

Patient Information Leaflet : ACL Reconstruction

What Is It?

Patients with instability (giving way) following ACL rupture despite at least six months adequate rehabilitation programme (or less if the knee is grossly unstable) are considered candidates for ACL reconstruction surgery. A major cause of instability even with a patient who is known to be ACL deficient is a further meniscal tear, so all patients should be arthroscoped prior to reconstruction to ensure that they do not have a meniscal lesion. Patients with ACL deficiency and functional instability can have ACL reconstruction by means of middle third patella tendon technique.

The patellar tendon graft is harvested and the graft placed accurately in order to simulate normal ACL mechanical function. The normal ACL is at least two distinct bands, so one single graft replacement cannot reproduce this exactly but in order to attain as near an anatomical position as possible we use an isometric placement system which should give ACL placement within 2-3mm of the ideal. By using interference screw fixation to securely fix the bone plugs both proximal and distal, and by checking the reconstructed knee has a full range of flexion/extension, we are able to allow the patient to rehabilitate with regard to weight-bearing and range of movement much faster than was previously possible. Therefore patients will be allowed to weight-bear straight away and should have full range of movement by six weeks.

What Are The Risks?

On average, around five out of six patients (85%) who undergo ligament reconstruction will have a "successful operation" in terms of being able to return to activities which they enjoyed prior to the injury which led to their knee instability. However, following reconstruction the knee is **not** normal and never will be. Inevitably there is damage to the knee joint beyond the ligament tear and this damage (tears of the menisci, damage to the joint surfaces) can be tidied up at the time of surgery but cannot be reversed. This means that your knee will inevitably be more prone to wear and tear arthritis (osteo arthritis) in future years. One of the advantages of an ACL reconstruction is that it stabilises your knee and is thought by most surgeons to help prevent further damage.

In the 15% of patients for whom the operation is not successful there are many reasons for this. The list of complications is endless but the most common are:

1. **Continued pain and instability.** This may arise due to poor muscle control, other associated ligament damage (in total there are four major ligaments around the knee joint) or poor functioning of the new ligament reconstruction. Any of these factors can lead to continued dysfunction of the knee leading to a feeling of weakness or instability and the knee will tend to give way again. Occasionally the degree of instability is such that the operation to replace the anterior cruciate ligament is combined with other procedures such as tightening of the collateral ligaments (the ligaments at the side of the knee) or use of external aids such as a brace, even after ligament reconstruction.
2. **Infection.** Infection can either be **superficial**, i.e. a wound infection which occurs in around 10% and is often treated with a one week course of antibiotics. More serious is **deep** infection where the infection gets into the knee joint itself and is much

more difficult to treat and can take prolonged courses of antibiotics (six weeks or longer) or re-operation to wash out the infection or abscess. Deep infection is rare, certainly less than 1%.

3. **DVT/PE. Deep vein thrombosis** is a condition in which blood flow in the affected leg is slowed sufficiently by the surgery and discomfort to allow blood clots to form in the deep veins. These usually form in the calf and can cause swelling and discomfort. These will often gradually re-absorb over a few months but occasionally require the use of prolonged courses of Warfarin (blood thinning agent) for up to three months to speed the absorption of the blood clot. More worrying is when the blood clot extends along the veins and a piece of the blood clot breaks off, travelling to the heart and lungs. This piece of blood clot (**an embolus**) can lodge in the heart or lungs, causing major problems and even death (1 in 1000).
4. **Risks of major surgery.** Anterior cruciate ligament surgery is a major operation, often taking 1½ - 3 hours under general anaesthetic. Significant complications such as chest infection and abnormal reaction to anaesthetic drugs and agents can lead to post operative problems. With modern techniques such complications are rare but unfortunately still occur but are less than 1 in 1000.
5. **Re-injury.** In consultation with you and depending on your hopes and intentions following discussion with me, the aim is to get you back to activities which you enjoyed prior to the operation. Many patients feel it is better to avoid strenuous exercise, i.e. explosive or contact sports such as football and rugby where the risk of re-injury is quite high. However, with adequate rehabilitation and a successful outcome in terms of restoring knee stability, there is no reason why your knee should not be capable of undertaking normal activities for your age at the time of your surgery.
6. **Wound Complications.** In order to undertake the operation the incision or wound at the front of the knee often cuts small nerves around the knee cap area which can then lead to permanent numbness or altered sensation. Usually this is an annoyance rather than a physical restriction. Sometimes the scar itself can be uncomfortable for many months, even years, leading to difficulty on kneeling on the front of the knee. Occasionally the amount of scarring is excessive and leads to either a prominent wound (a keloid scar) or tethering of the wound to deep layers which can lead to discomfort on stretching and moving the knee, particularly into flexion. These problems are often helped by early mobilisation and massage techniques and are rarely a significant complication, certainly no more than 1 in 100 wounds cause significant problems to restrict activity levels.
7. **Long Term.** The new ligament is part of your own body and over a period of the first 18-24 months, although the ligament tissue dies, it acts as a scaffold for new ingrowth of ligament tissue. Once the new ligament has been replaced by living tissue it should last forever, and is one of the advantages of using this particular form of graft (an autograft, i.e. from the patient) rather than an artificial graft such as Goretex fibres, carbon fibres and Dacron meshes.

What Happens in Hospital?

Most patients who undergo anterior cruciate ligament reconstruction are reasonably fit and therefore can be admitted on the day of operation. They are seen by myself, the anaesthetist and clerked in by the nursing and junior medical staff. The leg to be operated on is marked and the consent form discussed and signed (if this has not already been done). The operation can take place under regional or spinal anaesthetic but usually is a general anaesthetic and the patient is starved of all but sips of clear fluids from at least six hours prior to surgery. The operation takes 1½-2 hours and you will wake up in the recovery room where blood pressure and breathing checks are carried out until you are safe and comfortable. You are then returned to the ward and immediately you will be encouraged to move your leg and knee particularly, within the limits of the dressing. There will usually be a large wool and crepe bandage dressing over your knee but this will allow some limited movement, which is to be encouraged. Within 24 hours you will have been helped to mobilise with the help of the nursing and physiotherapy staff, initially using crutches but weight bearing as much as possible on the operated leg. The day after the operation an xray

will be taken to confirm the position of the new implant and the dressings will be reduced to a simple Tubigrip support and you will be able to use your knee brace, which will have been fitted by the physiotherapists prior to your surgery. The brace allows full knee movement but aids confidence and stability in the first few weeks-months following surgery. Within two-three days you will normally be confident and stable enough to walk around the ward, use crutches as needed and manage stairs safely. At that stage you can go home to continue your recovery there.

Most patients are given crutches to take home but use them sparingly over the following six weeks. You will be asked to use your knee brace most of the time, particularly when outdoors during the first six weeks and overall for around three months intermittently. During this time you will be gradually encouraged to undertake more controlled and strenuous activities as per the enclosed rehabilitation programme. It is important to remember that recovery is not a race and that there are certain activities and stresses which the new ligament can withstand, as it is gradually replaced by new living tissue. Therefore, it is important to stick very closely to the rehabilitation programme with slight variation, depending on individual requirements as discussed with me or your physiotherapist. The new ligament in fact loses strength over the first six weeks as the ligament is broken down by the body and then rapidly regains strength as the ligament is replaced by the body and by three months following surgery the ligament is around 50% of normal ligament strength and by six months post surgery is around 70% of normal ligament strength. Full maturation and strength of the new ligament takes up to 18-24 months. However, by six-nine months the new ligament is sufficiently strong to withstand most strenuous activities and exercise.

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