Medial and Lateral Collateral Ligament Injuries

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Medial Collateral Ligament

Anatomy

Superficial MCL
a delta shaped ligament that extends from the medial femoral epicondyle to 3-4 cm below the medial joint line beneath the pes anserinus tendons

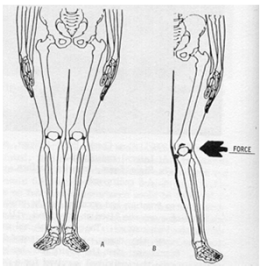
Deep MCL
a thickening of the medial capsule, is divided in the menisco-femoral and menisco-tibial ligaments, this portion is firmly attached to the medial meniscus

Posterior oblique ligament
the superficial and deep portions of the MCL blend together in the posteromedial portion of the knee

Highest strain levels at the femoral origin

Medial Collateral Ligament

- Mechanism of Injury
  - Valgus Stress +/- external rotation
  - Contact or non contact
  - Complete tears may be less painful than incomplete



Medial Collateral Ligament

Physical Exam

- Assess valgus stress at 0 and 30 degrees of flexion in addition to complete knee exam
- If valgus opening in extension consider ACL injury (78%) or posterior capsular injury
- ? Effusion
- ? Medial meniscus tear
- AMA classification
  - I. 0-5mm
  - II. 6-10mm
  - III. >10mm

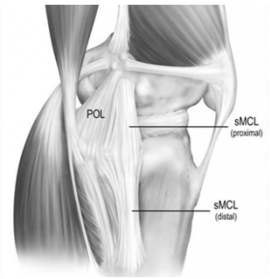
Medial Collateral Ligament

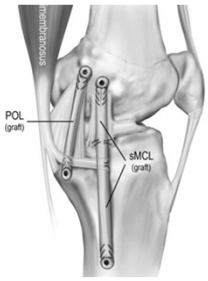
- Treatment
  - Early motion
    - Hemorrhage, inflammation,
    - Repair, remodeling
  - Hinged bracing
  - Early weight bearing
- Operative Treatment
  - Controversial for Grade III
  - Concomitant ligament injury
  - ? Bony Avulsion
  - ? Avulsion of tibial attachment (Stener Lesion)

Chronic MCL laxity

- Pellegrini Stieda Lesion

MCL Reconstruction





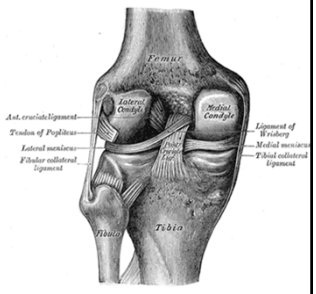
Medial Collateral Ligament

- Prophylactic Bracing?
- Most NCAA programs brace offensive linemen
- Cadaveric studies: small benefit at slowly induced loads
- Surrogate models: bracing most effective for low velocity, high mass loads
- ? Functional impairment (probably minimal)
- Epidemiologic studies: small level of protection for the MCL

Soheil Najibi and John P. Albright. The Use of Knee Braces, Part 1: Prophylactic Knee Braces in Contact Sports. Am. J. Sports Med., Apr 2005; 33: 602 - 611.

Lateral Collateral Ligament

- Anatomy
  - Origin: lateral epicondyle
  - Insertion: head of fibula
  - Major varus stabilizer in extension



Lateral Collateral Ligament

- Mechanism of Injury
  - Varus stress (usually contact)

Lateral Collateral Ligament

- Physical Exam
- Varus stress at 0 and 30 degrees of flexion
- Always compare to contralateral knee!
- AMA classification
  - Grade I: 0-5mm
  - Grade II: 5-10mm
  - Grade III: >10mm (often posterolateral corner involved)
- Stress x-rays

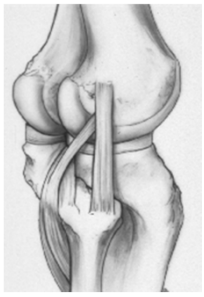
Stress Radiographs

Lateral Collateral Ligament

- Treatment
  - Generally non-operative for Grade I and II injuries (similar to MCL treatment)
  - Likely surgical for Grade III injuries
  - Consider surgical intervention with bony avulsion injuries

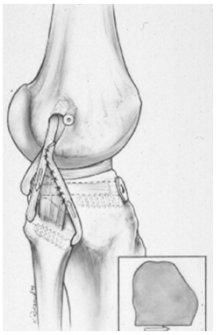
Lateral Collateral Ligament

- Posterolateral Corner
  - Popliteus tendon
  - Lateral Collateral ligament
  - Popliteofibular ligament
  - Arcuate complex
  - Posterolateral capsule
  - Biceps femoris
  - Iliotibial tract



Lateral Collateral Ligament

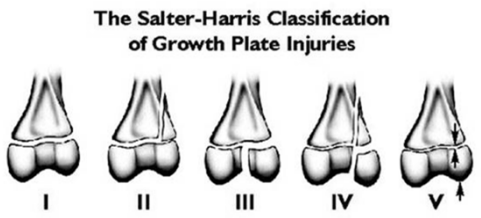
- Posterolateral Corner Injury
  - Highly unstable injury pattern
  - Key to recognition: asymmetric external rotation (30 and 90 degrees of flexion)
  - Increased external rotation at 90 suggestive of combined PLC, PCL tear
  - Acute repair (within 2-3 weeks of injury)
  - Reconstruction



External Rotation Recurvatum

Special Considerations

- Skeletally Immature
  - Always consider physeal fracture
  - Must obtain stress x-rays!
  - MRI often helpful



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Summary

- Most collateral ligament injuries are successfully treated WITHOUT surgery
- Physical exam is critical to rule out associated ligament injuries (ALWAYS compare to the other side)
- Prophylactic Bracing remains controversial
- Don't forget about the growth plates!