



# Knee Examination

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# Knee Examination



- Corner stone
- Comparative analysis
- Translation or rotation
- End point compliance
- Magnitude and direction of coupled motions



# Knee Examination



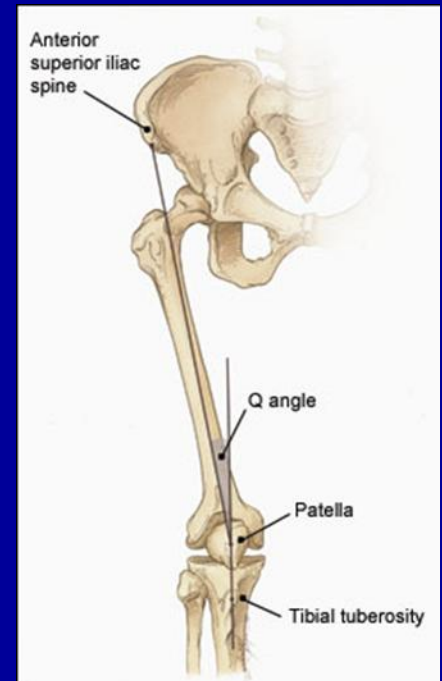
- Pain
- Swelling
- Instability
- Deformity



# Knee-Inspection



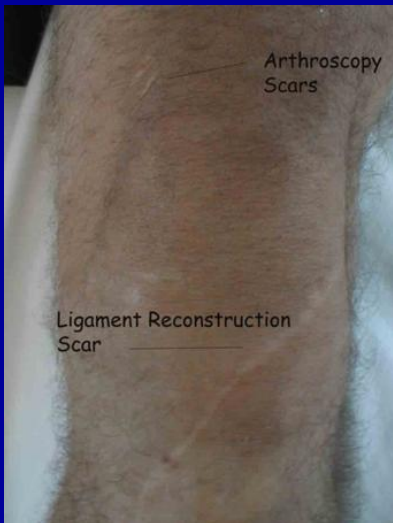
- Alignment
- Wasting
- Shortening



# Knee-Palpation



- Quadriceps
- Patella
- Ligamentum-Patellae
- Tibial-tuberosity







# Knee-Palpation

- Patella tap
- Synovial thickening
- Extensor lag
- Distance signs



# Knee Palpation

- ROM





# Meniscus

- Catch or locking
- Pain with forced hyper-extension
- Pain in maximum flexion
- Joint line tenderness
- McMurray test



92% diagnosis ,in ACLT false +,if DJD +  
there is ↑predictive value

Lowery DJ et al Arthroscopy 2006



# Meniscus- ACL



- Clinical Exam vs MRI

- No statistical difference
- MRI for complex cases only

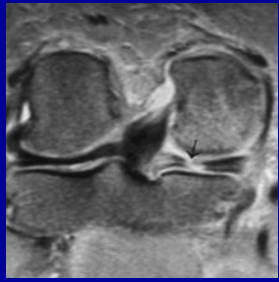
Kocabey Y et al, Arthroscopy ,2004

|             | Medial meniscus |        | Lateral meniscus |        | ACL  |        |
|-------------|-----------------|--------|------------------|--------|------|--------|
|             | MRI             | Clinic | MRI              | Clinic | MRI  | Clinic |
| Accuracy    | 80%             | 80%    | 92%              | 90%    | 100% | 98%    |
| Sensitivity | 87%             | 80%    | 75%              | 85%    | 100% | 96%    |
| Specificity | 68%             | 79%    | 95%              | 97%    | 100% | 96%    |
| PPV         | 82%             | 86%    | 75%              | 60%    | 100% | 96%    |
| NPV         | 76%             | 71%    | 95%              | 97%    | 100% | 96%    |

# Meniscus

- McMurray
- Stienmann
- Apley





# Meniscus



## \*Dynamic Test

- Squat(Duckwaddle)
- Ridvan Ege
- Thessaly

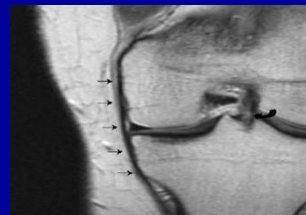




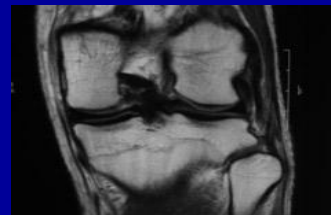
# Collateral-Ligament



## • Medial

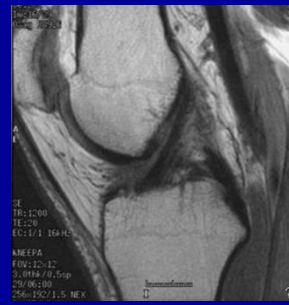


## Lateral





# ACL-PCL



- Lachman

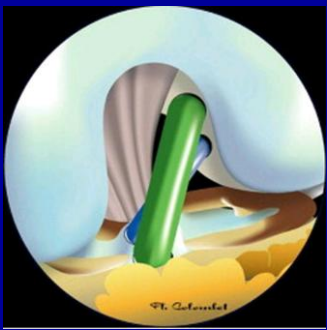


87% sensitive and 93%specific

Jackson JL et al Ann Intern Med 2003

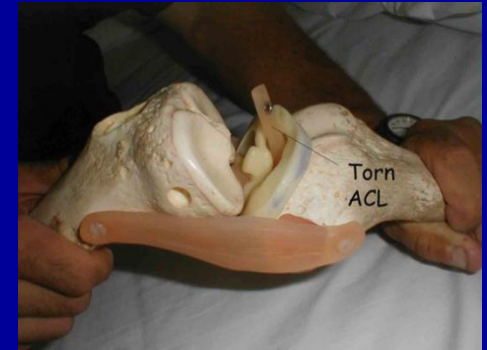
Bone School @ Bangalore





# ACL

- Anterior Drawer



43% sensitive and 87% specific

- Pivot shift (Palmer-Galway)

