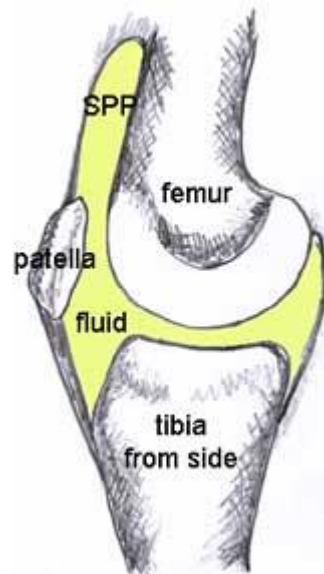
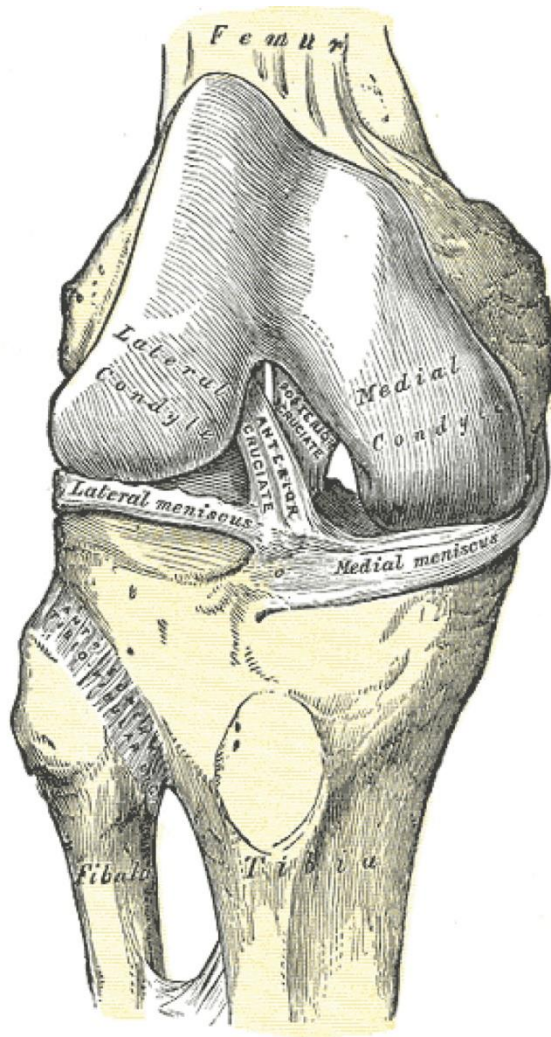


# KNEE JOINT

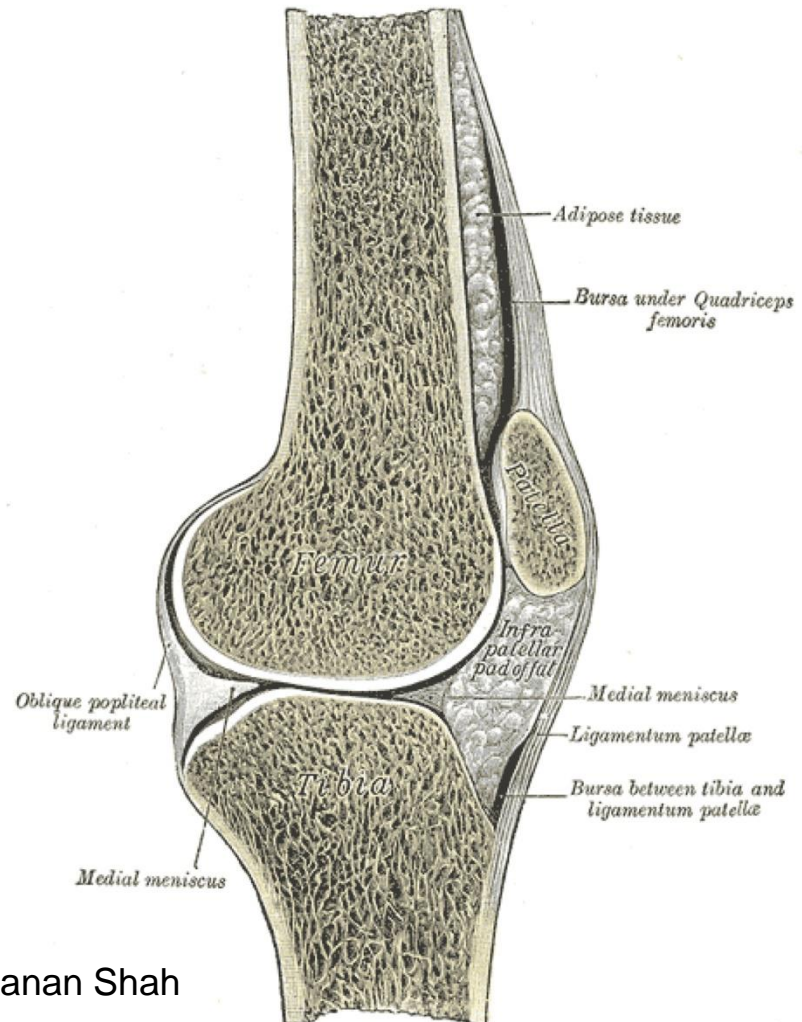


CONDYLAR VARIETY OF  
COMPLEX SYNOVIAL JOINT

# ARTICULAR SURFACES



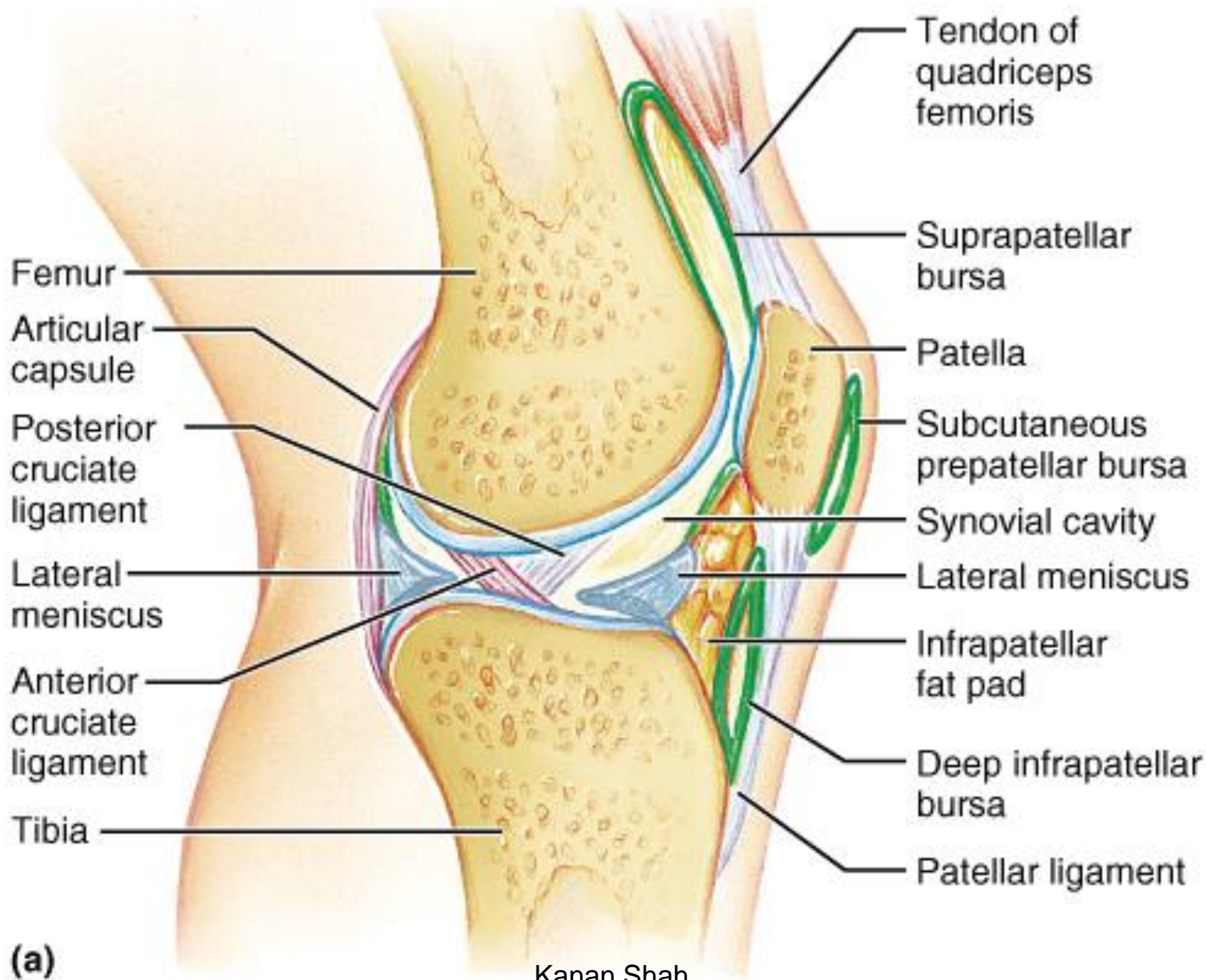
(a)



(b)

# LIGAMENTS OF KNEE JOINT

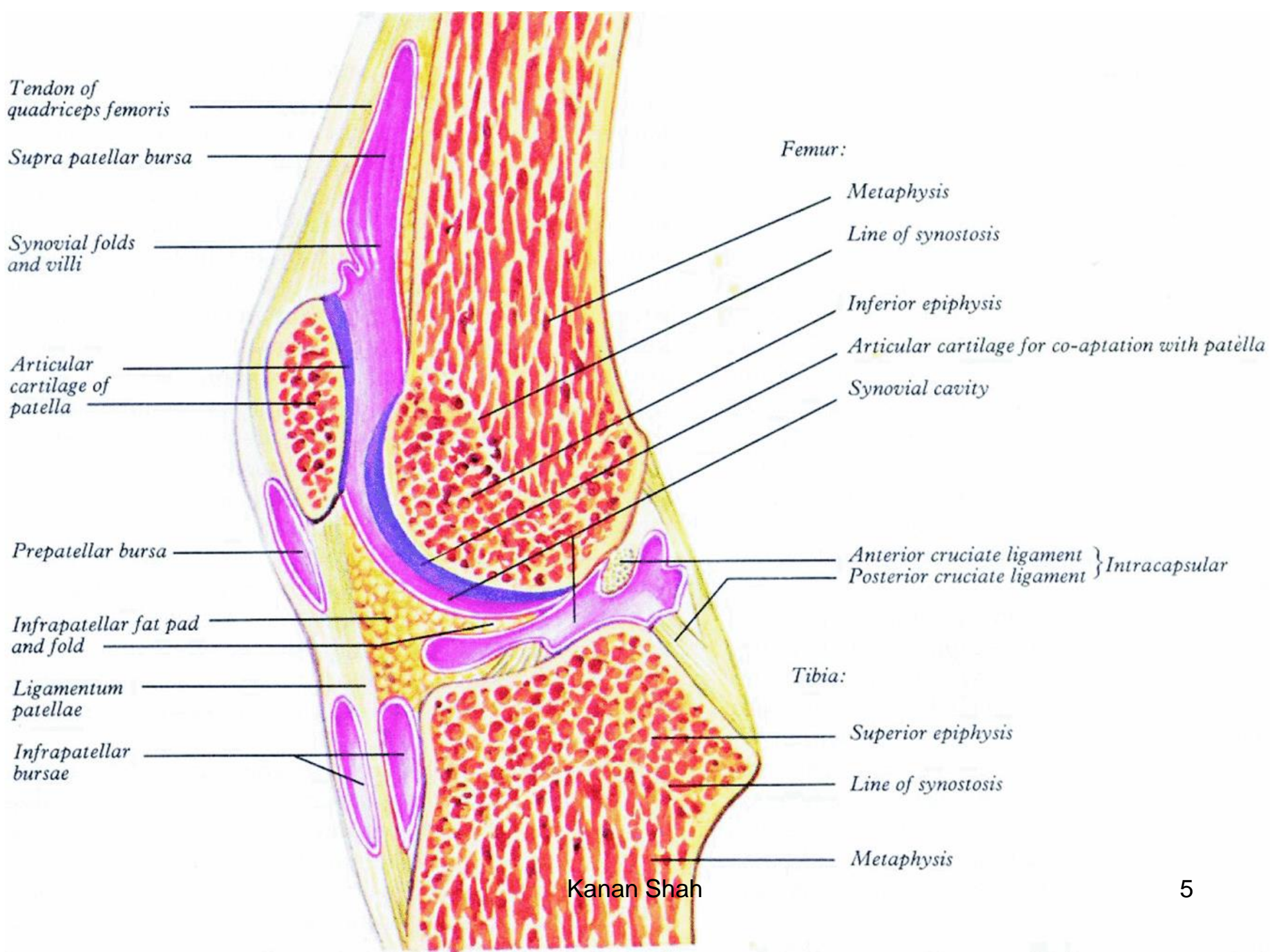
- Capsular ligament
- Synovial membrane
- Ligamentum patellae
- Tibial and Fibular collateral ligaments
- Oblique Popliteal and Arcuate ligaments
- Anterior and posterior cruciate ligament
- Coronary ligaments
- Transverse ligament
- Meniscoefemoral ligaments
- Medial and lateral menisci



**(a)**

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*Tendon of quadriceps femoris*

*Supra patellar bursa*

*Synovial folds and villi*

*Articular cartilage of patella*

*Prepatellar bursa*

*Infrapatellar fat pad and fold*

*Ligamentum patellae*

*Infrapatellar bursae*

*Femur:*

*Metaphysis*

*Line of synostosis*

*Inferior epiphysis*

*Articular cartilage for co-aptation with patella*

*Synovial cavity*

*Anterior cruciate ligament*

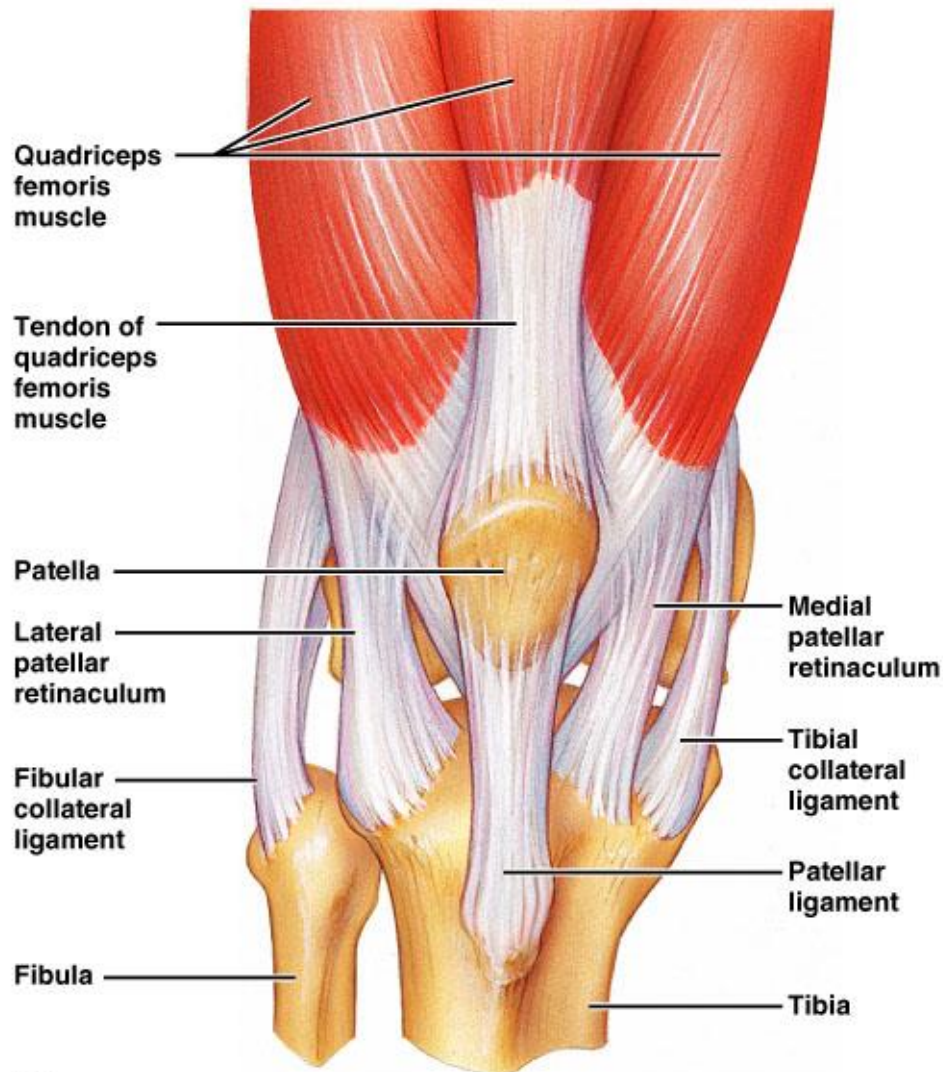
*Posterior cruciate ligament* } *Intracapsular*

