

Knee Pain

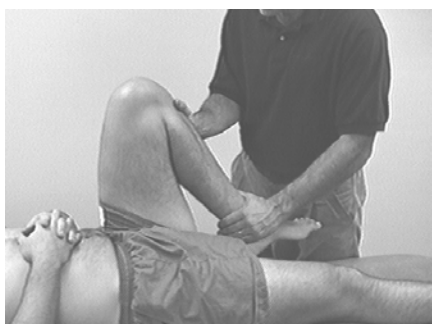
"Medial Meniscus Tear" or "Lateral Meniscus Tear"

ICD-9-CM:	717.3	Unspecified derangement of medial meniscus
	717.40	Derangement of lateral meniscus, unspecified

Diagnostic Criteria

History: Joint line or posterior knee pain
 Joint locking
 Inability to fully bend or straighten the knee
 Precipitating twisting/pivoting, hyperflexion, or hyperextension mechanism

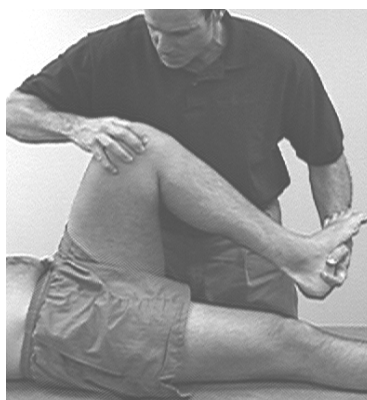
Physical Exam: Joint line tenderness (symptoms reproduced)
 Guarding, clicking, or pain with hyperflexion, hyperextension or
 McMurray's Test



Hyperflexion Test



Hyperextension Test



McMurray's Test

Cues: Begin tests slowly and gently - increase the amount of overpressure force if gentle forces are easily tolerated
 Add tibial rotations and varus/valgus forces in an attempt to elicit symptoms

Meniscal Tears of the Knee

ICD-9: 717.3 unspecified derangement of medial meniscus
ICD-9: 717.40 derangement of lateral meniscus, unspecified

Description: Meniscal tears are very common sports injuries. Typical symptoms include pain, catching, and buckling.

Etiology: The mechanism of injury often describes a twisting injury to the knee, or full flexion of the knee (as in kneeling) that leads to pain or locking. The twisting can lead to meniscal tearing through shear forces, whereas loading the knee in full flexion can overload the posterior horn leading to a meniscal tear.

Physical Examinations Findings (Key Impairments)

Acute Stage / Severe Condition

- Effusion usually accompanies a medial meniscus tear, but not always a lateral tear
- Weight bearing flexion-extension (i.e., squatting) is painful and difficult to perform
- If the knee is locked, a springy- rebound end feel will be noted moving into extension
- McMurray's test may not be able to be performed if considerable effusion restricts flexion, because it is applicable only from full flexion to 90 degrees. If flexion is possible, a painful click may be elicited on combined external rotation and extension if a tear exists in the posterior portion of medial meniscus, or on combined internal rotation and extension if posterior lateral meniscus lesion exists
- Tenderness is present at the joint line where a sprain to the peripheral attachment has occurred

Sub Acute Stage / Moderate Condition

As Above – except:

- Passive overpressure reveals a muscle-guarding end feel at the extremes of flexion and extension.

Settled Stage / Mild Condition

As Above-except

- Passive overpressures are reproducible of symptoms only with end range in either combined external rotation and extension or combined internal rotation and extension
- Rotation opposite the side of the lesion may be painful, especially during Apley's test with compression applied. Distraction with rotation should relieve the pain. This movement should be relatively normal unless a ligamentous injury also exists

Intervention Approaches / Strategies

Acute Stage / Severe Condition

Goals: Restore painfree active knee movement

- Physical Agents
 - Ice
 - Electrical stimulation
- Therapeutic Exercises
 - Submaximal, controlled, quadriceps and hamstring setting exercises through available painfree ranges
- External Devices (Taping/Splinting/Orthotics)
 - May use crutches as required to limit pain

Sub Acute Stage / Moderate Condition

Goal: Restore normal, painfree response to overpressure at end ranges flexion or extension.

- Approaches / Strategies listed above
- Manual Therapy
 - May attempt manual traction and manual resistance using PNF patterns with an emphasis on the distraction portion of the facilitation.
- Therapeutic Exercises
 - Progress knee mobility and strengthening exercises if tolerated
 - Include exercises that focus on maintaining strength in hip musculature

Settled Stage / Mild Condition

Goals: Restore normal, painfree response to overpressure to both flexion and extension and combined movements of external rotation and extension and / or internal rotation and extension.

Normalize status on weight bearing

Increase strength dynamic control, and endurance of the involved lower extremity

- Approaches / Strategies listed above
- Therapeutic Exercises
 - Instruct in stretching exercises to address the patient's specific muscle flexibility deficits

- Progress strengthening exercises to address the patient's specific muscle strength deficits

Intervention for High Performance / High Demand Functioning in Workers or Athletes

Goal: Return to desired occupational on leisure time activities.

- Approaches / Strategies listed above
- Therapeutic Exercises
 - Progress strengthening with isokinetic exercises using velocity spectrum rehabilitation
 - Continue to improve general endurance and conditioning with aerobic activities such as bicycling, swimming and walking
 - Progress strengthening, stabilization, and balance activities in functional position with marching, lunges, step-up and step-down exercises, and plyometric training or slide board and balance board exercises

Selected References

Bernstein J. Meniscal Tears of the Knee. Diagnosis and Individualized Treatment. *Phys Sportsmed*. 2000;28:83-90.

McCarty E. Meniscal Tears in the Athlete: Operative and Non operative Management. *Phys Med Rehabil Clin N Am*. 2000;11:867-879.