2 weeks post-op
The majority of the time will be spent with the leg rested and elevated gradually increasing the movement in the knee. You should have full extension and 90° of flexion by 2 weeks. You will have an appointment with the physiotherapist 1 week after the surgery. Painful bruising, swelling, redness and inflammation down the front of the shin and ankle can occur after 3-5 days due to the joint fluid (synovial fluid) leaking out of the knee and tracking downwards due to gravity. This tends to settle down by 7-10 days when the joint is fully sealed following surgery. The discomfort can be minimised by elevation, which will reduce the gravitational effect, and using ice. You are encouraged to increase general mobility, including weight bearing as pain permits. Showers are permitted, dry the wounds and re-dress with dry dressings afterwards.
Phase 2 (2 weeks - 6 weeks)
The stitches will need to be removed by your GP practice nurse or at the walk in centre after approximately 2 weeks. You will be regularly seen by the outpatient physiotherapists and placed in the ACL rehabilitation classes when you are ready for this. Aims of physiotherapy treatment at this stage are to fully extend and bend the knee, move the kneecap, strengthen the muscles acting around the knee joint, improve balance and to teach you how to walk correctly. Exercises at this stage are “closed chain” rather than “open chain”. This means that the foot of the affected leg is supported (as on the pedal of a bike) thus closing the chain of joints in the limb. This reduced stress in the new ligament, which is vulnerable in the early weeks following surgery. You will be given a home exercise programme to be performed at home and in the gym. Swimming is encouraged as early as possible. At this time you should be taking full weight through the leg and will wean off the elbow crutches when advised by your physiotherapist. You may return to sedentary (non physical) work after 2-3 weeks if comfortable. However, return to physical work should be delayed for at least 6 weeks following surgery starting with light duties, building up to full duties by 12 weeks. It is important to be guided in your return to activity by the physiotherapist as the critical time period for the new graft to incorporate in the bone and become stable is the first 6 weeks (as graft fixes to the bone) and again at 8-12 weeks when the new graft weakens slightly as the new blood supply is established. Driving should be possible after 6 weeks, or even earlier if your car has automatic transmission and the left knee has been operated on. At the end of 6 weeks the knee should extend fully and flex to at least 120°.

Phase 3 (6 weeks - 6 months)
This is the period of consolidation and gradual return of function. There is a gradual increase in the level of activity concentrating on “straight line” work avoiding those movements that put the knee at risk e.g. turning, twisting, jumping, sharp acceleration and
deceleration, change of direction at speed and walking, jogging or running on uneven or unpredictable surfaces. Cycling and swimming are the best activities together with gym work and jogging or running on soft, even surfaces. Every patient is different and has a different pace of recovery and it is difficult to make firm rules regarding progress. From 8-12 weeks, the physiotherapist will maintain the level of function and movement to allow the graft time to strengthen up. It is important at this time not to over-exert the knee, as this can risk graft failure. After 12 weeks you will be able to increase the rehabilitation again. 6 months following surgery there should be a full range of movement in the knee. At this stage it should be safe to return to full activity and sport specific training are allowed at 9 months. Virtually every patient experiences some lack of confidence in returning to full activities and this is very natural. Every patient is different and the speed of your return to sport is variable and depends on a number of factors including the extent and severity of the injury to your knee. You are the best judge of strength and function of your joint. It may take as long as 2-3 years for confidence to fully return and you must remember that most patients state that the knee is never completely “normal”.

**Long term**

Current surgical techniques have only been in use for approximately 10 years so we cannot accurately predict long term results. About 85% of knees remain stable 5 years after surgery. The majority of patients continue to enjoy their sport although often at a reduced level when compared with their activity before the injury. It is up to each individual to decide how vigorously they use their knee. Skiing itself is not particularly stressful for the new ligament but a brace may give some protection for the inevitable falls which occur!
Important points

• injury to the anterior cruciate ligament is very common and is a serious injury. Even after the most successful surgery the knee will never be as good as new

• other important structures in the knee such as the cartilages are often also injured

• surgery is carried out for the instability (giving way) and may have no effect on other symptoms such as pain and stiffness

• it is important for the knee to be as strong and mobile as possible before surgery

• it is vital that the knee extends (straightens) fully as soon as possible after surgery

• for the first 2 weeks the knee should mainly be rested although it is important to move the joint

• cycling and swimming are the best activities in the post-operative period

• at 6 months the patient can return to full activity. At 9 months, return to training for contact sports (football, rugby)

• the knee will never be “normal”.

North Manchester General Hospital

Useful contact numbers:

Surgical day case unit  0161 720 2240
Ward C3 (male)  0161 720 4780
Ward C4 (female)  0161 922 3170
Physiotherapy  0161 720 2423
If English is not your first language and you need help, please contact the Ethnic Health Team on 0161 627 8770

For general enquiries please contact the Patient Advice and Liaison Service (PALS) on 0161 604 5897

For enquiries regarding clinic appointments, clinical care and treatment please contact 0161 624 0420 and the Switchboard Operator will put you through to the correct department / service

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