*Tibia:*

*Superior epiphysis*

*Line of synostosis*

*Metaphysis*



**(c)**

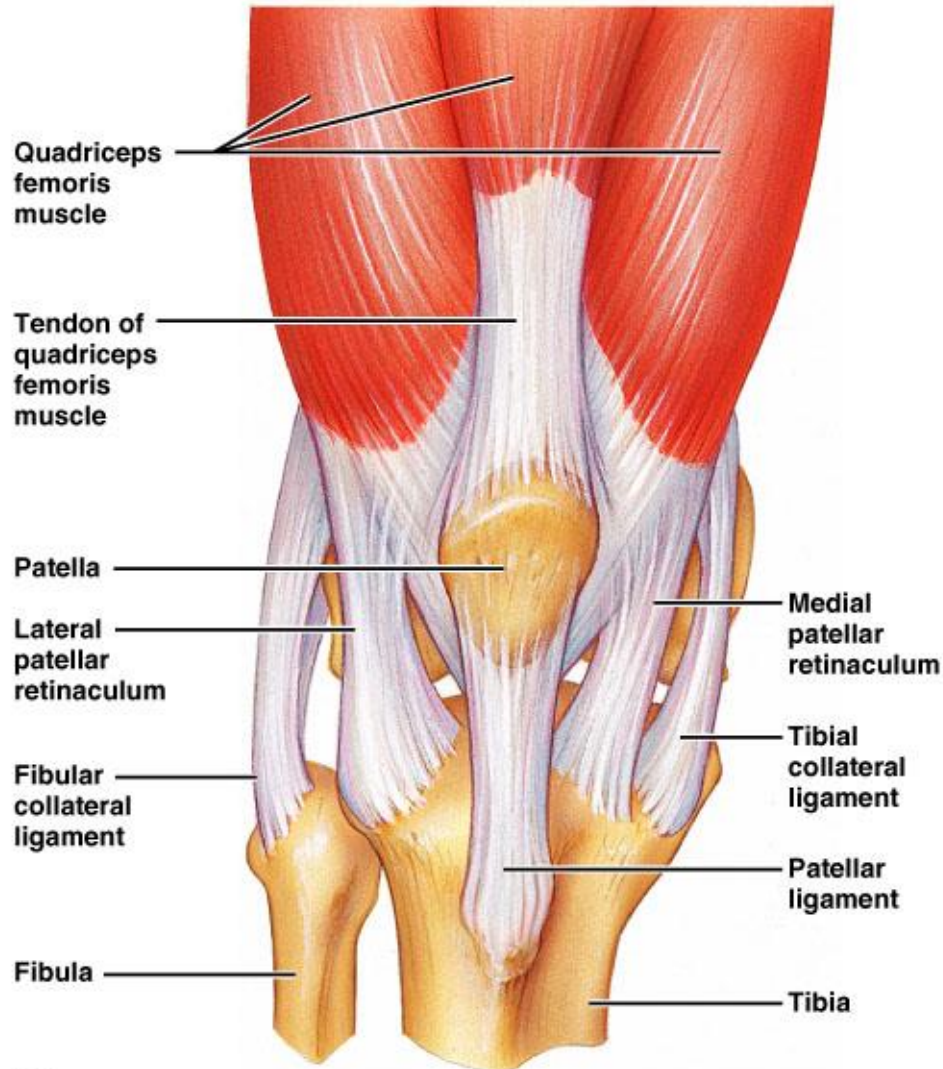
Kanan Shah

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Kanan Shah



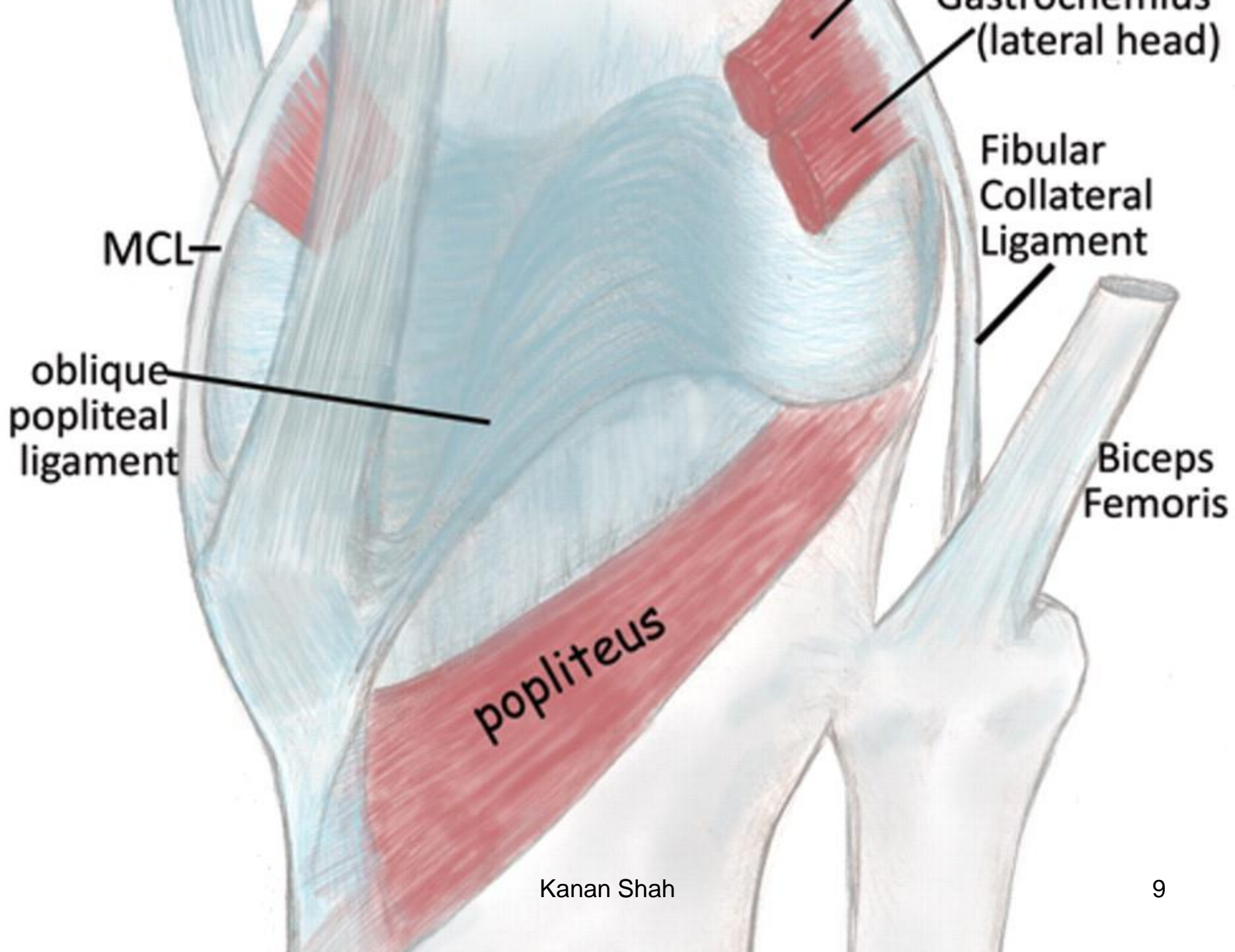


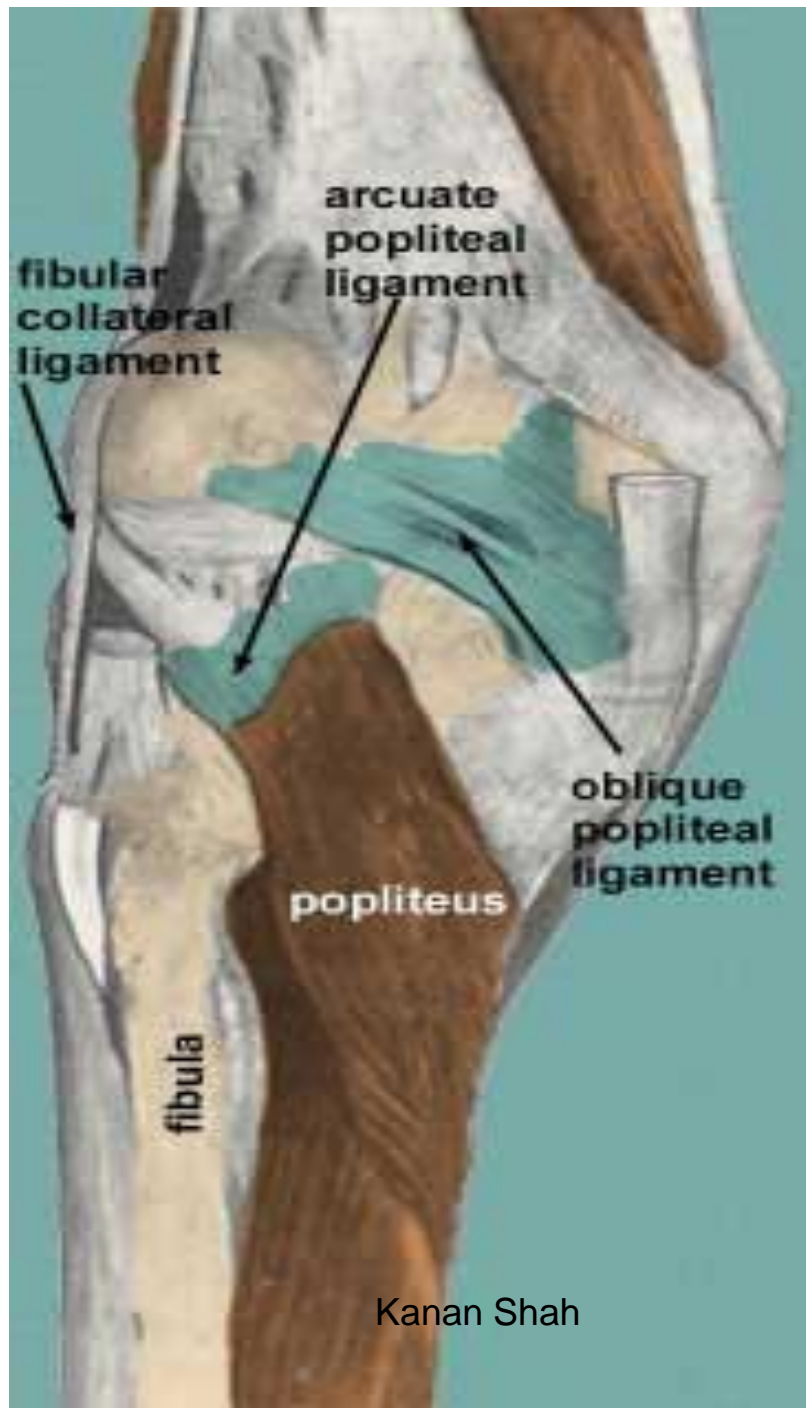
**(c)**

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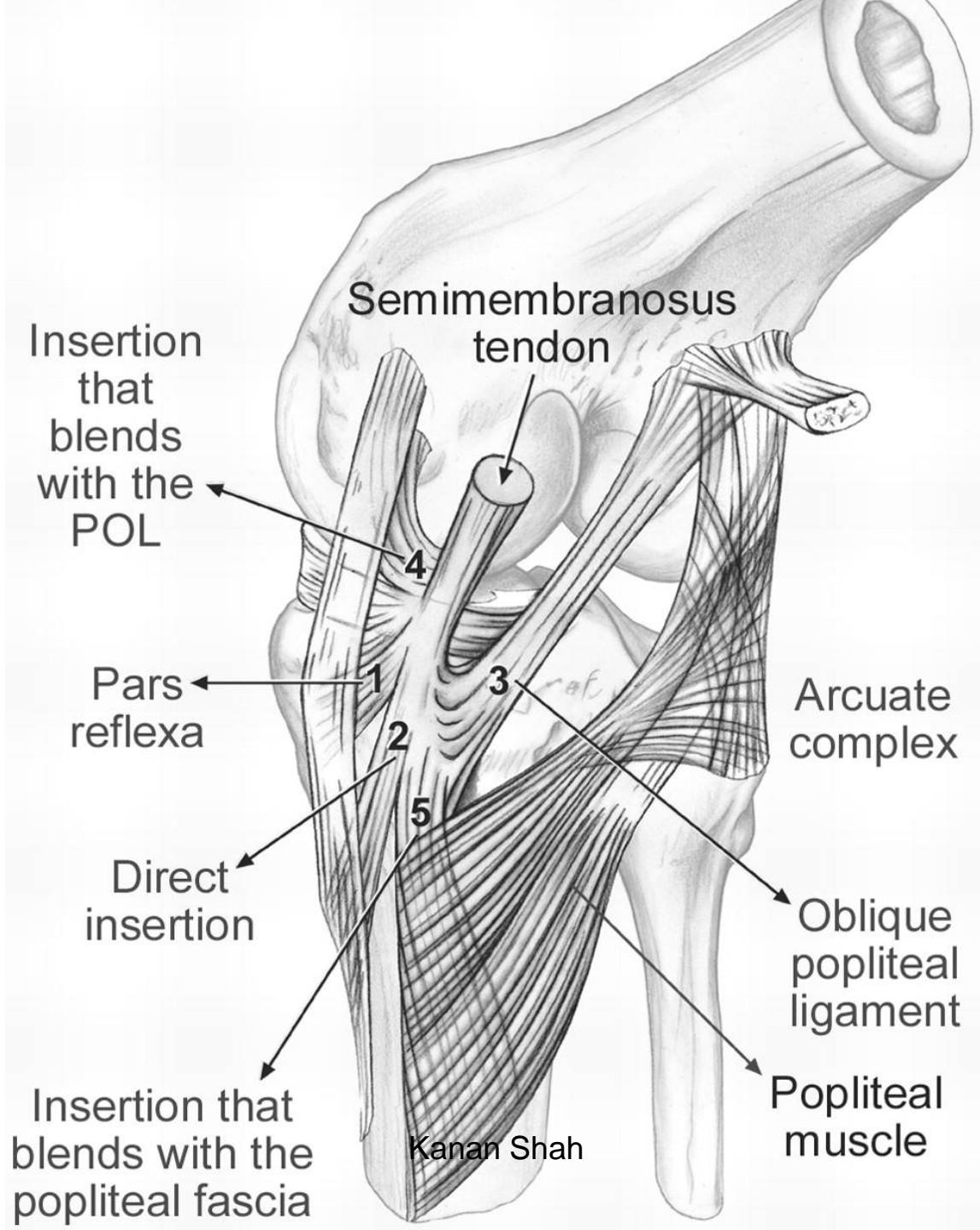
