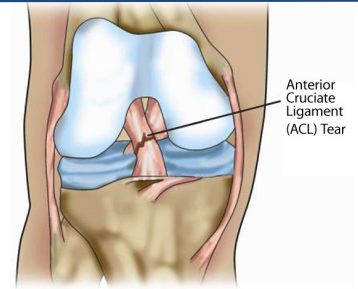


# Anterior Cruciate Ligament Injury & Reconstruction

Dr Phil Huang  
MBBS FRACS

## INTRODUCTION

The anterior cruciate ligament (ACL) is a band of fibrous tissue that connects the thigh bone (femur) to the shin bone (tibia). The function of the ACL is to provide stability to the knee, especially with twisting and pivoting activities



## MECHANISM OF INJURY

Injury to the ACL most commonly occurs during team ball sports when the athlete attempts to change direction, land from a jump, or rapidly decelerate. It can also commonly occur during skiing, when the knee twists and the bindings of the ski fail to release. It is estimated that 70 percent of ACL injuries occur through non-contact mechanisms while 30 percent result from direct contact with another player or object, such as a tackle during soccer. As the ACL is injured athletes frequently hear a snap or crack, accompanied by pain. Usually the athlete is unable to walk after the injury and significant swelling of the knee occurs within an hour. The ACL may be injured in isolation, but commonly also involves injury to the medial ligament on the inner aspect of the knee or the meniscal cartilages inside the knee.



## CONSERVATIVE MANAGEMENT OF ACL INJURIES

During the acute phase after the ACL injury occurs, treatment involves techniques to reduce the swelling of the knee, manage the discomfort, minimize the muscular wasting and restore normal walking. Commonly, the discomfort and swelling associated with the injury settle over 2 to 3 weeks and the athlete may be able to walk and even run normally. However attempts to pivot or change direction suddenly, especially at speed may result in the knee giving way. If the knee gives way, there is a risk that other structures in the knee such as the menisci will sustain further damage. If conservative management is planned it is important to limit sports to the ones involving straight line activity only.

## ACL RECONSTRUCTION

Those who wish to continue participation in ball sports, or who are involved in an occupation that demands a stable knee are at risk of recurrent episodes of knee instability when the ACL is torn. This instability can result in damage to the cartilages in the knee and lead to premature arthritis and further disability. In these patients, surgical reconstruction is recommended, after the knee has recovered from the acute injury.

An ACL reconstruction is performed as day surgery, via 3 small incisions on the front of the knee. During an ACL reconstruction the injured ligament is replaced with a graft of hamstring tendon tissue. This grafted tissue acts as a scaffold, through which the body will recreate a normal ligament over time. The hamstring tendon is obtained from a small incision on the front of the shin bone. This tissue is then prepared and secured through tunnels to rest inside the knee. Over a period of 12 months the body will progressively replace the hamstring tissue with ligament cells and get progressively stronger.

