

## Anterior Cruciate Ligament (ACL) rupture

### What is it?

The anterior cruciate ligament is a commonly ruptured ligament resulting in a significant loss of stability in the knee. It is one of 4 ligaments in the knee that contribute to stability. It stops the tibia (shin bone) sliding forward underneath the femur (thigh bone) and is integral for twisting, jumping and change of direction sports.

### What are the causes?

The usual cause is a sporting injury where the foot plants under the body and the knee (slightly bent) twists inwards and jars (Olsen et al 2004). 70% are non-contact; the injury occurring when the player lands/pivots, and absorbs shock and body weight through the knee, causing it to buckle into the abovementioned position. Studies have shown that certain biomechanical impairments and movement patterns can predispose someone to an ACL injury (Myer et al 2011). These can be calf, quadriceps, gluteal, or hamstring strength or tightness in certain structures that lead to movement patterns that expose our joints to higher risks of serious injury. Females are 5-6 times more likely to rupture, and in young females this statistic is exaggerated due to a difference in landing and shock absorbing patterns compared with males (Joseph et al 2011). This is mostly due to a larger relative skeletal growth rate and less relative muscle mass growth rate during adolescence. Many experts now recommend biomechanical assessment and risk screening by a skilled professional to help highlight areas that need work.



Picture: [www.orthopaedicsandtrauma.com](http://www.orthopaedicsandtrauma.com)

### What are the symptoms of and ACL injury?

After the injury, there is usually immediate pain and significant swelling in the knee after a short period. Some people report hearing and feeling a pop in the knee and a feeling of giving way. This feeling of giving way or instability can be long term dependant on the severity of the injury. It is quite often that pain is short lived, and it can be reasonable pain-free to move around. After a few hours the knee may become quite stiff with the large amount of swelling.

### Medical Management

Consult with an orthopaedic surgeon is common and a decision to reconstruct surgically is agreed upon based on many factors including the patient's desired future activity levels, severity of the injury, and jobs requirements. Conservative, non-operative management can be successful (success rates vary from 19-82%) and has a strong focus on developing knee control with muscle strengthening. Conservative management often leads to a higher risk of cartilage damage (12% vs. 22%).

### References:

- Olsen et al 2004, injury mechanisms for anterior cruciate ligament injuries in team handball: a systematic video analysis, *AJMS*, 32: 1002-1012
- Joseph et al 2011, timing of lower extremity frontal plane motion differs between females and male athletes during a landing task, *AJSM* 39: 1517-1521.
- Myer et al 2011, The relationship of lower extremity alignments and anterior knee laxity to knee translations during a vertical drop landing *BJSM* 45: 350

**To arrange an appointment:** call our reception staff on **(08) 82638844**

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