

# Anterior Cruciate Reconstruction of the knee

## ANATOMY: KNEE JOINT



## INTRODUCTION

There are four main ligaments about the knee. The medial collateral ligament is on the inner aspect of the knee, the lateral collateral ligament on the outer aspect. Inside the knee itself there are two “crossed” ligaments called the cruciate ligaments. The anterior cruciate ligament is one of the most important stabilising factors in the knee and is very often injured, particularly in sports that require “propping” on one leg, such as when cutting or turning. Characteristically the knee gives way, perhaps with an audible pop or a sense of a “snap” coming from the knee. Almost invariably the knee swells, immediately with blood and this is one of the key signs of a cruciate tear.

## WHO SHOULD HAVE THIS OPERATION

It has been known for many years that the anterior cruciate ligament is a very important in the knee and many attempts have been made over the years to surgically reconstruct the ligament. The operation which is performed today represents the last in a line of operations and it is likely that this operation will not be the same one that will be performed in a few years time. Nevertheless, the operation is a fairly successful one. Often the main problem is trying to decide which patient should have a knee reconstruction and which ones will probably get by without it. There is evidence coming through in the orthopaedic literature that a knee without cartilages will generally progress to arthritis. The main function of the anterior cruciate is to stop the knee giving way and thus to protect the cartilages so, indirectly, the anterior cruciate ligament, if present, may help prevent arthritic changes occurring in the knee by protecting the cartilages. Certainly, any patient who requires a stable knee for sport or for their work will probably end up having a knee reconstruction. Other patients who are likely to put less demands on their knee may well benefit from a non-operative course of treatment which will include intensive hamstring exercises. Approximately 50% of the patients who elect for this line of treatment will get by without any further surgery.

## OPERATION

### a) Patellar tendon graft



Middle third patellar ligament graft

## b) Composite Hamstring Graft

Harvesting the hamstrings



### Hamstring Graft

The operation is performed using a combination of methods. The arthroscope is inserted into the knee and the knee inspected for any other damage. It is common to find a cartilage tear, or perhaps some damage to the ball part of the joint following the injury which causes the anterior cruciate tear. The stump of the anterior cruciate is then "tidied up" and a free graft using either the middle 10mm or so of the patellar ligament or a composite graft of the hamstring tendons. Doctor will normally discuss the likely origin of the graft with you pre-operatively. On some occasions the hamstrings are not suitable for grafting and the patellar tendon has to be used instead. This graft is to be inserted through the knee in order to take the place of the new ligament. While the graft is being prepared and sutures placed through it, two drill holes are inserted, one through the tibia and one half-way through the femur. The graft is then passed through the knee and fixed into these holes with either screws or staples. At the end of the operation the knee should feel very stable and should come out straight. A drain is often inserted into the knee and a padded bandage applied.

### POST OPERATION

Post-operatively the patient is given some pain relief and the day after the surgery should be able to mobilise about the ward. When voluntary control of the leg is regained the patient is allowed up on crutches and allowed home, generally between the three and four day mark. The patient is generally seen again at the two week mark after the surgery taking out any clips or stitches and starting off the intensive rehabilitation regime.

### REHABILITATION

We have a very strict rehabilitation programme which is supervised by the physiotherapist. This programme is changing regularly as new information becomes available, particularly from America. We now have an accelerated programme and patients generally walk very quickly after the programme as opposed to previously when they were braced for a six week period. The knee is not considered satisfactory for at least three months and, in general terms, patients are cautioned not to return to sport until nine months after the surgery.

### COMPLICATIONS

An anterior cruciate reconstruction is a major operation and therefore is associated with the usual potential problems which are seen with major surgery. The commonest local problems involve difficulty with kneeling because of the siting of the scars and an inconstant patch of numbness over the front of the leg. Other early potential complications include the possibility of a blood clot, or perhaps even of infection. Later complications include the development of pain in the front of the knee which appears to be associated with the harvesting of the patellar tendon graft. On occasions the anterior cruciate construct can loosen, or perhaps even rupture, producing residual instability in the knee.

### CONCLUSION

All in all an anterior cruciate reconstruction is an operation with predictable good results, though it must be remembered that it is a major operation and should not be entered into lightly. It is for this reason that the decision to proceed to knee reconstruction on patients who do not exactly fit the criteria for operation is so difficult.