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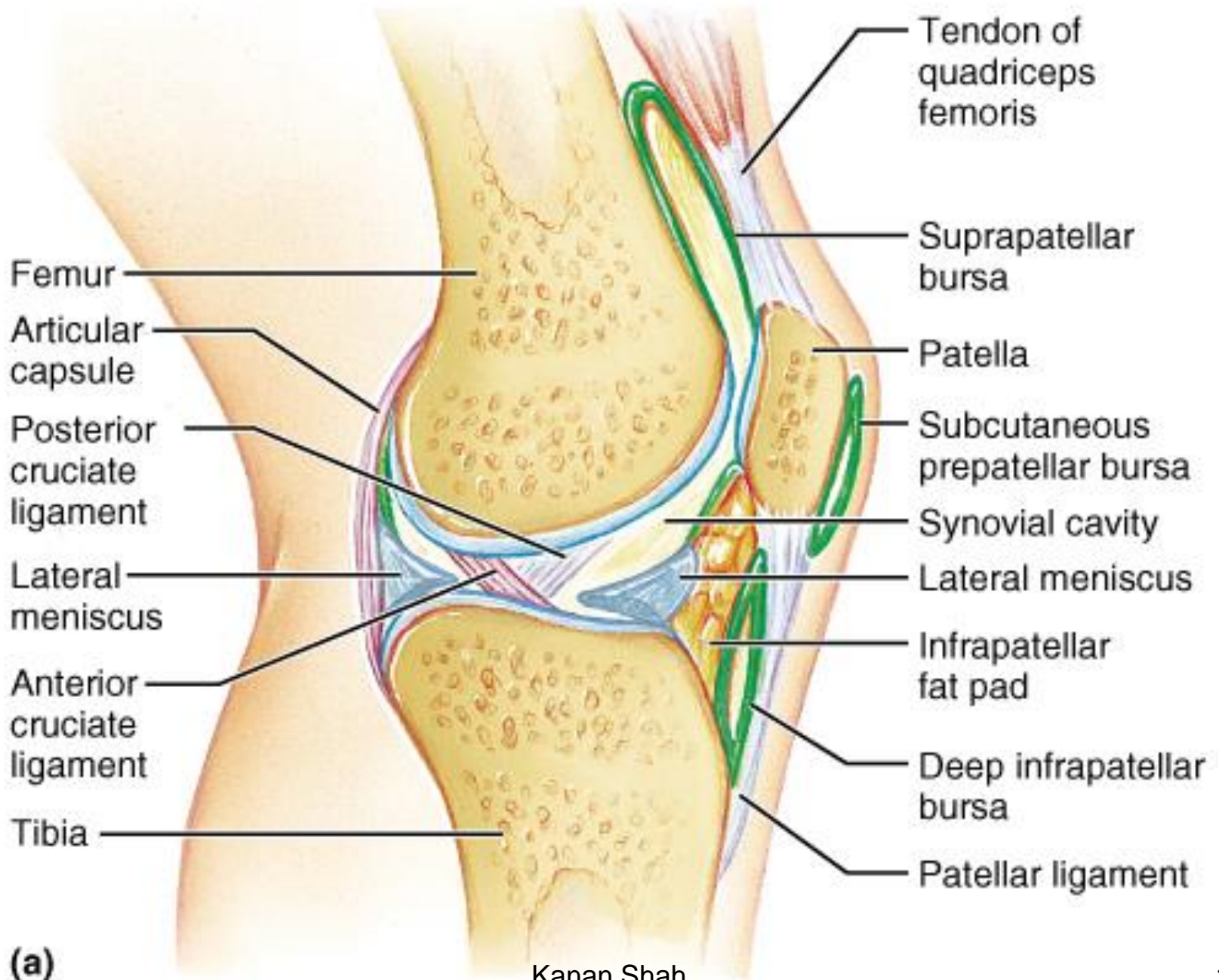




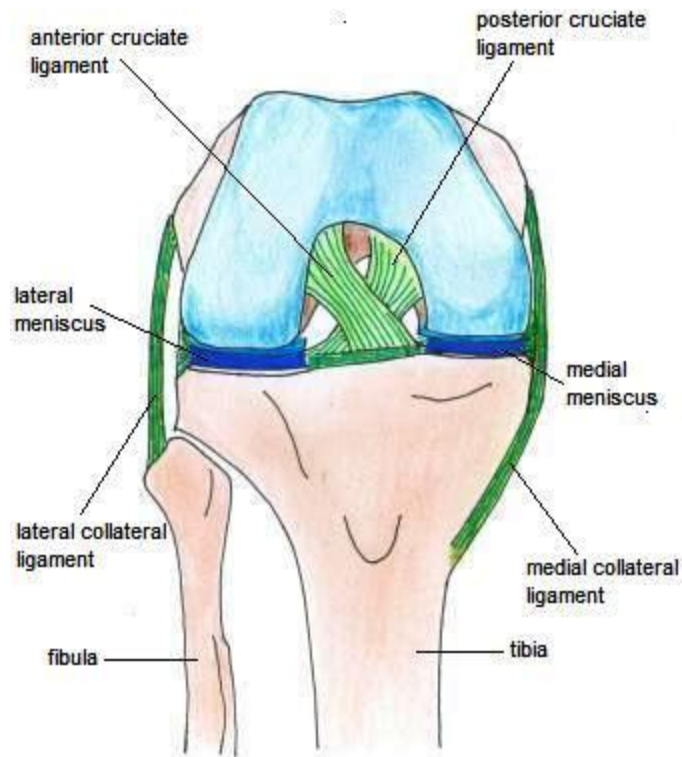




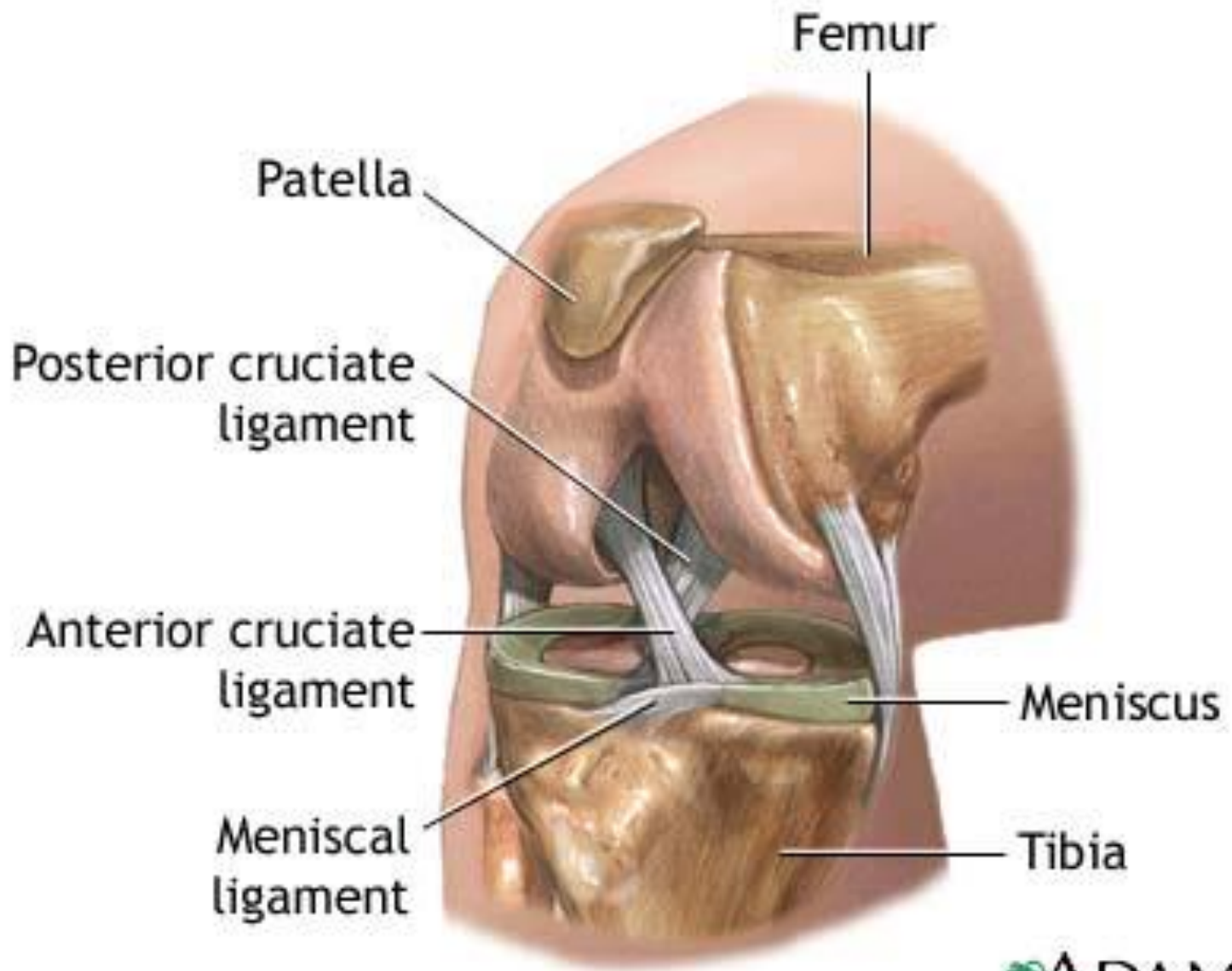




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FLEXED KNEE JOINT - VIEWED FROM FRONT



ADAM.