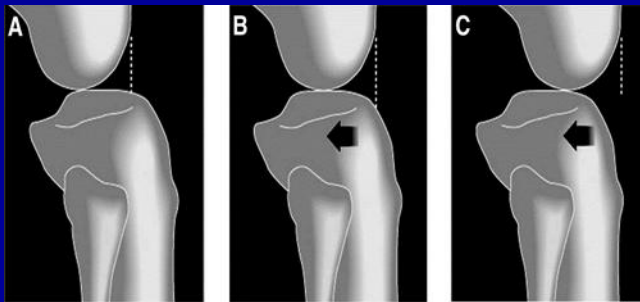
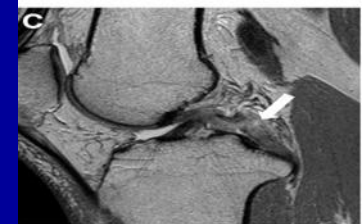
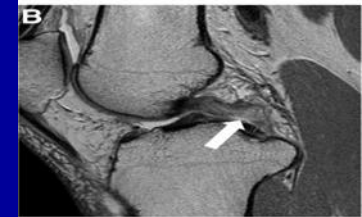
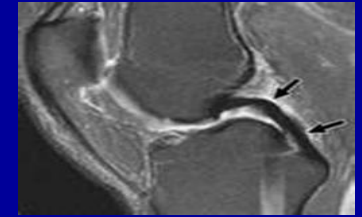
- Better measure of functional stability
- Correlates with clinical and functional outcome & development of DJD after ACLR



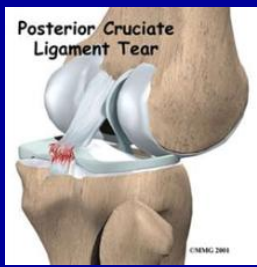


# PCL

- Posterior Drawer



Akisue T et al Arthroscopy 2001



# PCL

- Posterior Drawer
- Godfrey (Gravity sign)
- Quadriceps active test



# PLC



- Dial test (Veltri DM)
- Postero-lateral drawer
- Reverse pivot shift (Jacob & Staubli)
- External rotation recurvatum (Hughston)







# PCL-PLC

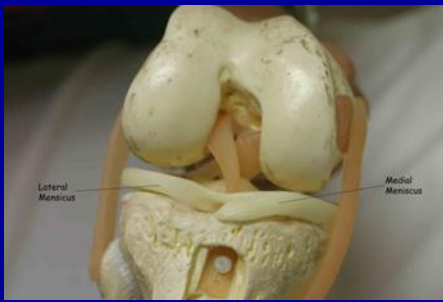
- Dial Test



10 degree more than the normal leg at 30 and 90 degree



# Related Exam

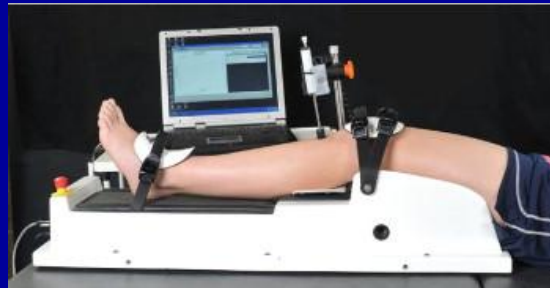
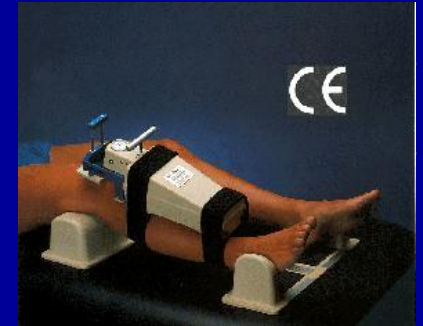


- Spine/Hip/Ankle
- Isometric muscle testing
- Regional nodes

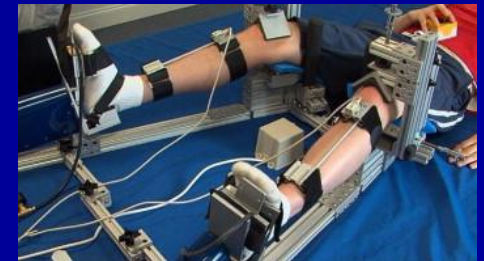


# Instrumented Measurement

- Dale Daniel and Larry Malcom 1985
  - KT-1000
  - KT 1000 with external torque device



- GNRB
- Robotic Measurement
- Stress radiography



# Message

- Each of us should strive "to rise above the routines of the daily ward round and to see in every patient an opportunity not only to serve mankind in the best tradition of medical excellence, but to add to the store of medical knowledge."

A. McGehee Harvey 1973

