ACL INJURY IN RUGBY

A ligament is a short band of tough fibrous connective tissue composed mainly of long, stringy collagen molecules. Ligaments connect bones to bones in and around joints and limit the amount of mobility in that joint, or prevent certain movements altogether. There are four major knee ligaments; the anterior and posterior cruciate ligaments found deep within the joint and the medial and lateral collateral ligaments running down each side of the joint. These ligaments are all at risk of being injured during rugby, and the anterior cruciate ligament (ACL) is the most commonly injured. Sadly an ACL rupture is also the most debilitating knee injury.

The ACL connects the thigh bone with the shin bone from the inside. Its function is to prevent excessive forward movement of the shin in relation to the thigh and also to prevent excessive rotation at the knee joint. It is critical for joint stability. Manoeuvres used in rugby, such as cutting, pivoting and sudden turns, place high demands on the ACL.

HOW IT HAPPENS

Most often, ACL tears occur when pivoting or landing from a jump onto a bent knee then twisting, over-extending the knee, and sometimes from a direct blunt force blow to the knee during a rugby tackle. The incident usually happens at speed and your knee gives out from under you once you tear your ACL. Muscle weakness or lack of coordination can mean that you are more at risk of a ligament sprain or tear.

Female athletes are known to have a higher risk of an ACL tear while playing in competitive sports. Unfortunately, the reason why women are more prone to ACL injury is unclear. There are suggestions that it is biomechanical, strength and hormonally -related. In truth, it is probably a factor of all three.

WHAT'S GOING ON INSIDE?

You may have felt or heard a 'pop' in your knee, and the knee usually gives out from under you. ACL tears cause significant knee swelling and severe pain. On clinical examination, your practitioner will look for signs of ligament instability. An MRI scan may also be used to determine if you have an ACL tear. It will also reveal signs of any associated injuries in the knee, such as bone bruising or meniscus damage, that regularly occur with an ACL tear.

Depending on your level of sports participation, lifestyle, work demands and the stability of your knee following injury you may not need surgery, but you will require treatment and rehabilitation. Reconstructive surgery, however, has huge success if followed by a progressive rehabilitation protocol. Many professionals have returned to the game following surgery, albeit in the next season.

WHAT CAN I DO?

Immediately after injury apply the 'PRICE' protocol, which stands for Protect, Rest, Ice, Compression and Elevation, for the first 24–72 hours. Protection may include the use of crutches if walking is painful or not possible. Rest is all relative – just don't try anything that is painful. Ice the injury regularly for 10–20 minutes several times a day. Compression, using strapping or a bandage, will help to reduce the swelling and bleeding as well as the pain by giving the injury some support. The purpose of elevation is to reduce swelling and aid circulation.

Following an ACL tear you often start to feel better within a few days or weeks. You may even feel as though your knee is 'normal' again because the swelling settles and you are able to do daily activities. However, this is when problems with knee instability and 'giving way' may start or worsen. Stay disciplined with your treatment and exercises.

Research has shown that following ACL injury or surgery, patients who have extensive physical therapy to rebuild their strength, proprioception and agility can be fully functional and return to sport. It is also known that similar exercises can help to prevent an ACL tear in the first place.

HOW PHYSICAL THERAPY CAN HELP

Your best way to avoid ACL reconstructive surgery is to undertake a comprehensive rehabilitation programme that involves leg strengthening, proprioception and high-level balance retraining, plus sport-specific agility and functional enhancement.

Your physical therapy specialist will aim to:

- reduce pain and inflammation
- normalise joint range of motion
- strengthen your knee, especially the quadriceps and hamstrings
- strengthen your lower limb (calves, hip and pelvis muscles) and core
- improve patellofemoral (kneecap) alignment
- normalise your muscle lengths (flexibility)
- improve your proprioception, agility and balance
- improve your technique and function, eg. walking, running, squatting, hopping and landing
- minimise your chance of re-injury.

If you do have surgery, post-operative rehabilitation is one of the most important, yet too often neglected, aspects of surgery. The most successful and quickest outcomes result from supervised rehabilitation.

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