**Lateral Collateral Ligament**

**Femur**

**Articular Cartilage**

**Patella**

**Anterior Cruciate Ligament**

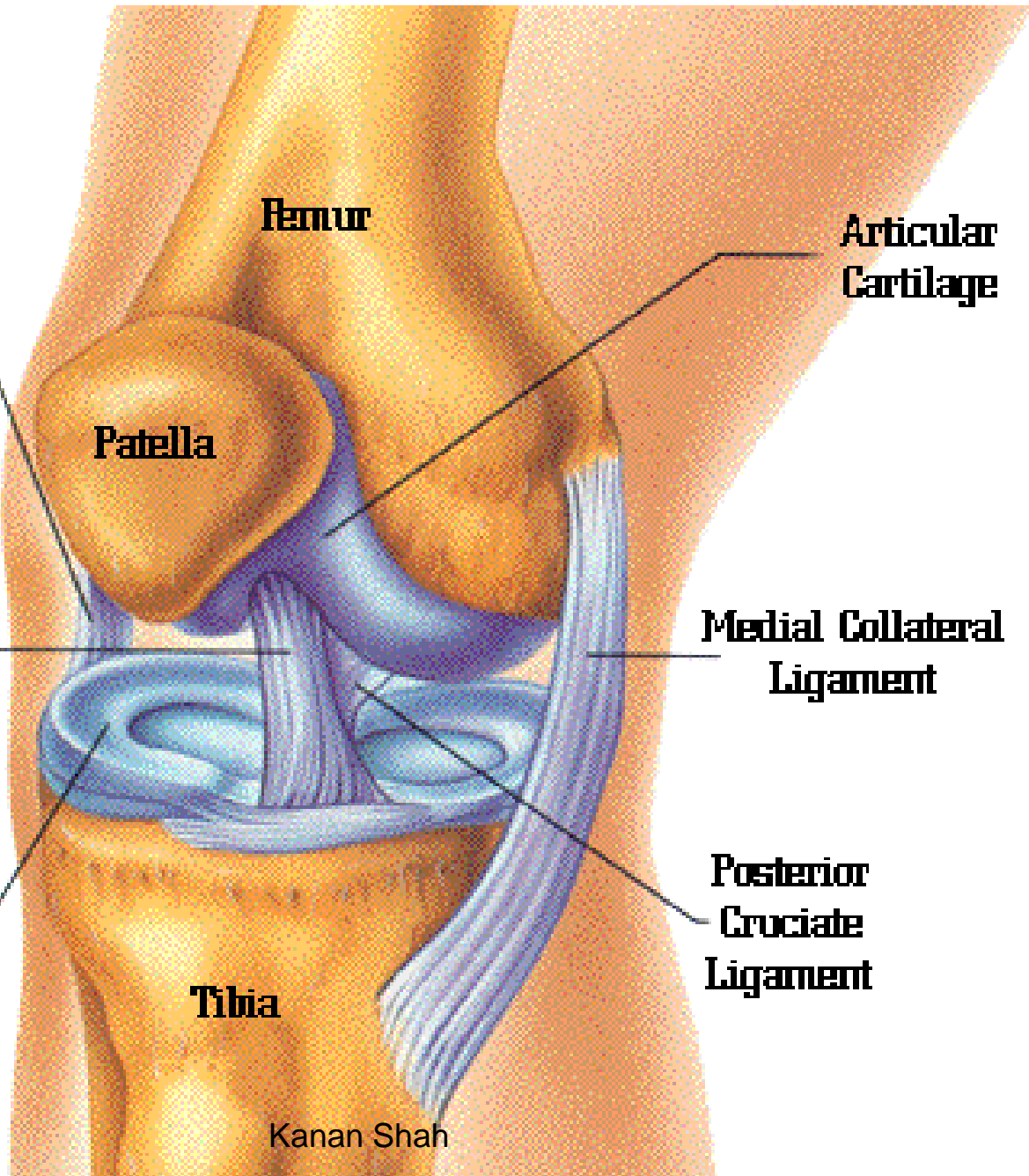
**Medial Collateral Ligament**

**Lateral Meniscus**

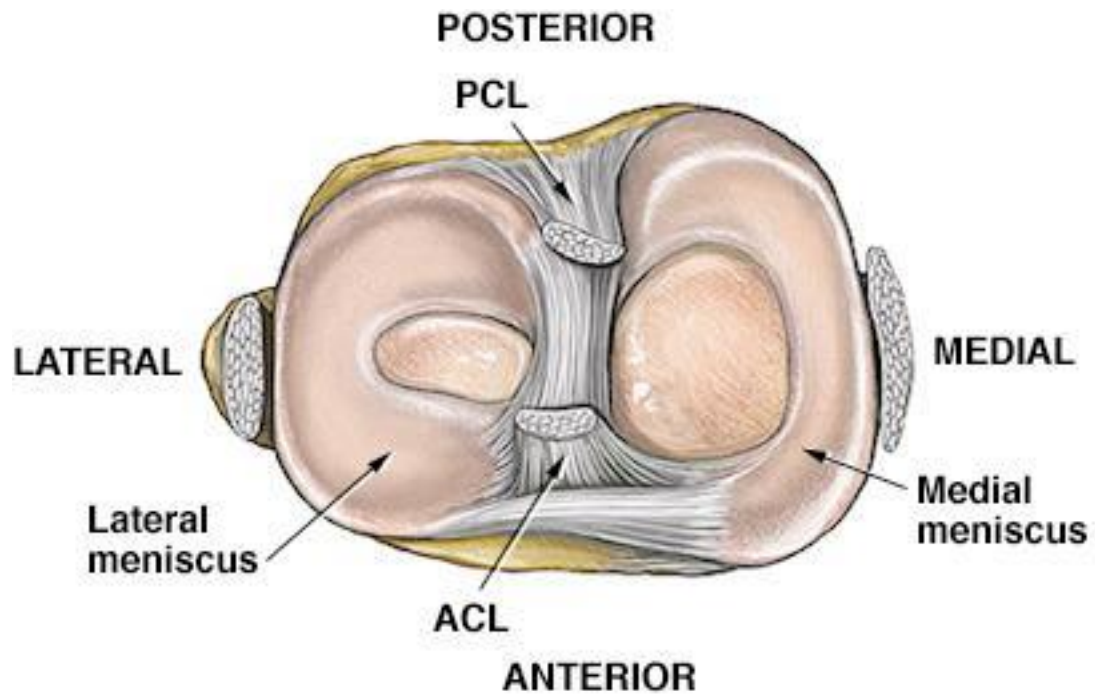
**Posterior Cruciate Ligament**

**Tibia**

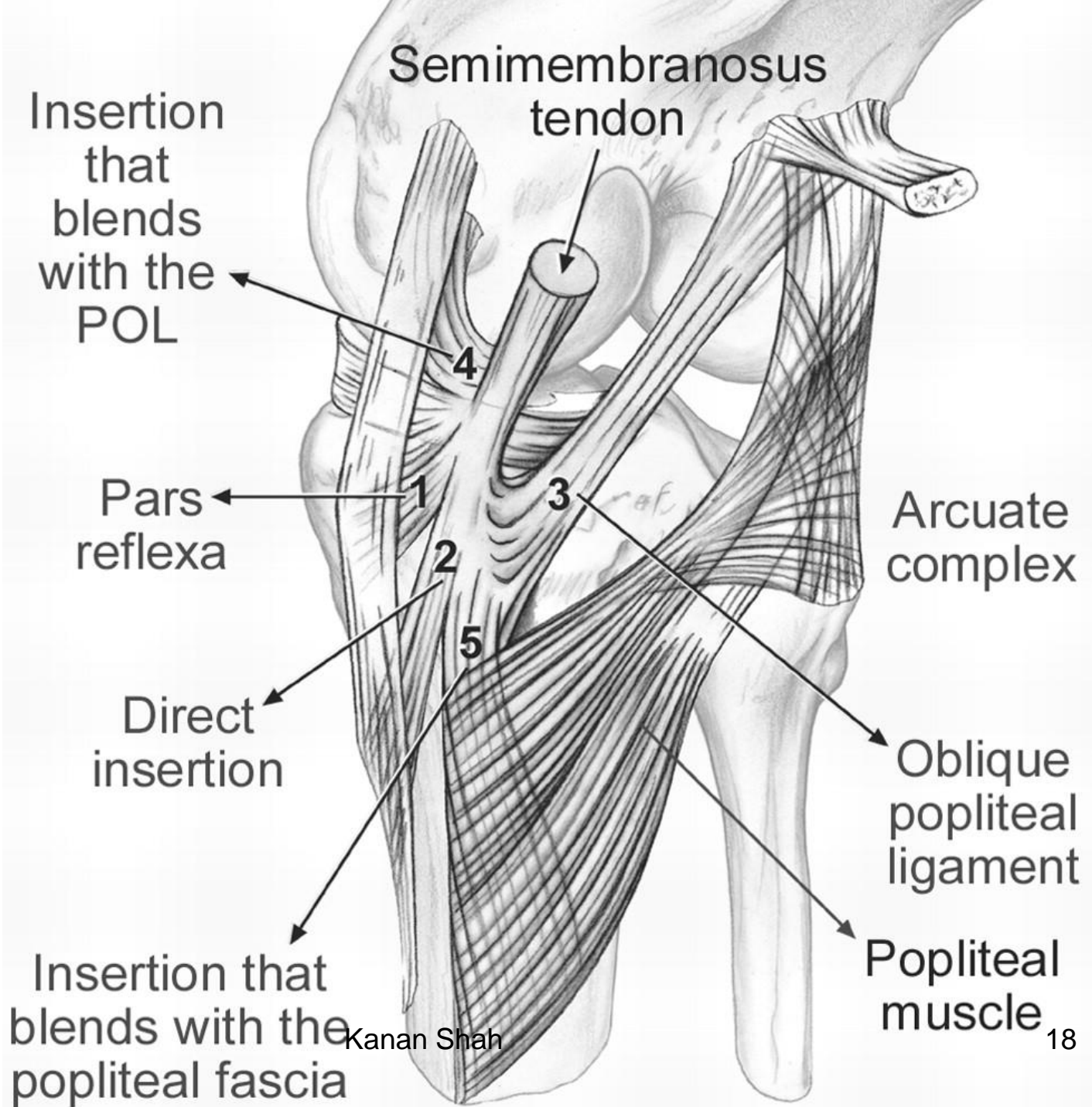
