CRUCIATE & MENISCAL INJURIES

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The knee is a frequently injured joint. In addition to the superficial MED/LAT collateral Ligs, the Deeper ANT/POST cruciate ligs present clinical concerns as well as the Meniscus.

It is important to distinguish the difference between cruciate/meniscal injuries and collateral lig injuries. Massage has a direct effect on superficial collateral ligs, but not on cruciate lig due to the depth in the knee. Cruciate/meniscal injuries should be initially referred to a DR, especially in the acute stage when hemarthrosis (articular bleeding in the jt cavity) is present.

Cruciate ligaments

- Purpose is to check motion at the knee
- Most taut when the knee is in extension
- They cross each other forming an X shape
- Cruciate ligaments are within the joint capsule but not in the synovium

- Ligaments are names according to their position on the tibia
  - Anterior Cruciate is from the anterior portion of the tibia to the medial aspect of the lateral femoral condyle, in the intercondylar notch, and prevents anterior movement of the tibia during knee extension of the TIB on the femur and INTernal tibial ROT. Fibers from the TIB to femur are obliquely SUP, POST, and LAT. Resists the pull of the Quad mm at the knee in conjunction w/ the hams.

- Posterior Cruciate is from the posterior aspect of the tibia to the lateral aspect of the medial femoral condyle (intercondylar notch) and prevents posterior movement of the tibia on the femur during knee extension . Fibers from TIB to femur are obliquely SUP, ANT, and MED. Resists the pull of the Hams at the knee in conjunction with the Quads. POST cruciate is stronger than the ANT and is injured less frequently.

Causes of cruciate ligament damage:

Anterior Cruciate

- Blow to the lateral knee
- Forced hyperextension with internal rotation of the tibia
- A blow of the posterior tibia
- May experience injury when pivoting, decelerating/ landing from a jump.
- Often injured along w/ MCL.
- 90% of knees w/ chronic ACL instability have additional meniscus disorder

Causes of cruciate ligament damage:

Posterior Cruciate

- Blow to the anterior tibia
- Excessive hyperextension of the knee
- When the tibia is forced posteriorly during an accident (car dashboard)

Medical treatment:

- Medical treatment depends on the degree of instability and any associated injuries
- Initial treatment includes rest, anti-inflammatories, splint or brace and remedial exercise
- Surgery for the anterior cruciate is more commonly performed than for the posterior cruciate
- Cruciate re-construction is usually considered with chronic instability of the knee
- Further treatment includes controlled mobilization, where the client is allowed to move about with knee protected by braces or with movement performed on a passive motion machine
- Management of the swelling, inflammation and pain begins immediately after the injury
- Strengthening programs also begin in the early stages of healing
- Functional knee braces can be worn for up to 18 months after the initial injury

Menisci:

- Designed to provide shock absorption and to increase the glide between the tibia and femur
- The menisci transmit between 30-55% of load at knee
- Slightly more mobile ANT.
- Cross-section menisci are somewhat triangular, thicker convex outer edge attaching to JT capsule and thinner concave edge being unattached.
- Middle/inner portions are avascular.
- Only the outer portion of the meniscus that is attached to the joint capsule is vascular, as a result meniscus heal relatively slowly

- MED meniscus forms a semicircle
- POST MED meniscus is the most frequently injured
- Attached at the periphery of the jt capsule, outer edge of the MED tib condyle by coronary lig, and some fibers of the MCL
- Damage to MCL can damage MED meniscus
- Younger: tear runs longitudinally (bucket handle tear). Tear extends ANT, forming flap locking the jt
- Older: injury degenerative horizontal tear. Upper and lower portions sliding against each other

- LAT meniscus forms complete circle
- Attaches at the periphery to the jt capsule and tib, but not the LCL
- LAT meniscus more mobile the MED
- Less prone to damage
- Moves POST during knee FLEX by tendon of the popliteus mm