

## Anterior cruciate ligament reconstruction

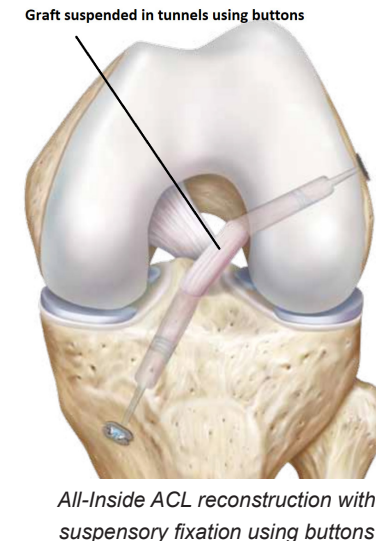
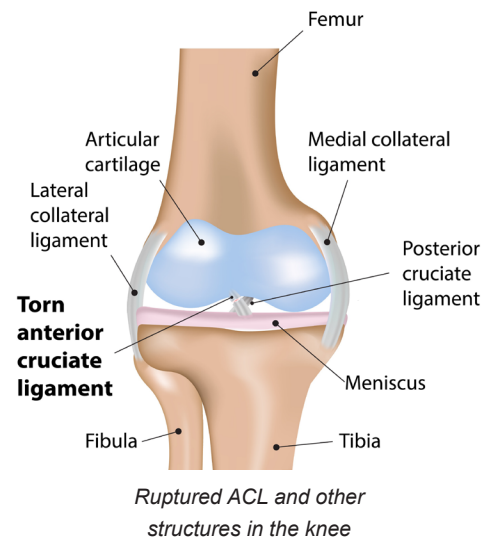
The anterior cruciate ligament is one of the most important stabilizing structures in the knee. It prevents abnormal translation and rotation in the knee.

ACL injuries are common in sport. A rotational force which may occur during pivoting, twisting or suddenly changing direction may cause damage to the ACL. With a complete rupture, the knee often gives way and becomes painful and swollen immediately. The injured player is then usually unable to complete the game.

Rest, ice, compression, elevation, anti-inflammatories, crutches and physiotherapy is the usual first line of treatment. Quadriceps strengthening and range of motion exercises are initiated as soon as possible. The pain and swelling improve but recurrent instability may occur. This is generally not a problem with walking or even running, provided that this is in a straight line. Any movement or any sport which requires pivoting, twisting or changing directions such as contact sport or skiing cannot be safely performed with an ACL deficient knee due to the lack of rotational stability. Each time the knee gives way, it essentially dislocates (comes out of position) and spontaneously relocates, risking injury to the meniscus (shock absorbers) and cartilage (lining) in the knee.

An ACL reconstruction is thus recommended for most people who wish to remain active. Apart from providing stability and a return to full activities, the reconstruction will also protect the meniscus which theoretically will delay the onset of arthritis (loss of all the cartilage lining the knee). This benefit however, has not been definitively proven with studies, as yet.

An ACL injury can be diagnosed via the history and findings on clinical examination. An MRI scan is useful not only to confirm the diagnosis but to also identify other injuries within the knee. Meniscal tears and injuries to the medial collateral ligament (MCL) are common. These may need to be treated at the time of surgery also.



### Surgery

The ACL reconstruction is performed arthroscopically (key-hole surgery). A graft which is suspended within the knee by using implants is used to reconstruct the torn ACL. The graft is a tendon and is commonly hamstring, patella tendon or quadriceps tendon. The grafts used can be allograft (from a donor) or autograft (patient's own). The choice of graft usually depends on whether the procedure is a primary reconstruction or a revision of a reconstruction.

There are a variety of implants available for fixation of the graft, such as screws, staples or suspensory buttons. Each has its own merits. For a primary ACL reconstruction, Dr Lau will generally use a single hamstring tendon from the same knee as the graft. This is folded over twice to give a large diameter graft. Sockets are then drilled from inside the knee at the anatomical insertions of the native ACL in the tibia (shin bone) and femur (thigh bone) using special drills (all inside technique). The graft is then suspended within these tunnels and the knee, under tension, using strong loops of suture, anchored to the tibia and femur by buttons.

The operation is a day surgery procedure. It is performed under a combination of a general anaesthetic and a local anaesthetic block.

### **Rehabilitation and recovery**

Walking begins straight away. Crutches are generally required for the first 2 weeks after the reconstruction. If additional procedures such as a meniscal repair are also performed at the same time, then a knee brace may need to be worn and crutches may need to be used for up to 6 weeks from surgery.

Physiotherapy begins before the operation (prehabilitation) and continues for 6 months after surgery. It generally takes 9 months for the graft to undergo ligamentization (transformation into a new ACL). A return to any contact sport is thus not recommended until then.