Kanan Shah

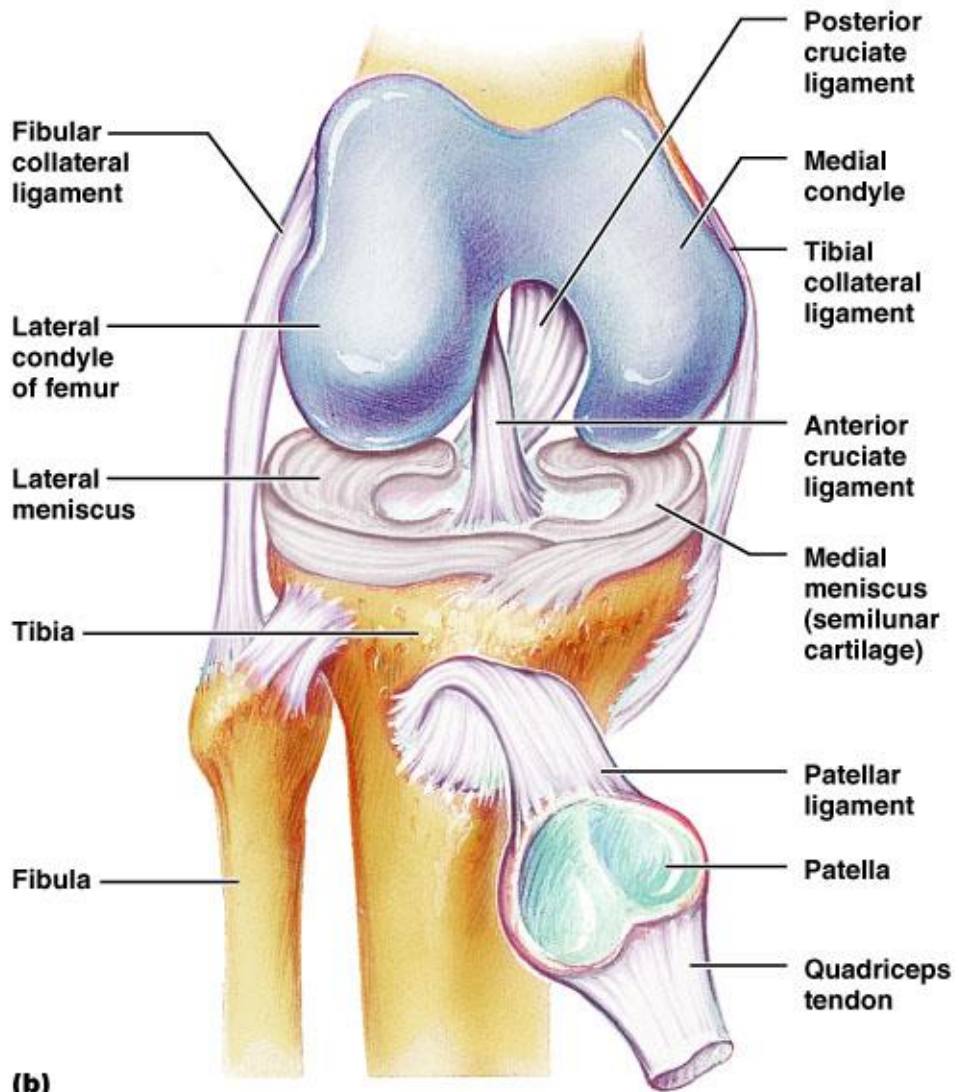




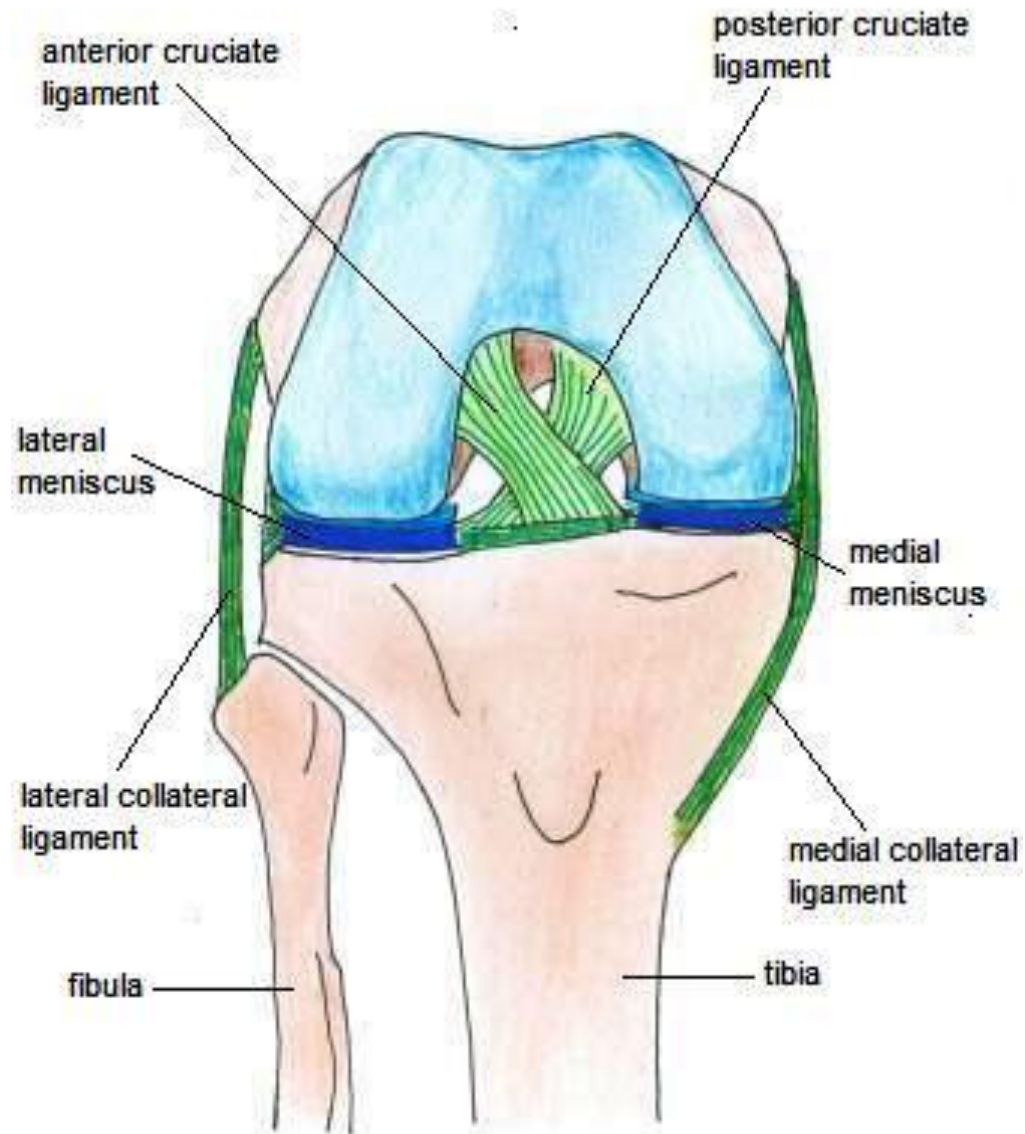


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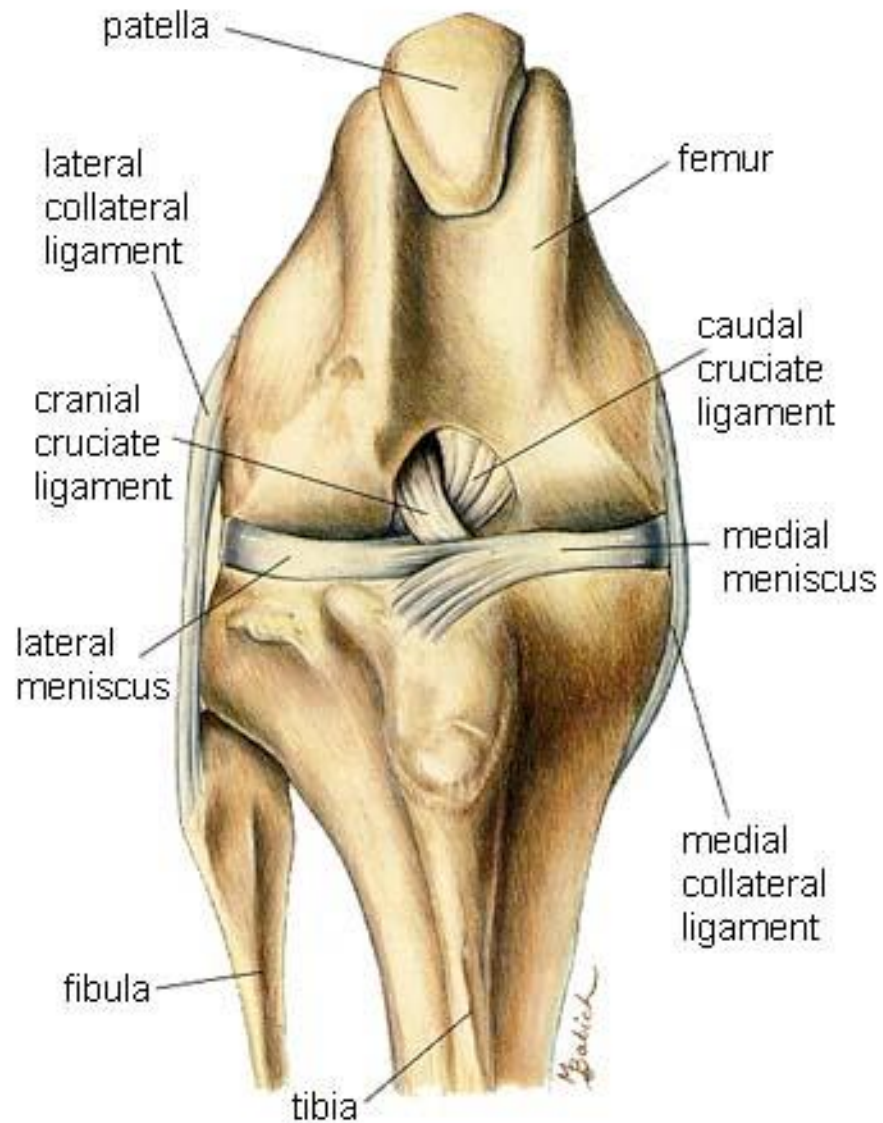
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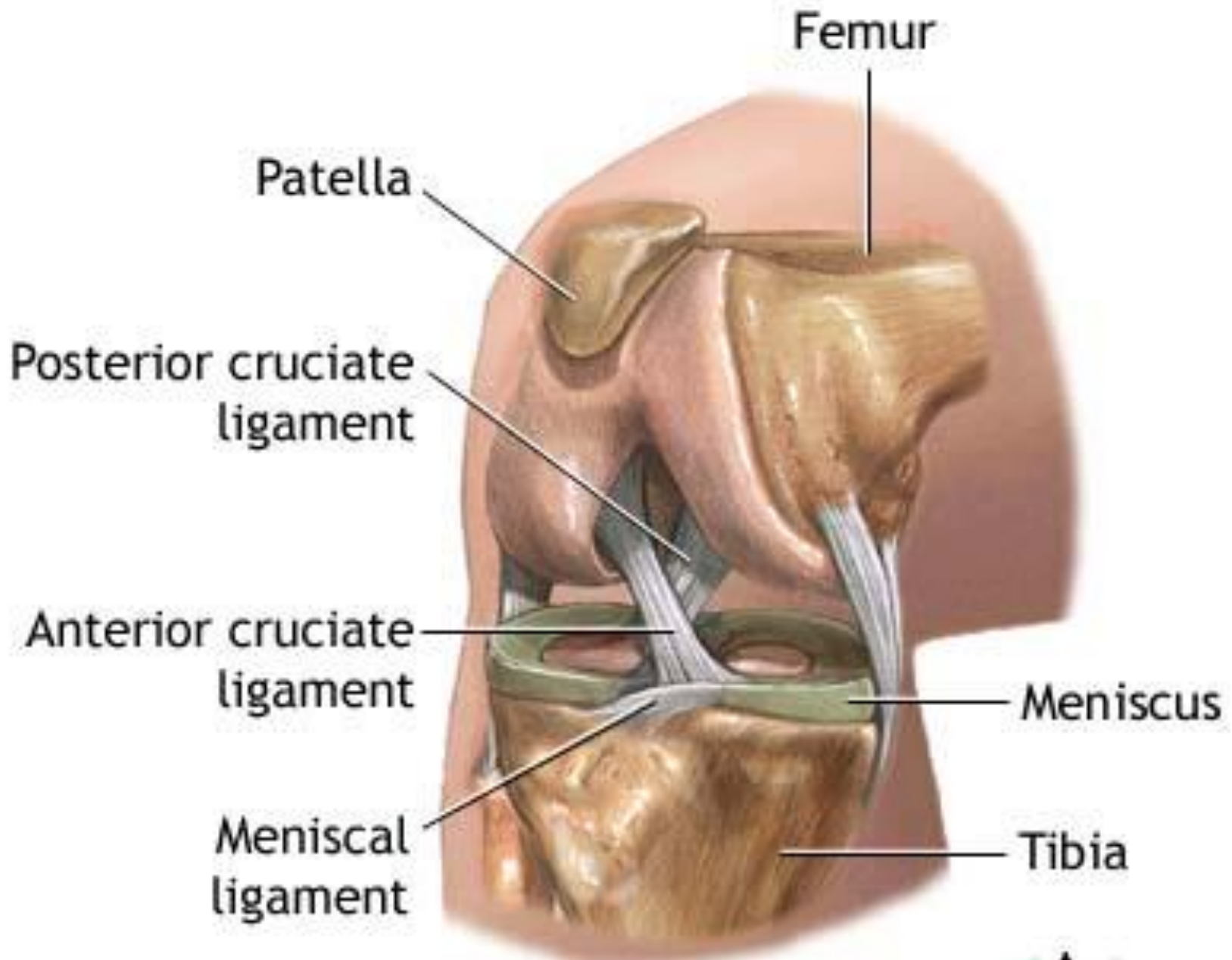


