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Combined ACL and MCL injury

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Knee Ligament Anatomy

A ligament is a fibrous band of tissue that connects one bone to another bone. At the knee, the ligaments attach the femur (thigh bone) to the tibia (leg bone) and function to provide stability to the knee. There are 4 main ligaments at the knee: The anterior and posterior cruciate ligaments (ACL and PCL) are two ligaments found deep inside the knee and cross each other to form an “x” which control front to back and twisting motion of the knee. The two collateral ligaments are located on the sides of the knee with the medial collateral ligament (MCL) on the inner (medial) aspect of the knee and the lateral collateral ligament (LCL) on the outside (lateral) aspect of the knee. The MCL and LCL stabilize the side-to-side motion of the knee.

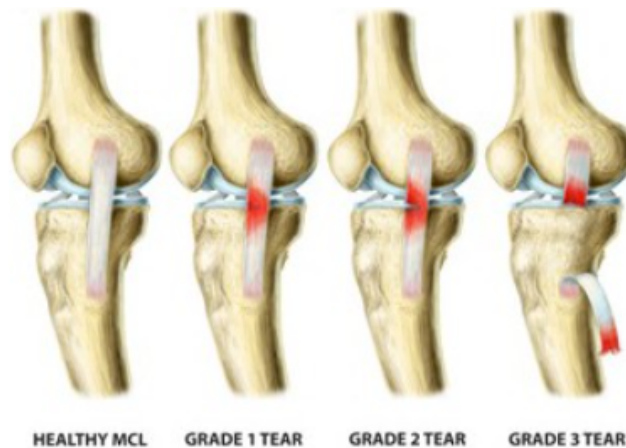
Mechanism of Injury

Combined ACL and MCL injuries commonly occur as a result of contact mechanisms on the rugby or football/soccer field or non-contact mechanisms such as on the ski-slopes when the bindings fail to release in a timely fashion, or landing from a jump. The athlete may feel or hear a pop or ripping sensation and typically feels immediate pain over the MCL, along the inside aspect of the knee. Swelling, tenderness and difficulty weight bearing on the leg are often associated with the injury.

Rationale of treatment of combined ACL & MCL injuries:

The MCL has a very high healing potential while the ACL has a very low healing potential. The MCL is located outside the knee joint where healing is not impeded by joint fluid, it also has a better blood supply compared to the ACL. The ACL, on the other hand, is located inside the knee joint in an environment less conducive to healing. While ACL ruptures very rarely heal, the vast majority of MCL injuries will heal, and can be treated non-operatively. Treatment for the MCL injury usually takes place before ACL surgery is performed.

Treatment of ACL & MCL Injuries:



ACL & Grade 1 MCL:

Minor injuries are treated with rest and anti-inflammatory medications with immediate range of motion and gait retraining exercises aiming to achieve a pain free mobile joint prior to re-evaluation to assess laxity. If the ACL laxity persists after the MCL has healed, ACL reconstructive surgery should proceed.

ACL & Grade 2 MCL:

Grade 2 MCL injuries are treated in a hinged brace, usually set to allow 30-90° of motion for 4-6 weeks. The brace prevents the knee from straightening to allow the MCL to heal without stress. If a brace is required it is imperative that it is worn at all times, and the knee is not permitted to straighten even occasionally until the ligament is healed.

After the brace is removed, physiotherapy aiming to regain full range of motion and normal gait is commenced.

After full knee motion is restored the knee is then re-examined to assess ligament healing and knee stability. In the vast majority, the MCL is healed and able to provide the normal medial stability to the knee.

The ACL usually does not heal and ACL reconstruction surgery is considered. By delaying the ACL reconstruction, the MCL is allowed to heal on its own, avoiding the risks and complications that would be associated with surgery on both the ACL and MCL.

In less than 5% of combined injuries, the MCL does not heal over the initial 6 weeks. In these patients, the MCL is then repaired or reconstructed at the same time as the ACL reconstruction.

ACL & Grade 3 MCL:

In rare situations, usually involving higher energy mechanisms of injury, the MCL is completely avulsed from either the top or bottom attachment. The ligament retracts from its attachment and the capsule of the joint is usually disrupted. In this situation surgical repair of the MCL is performed at the same time as the ACL reconstruction. In this situation, there are usually other internal structures that have been injured that will require surgical treatment also. This surgery should be performed acutely within the first 2 weeks from injury.