FLEXED KNEE JOINT - VIEW FROM FRONT

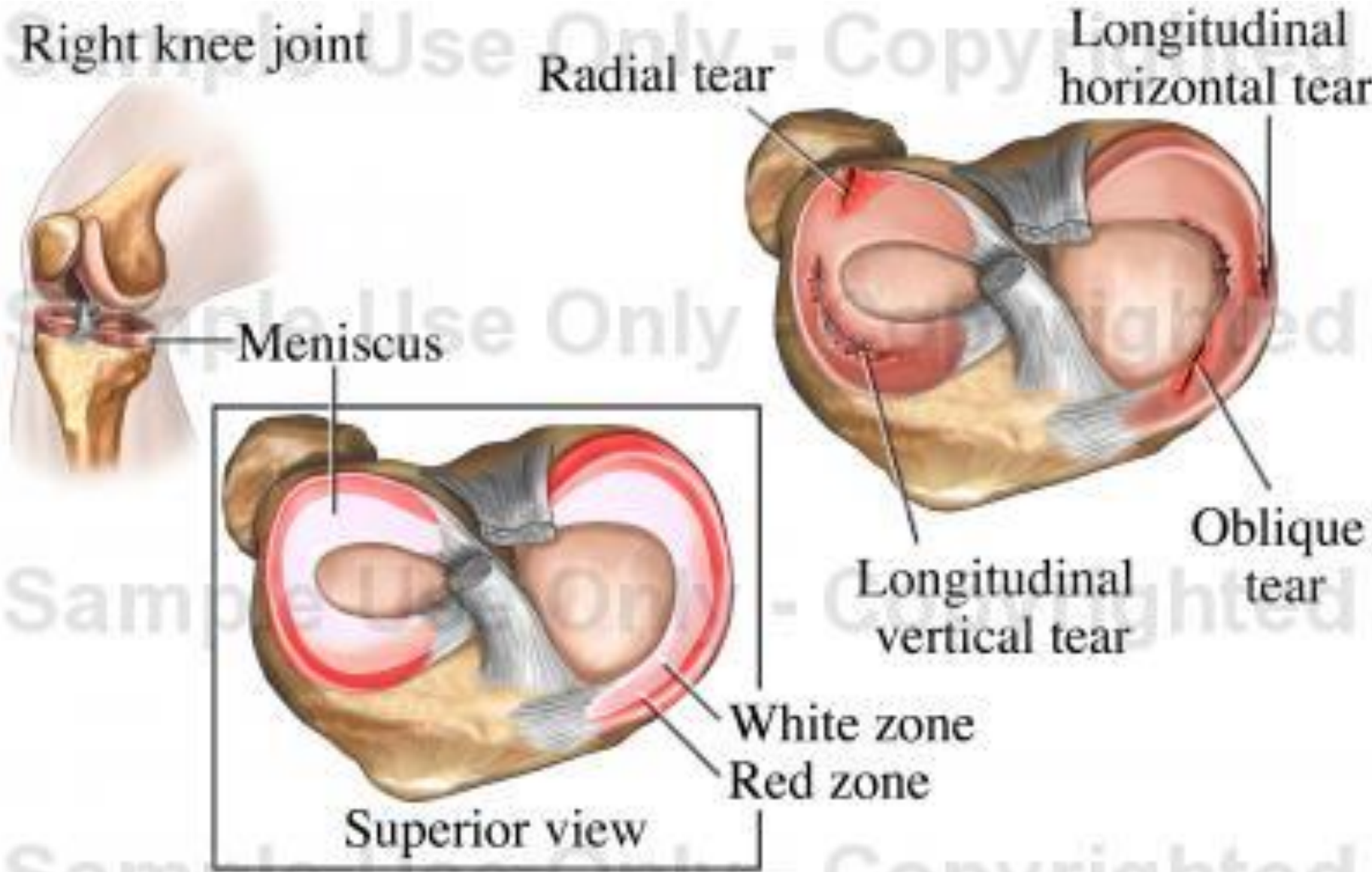
Kanar Shah

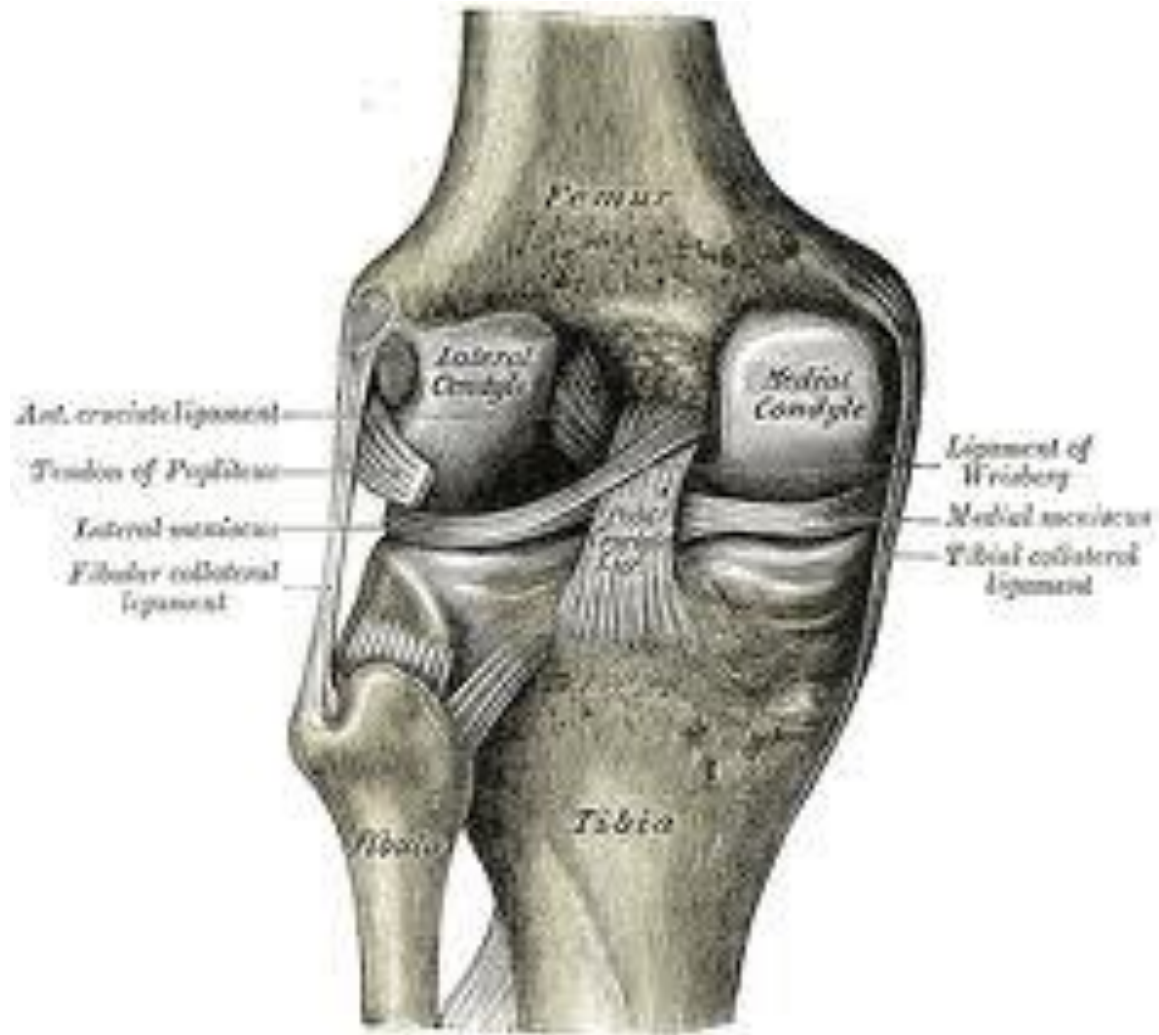




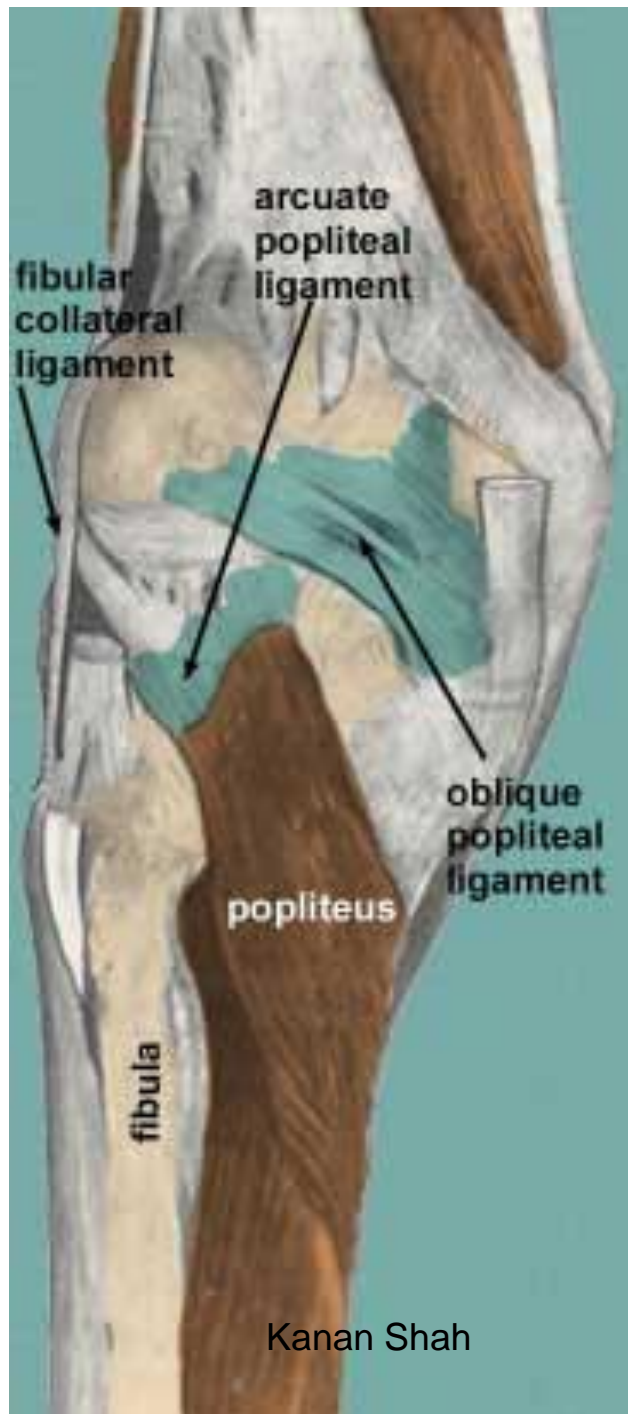


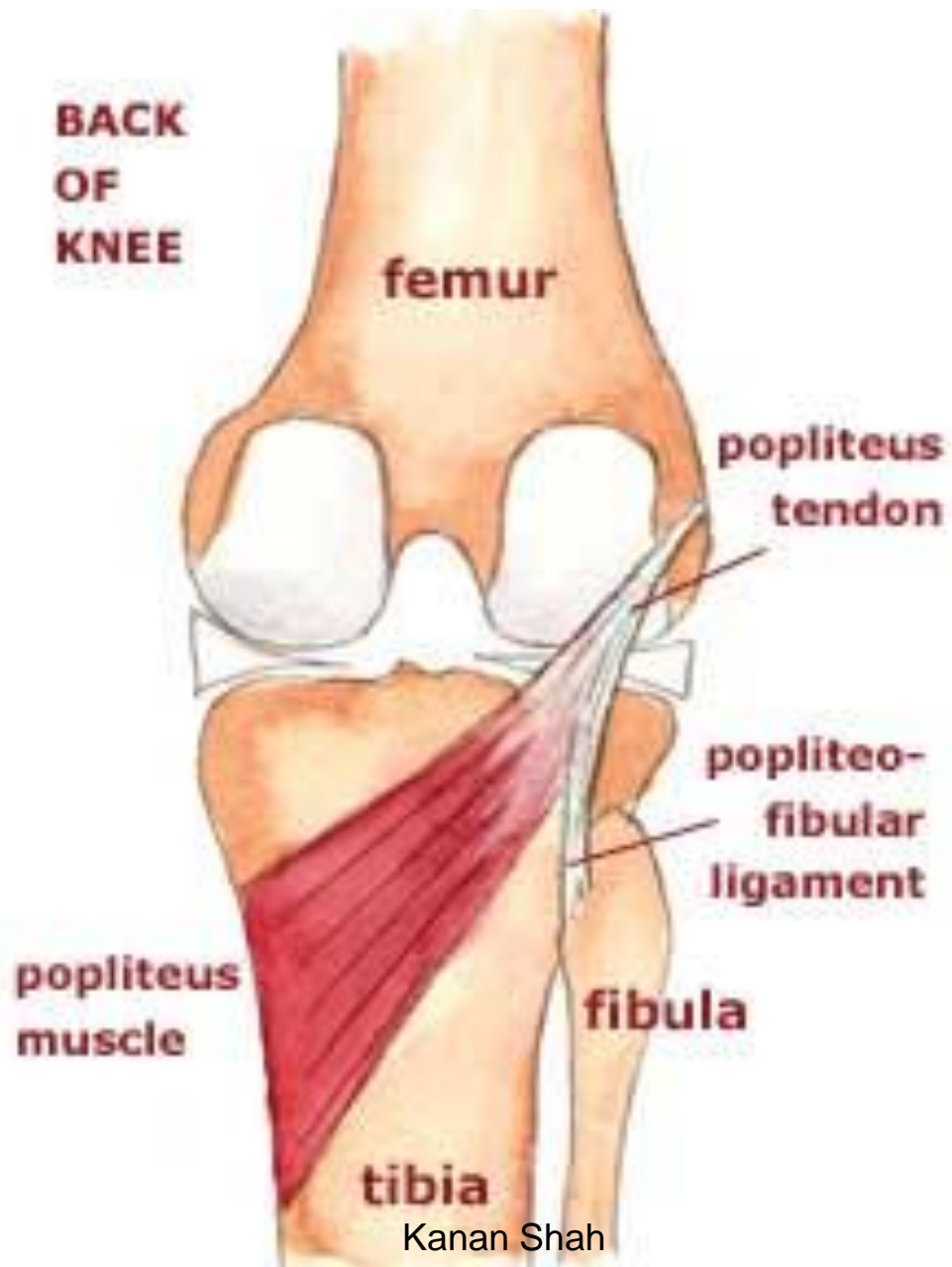
Kanan Shah

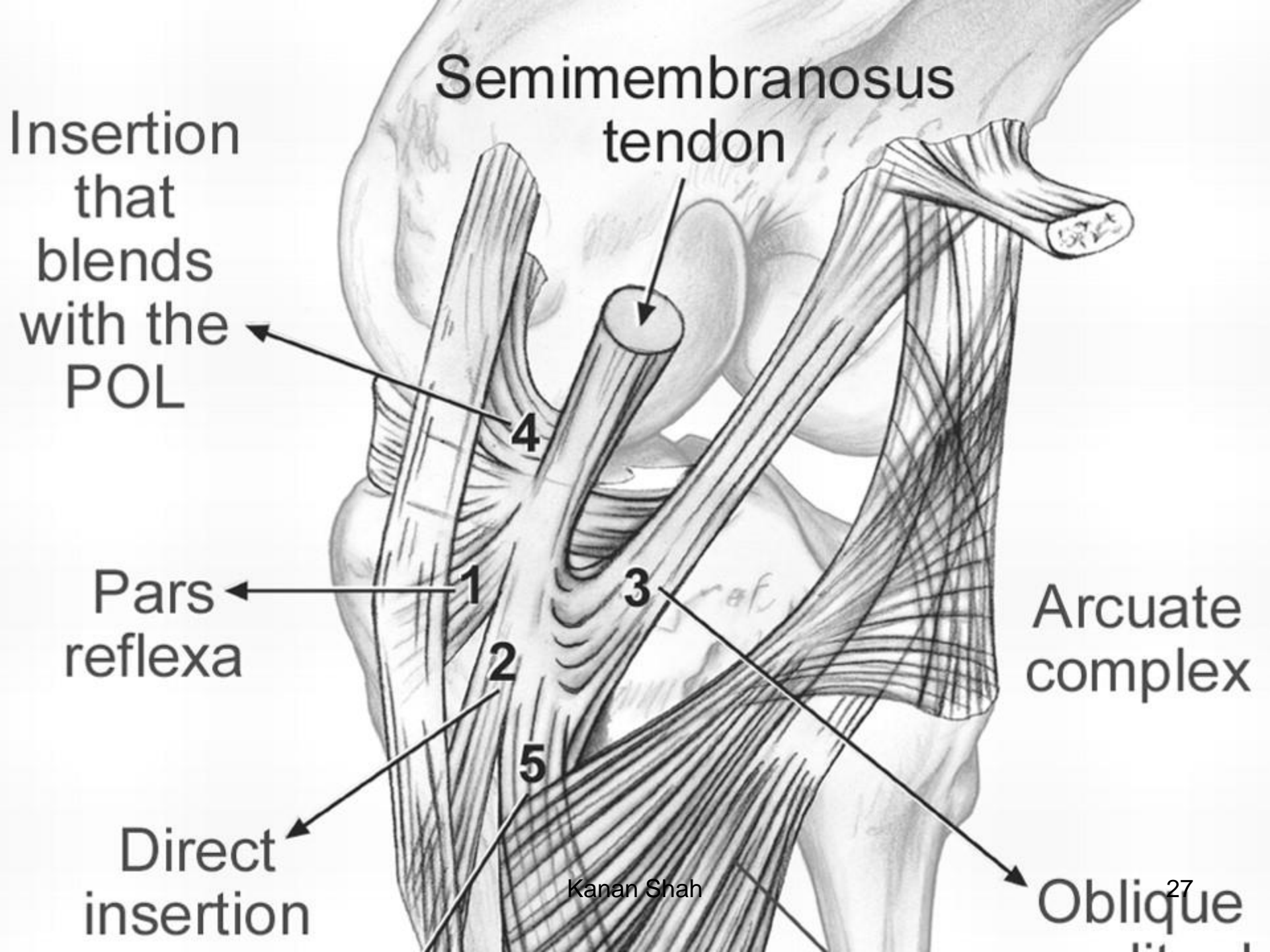












# Semimembranosus tendon

Insertion that blends with the POL

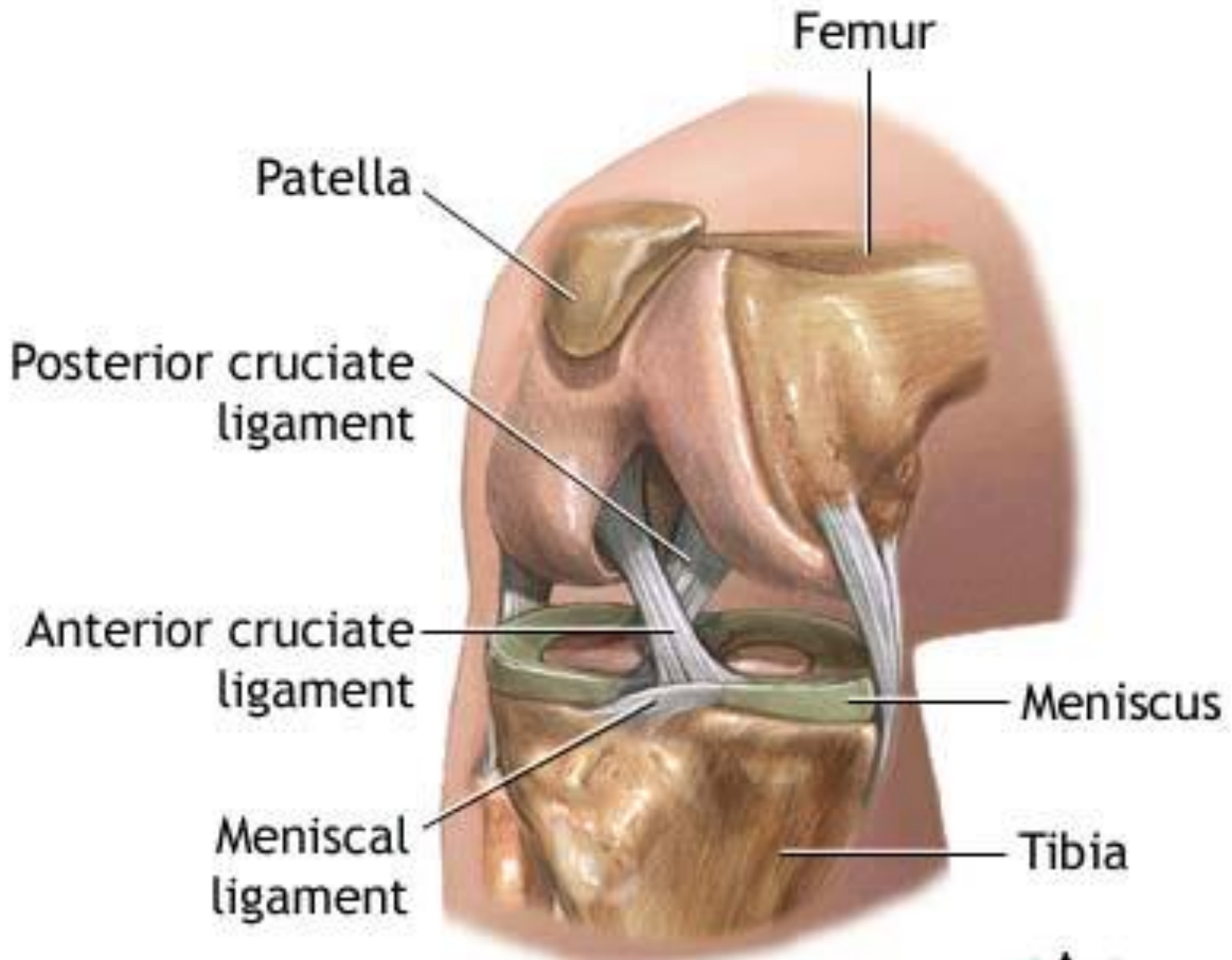
Pars reflexa

Direct insertion

Arcuate complex

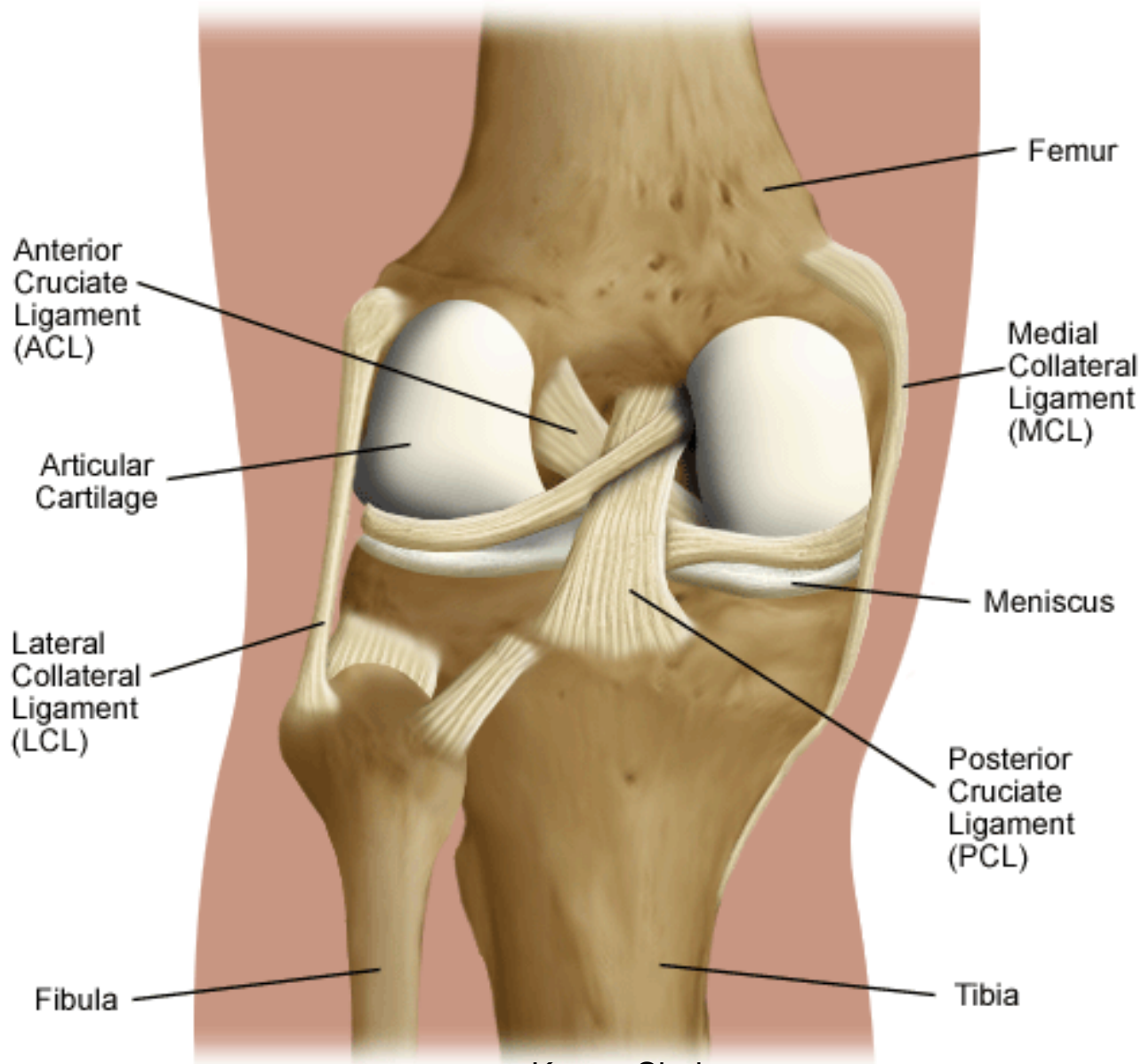
Oblique

Kanan Shah

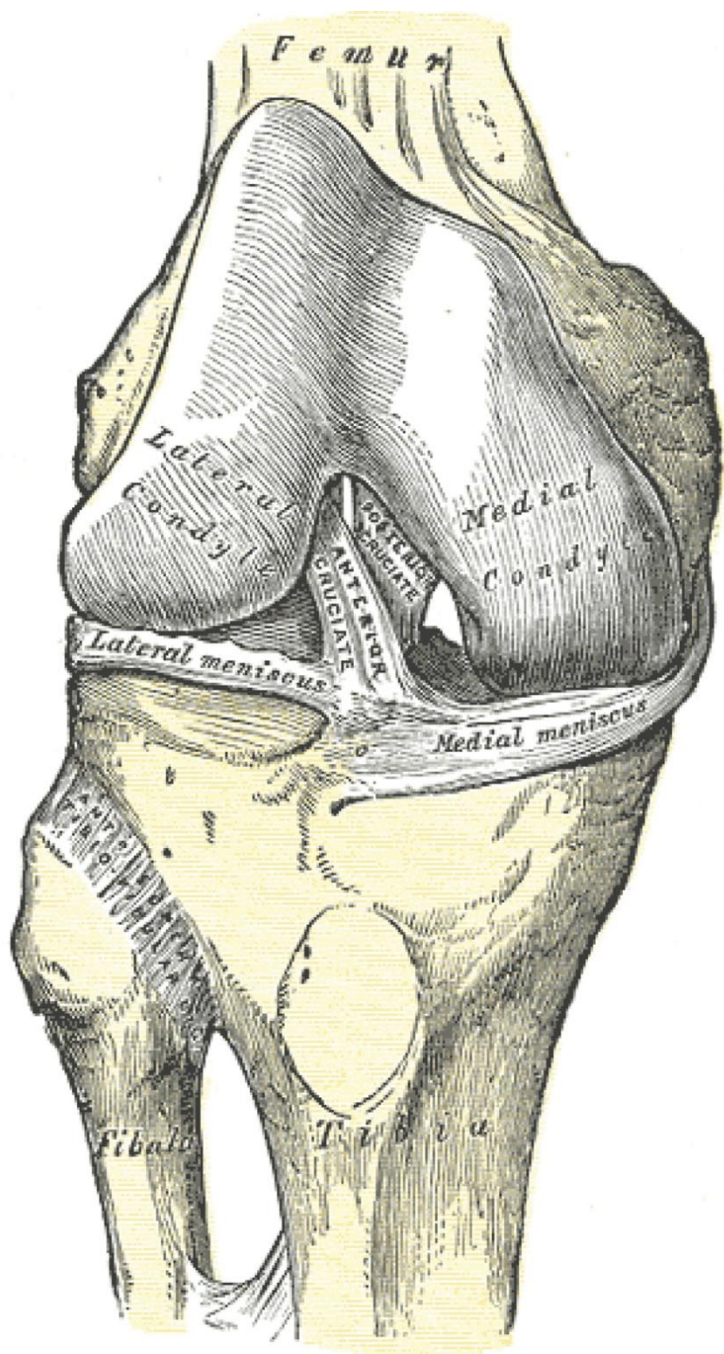




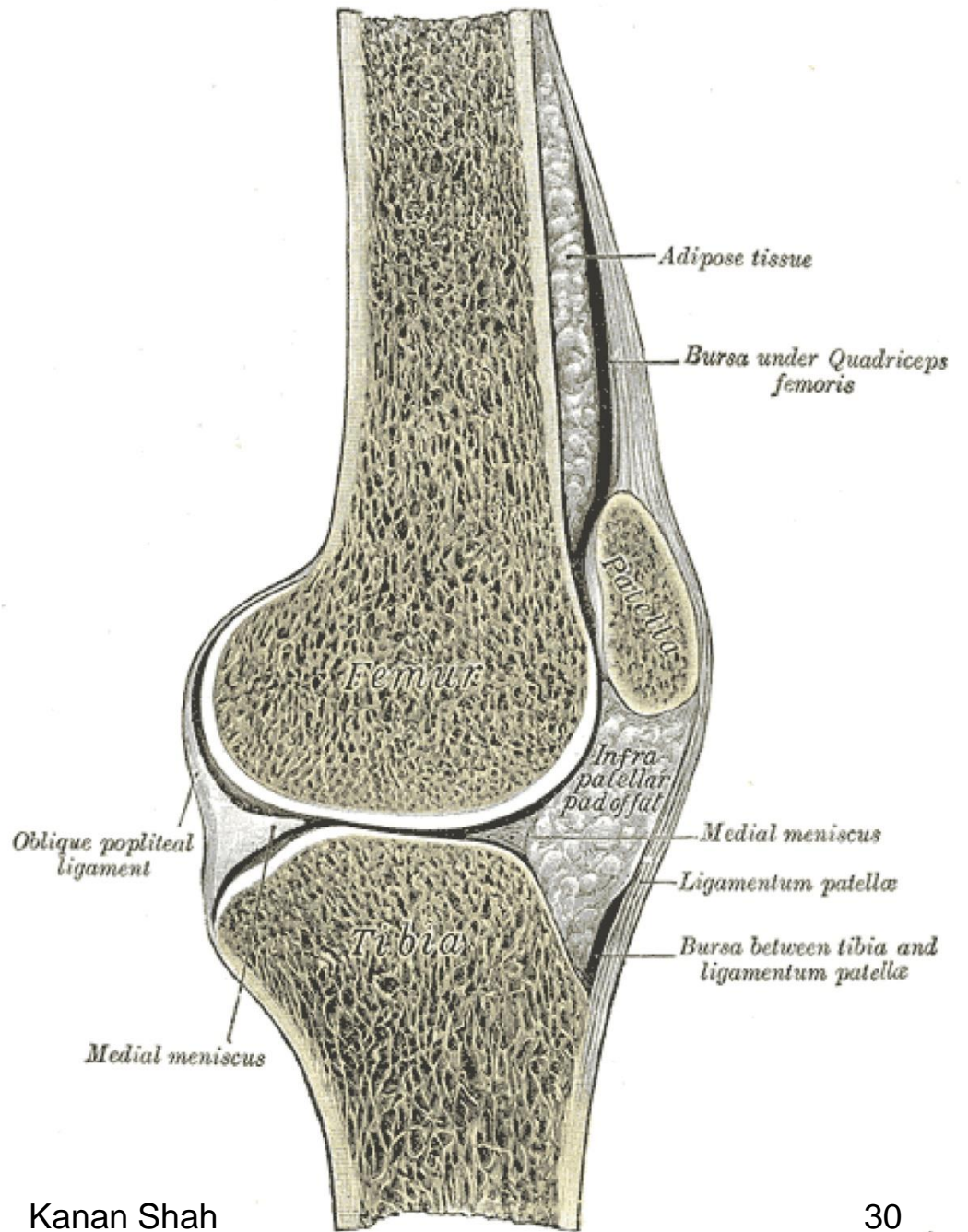
# Knee Joint Ligaments



Kanan Shah  
Left Knee From Behind



(a)

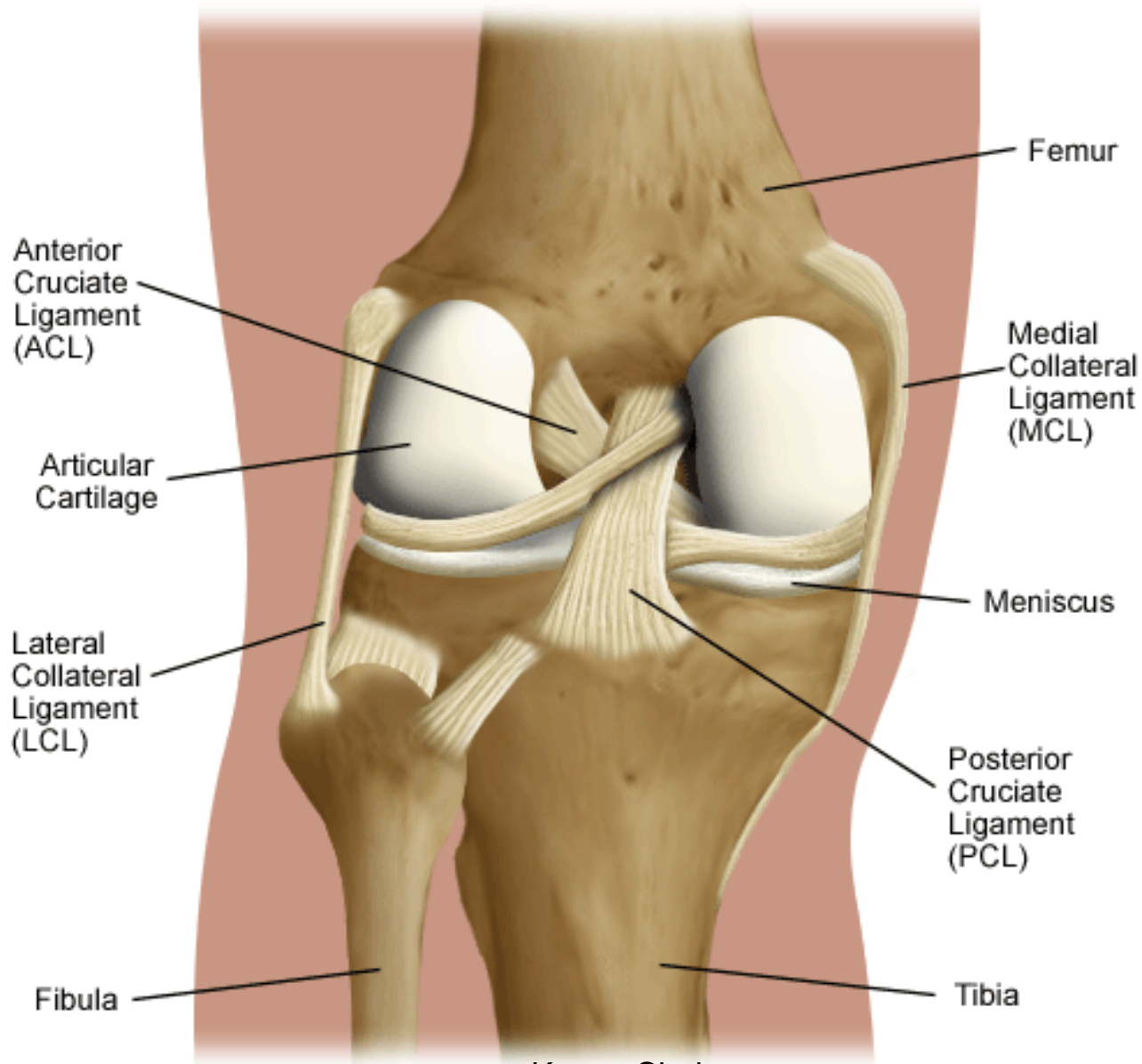


(b)



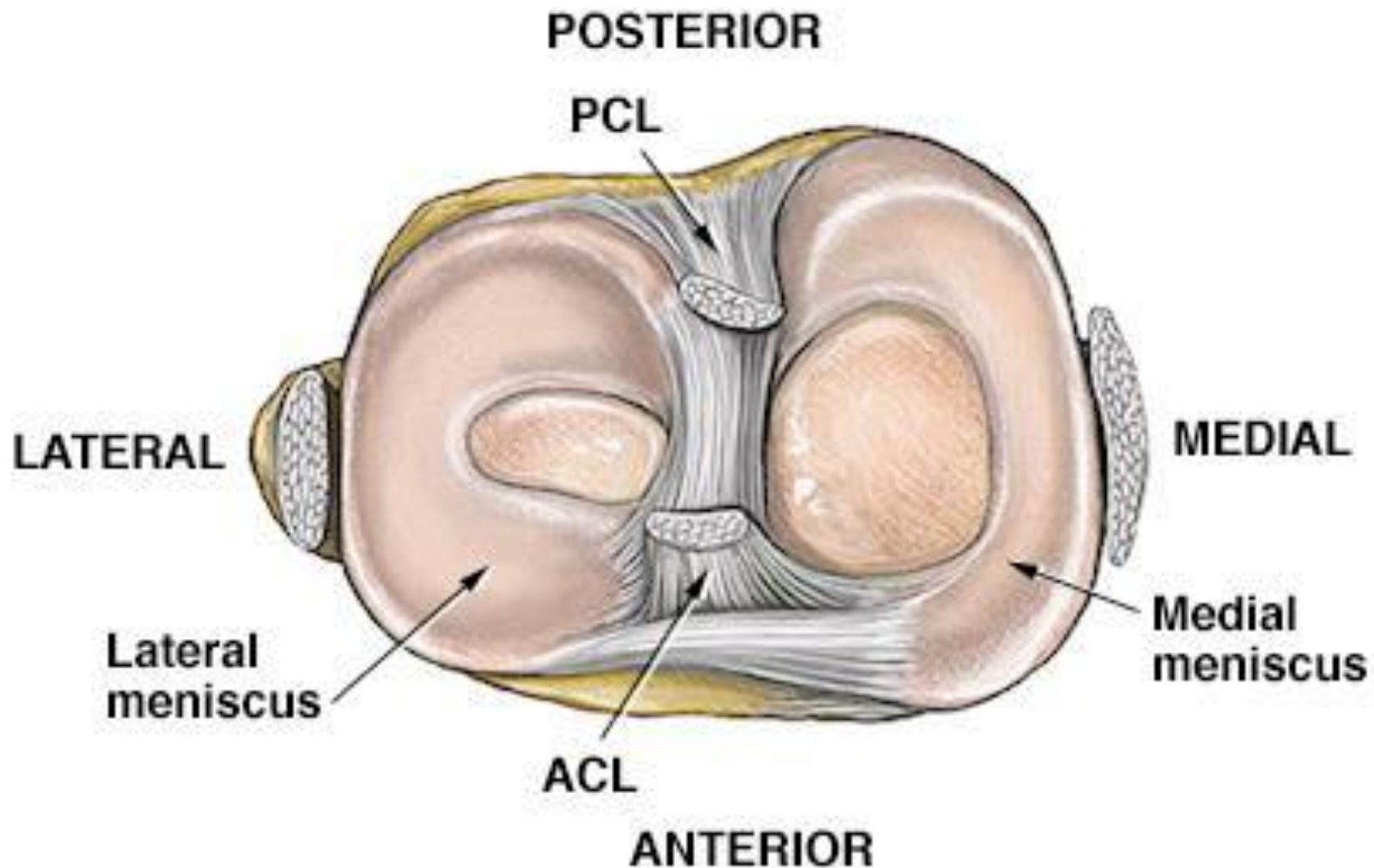


# Knee Joint Ligaments



Kanan Shah  
Left Knee From Behind





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Kanan Shah

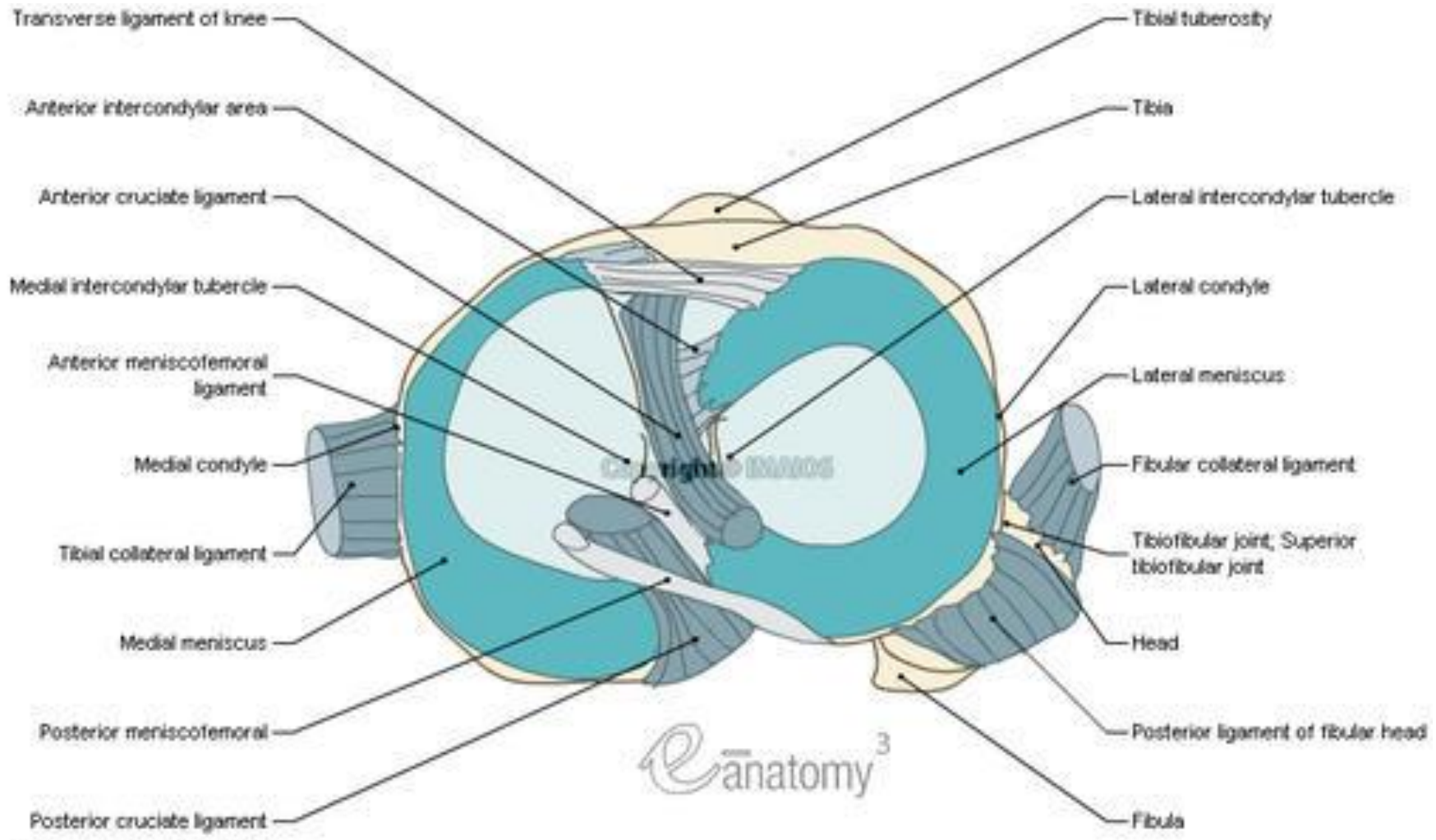


Illustration : A. Micheau, MD

Right knee joint

Radial tear

Longitudinal horizontal tear

Meniscus

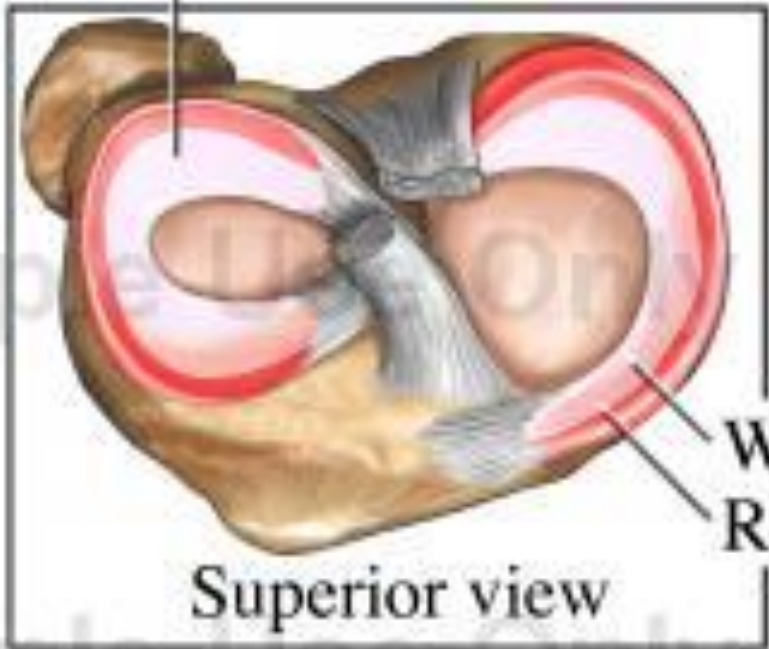
Oblique tear

Longitudinal vertical tear

White zone

Red zone

Superior view



# MOVEMENTS AND MECHANISM

FLEXION--- 120 degree with extended hip  
140 degree with flexed hip  
160 degree passively

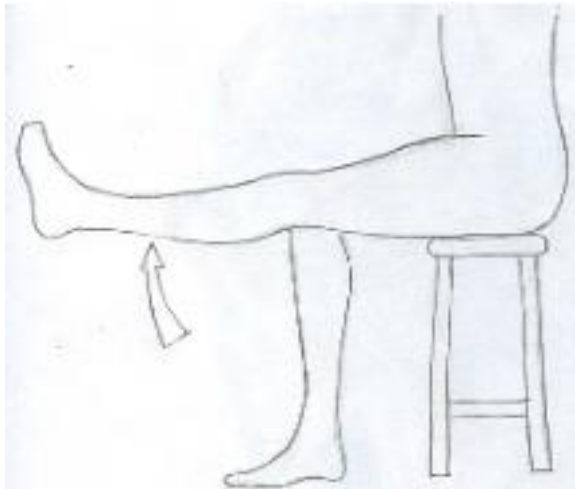
EXTENTION --- 5-10 degree

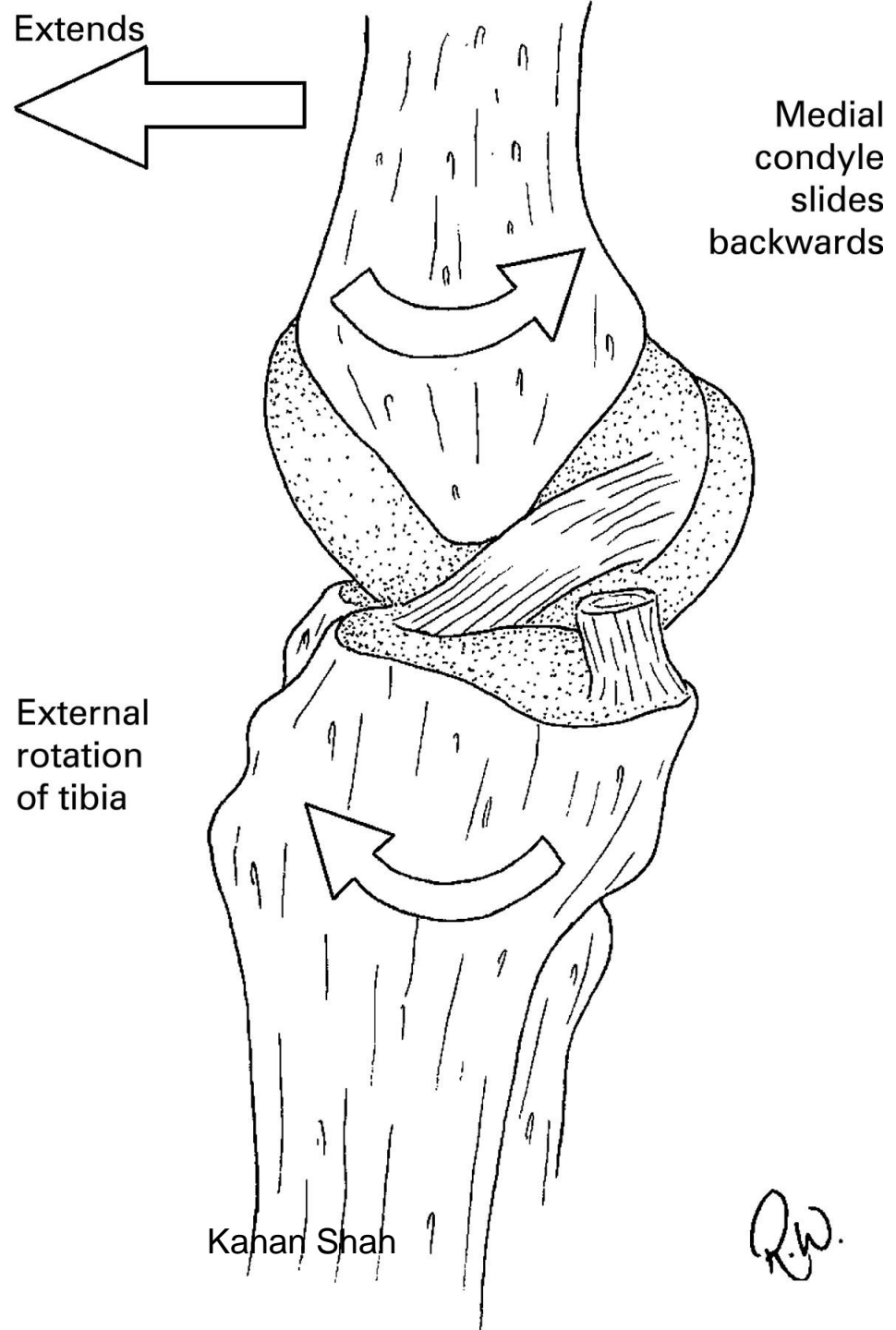
ROTATION---Medial  
Lateral

Adjunct rotation--- 50-70 degree

Conjunct rotation –20 degree









**Locking**

Kanan Shah

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unlocking Kanan Shah



# MUSCLES

- EXTENSION--- Quadriceps femoris, T.F.L.
- FLEXION---

Prime movers- semimembranous,  
semitendinosus,  
biceps femoris

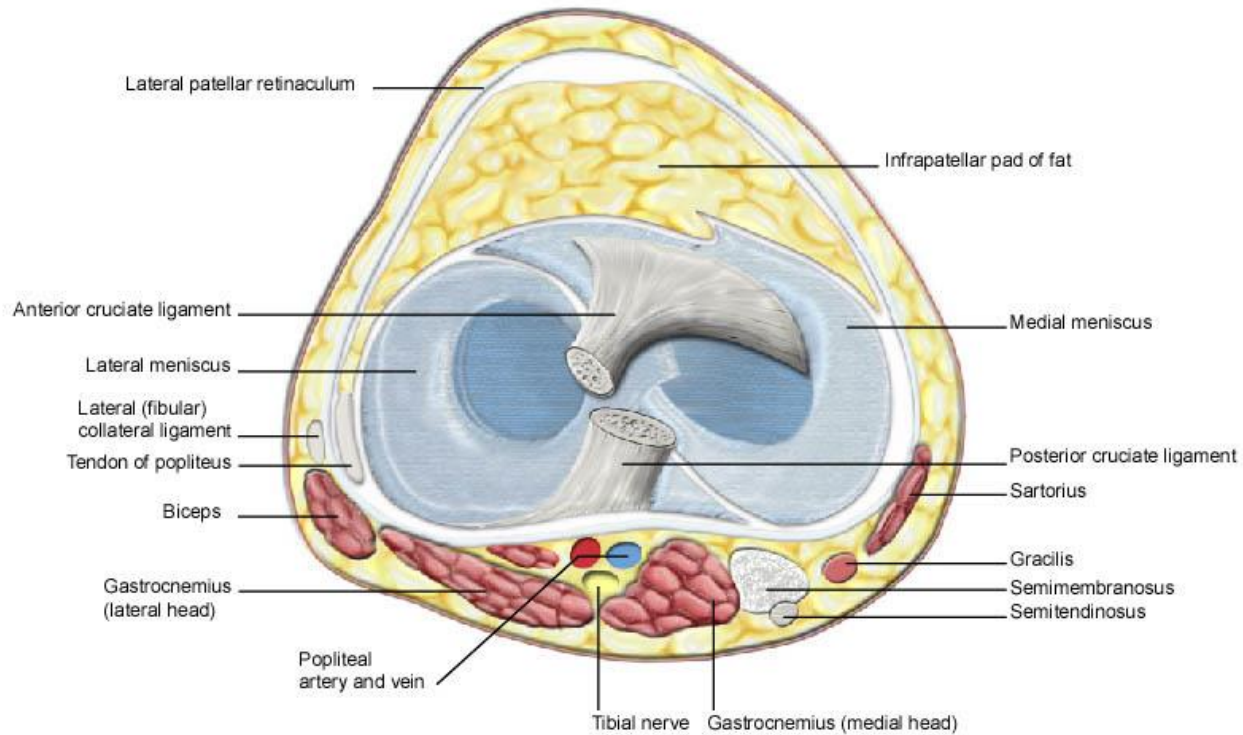
Initiated by Popliteus

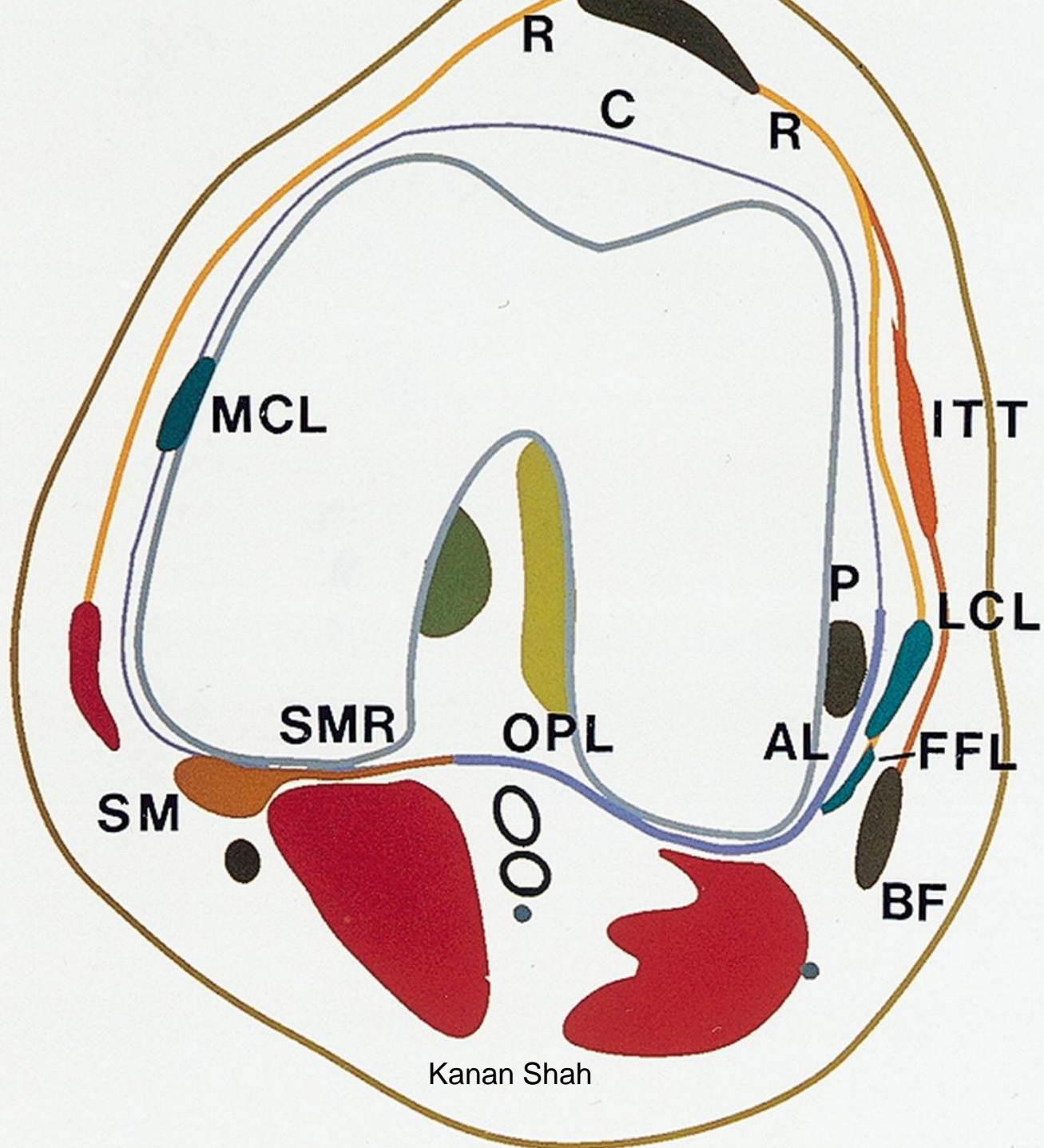
Assisted by

sartorius, gracilis, gastrocnemius, plantaris

- Medial rotation---semimembranous,  
semitendinosus,  
Popliteus  
Sartorius, gracilis
- Lateral rotation--- Biceps femoris

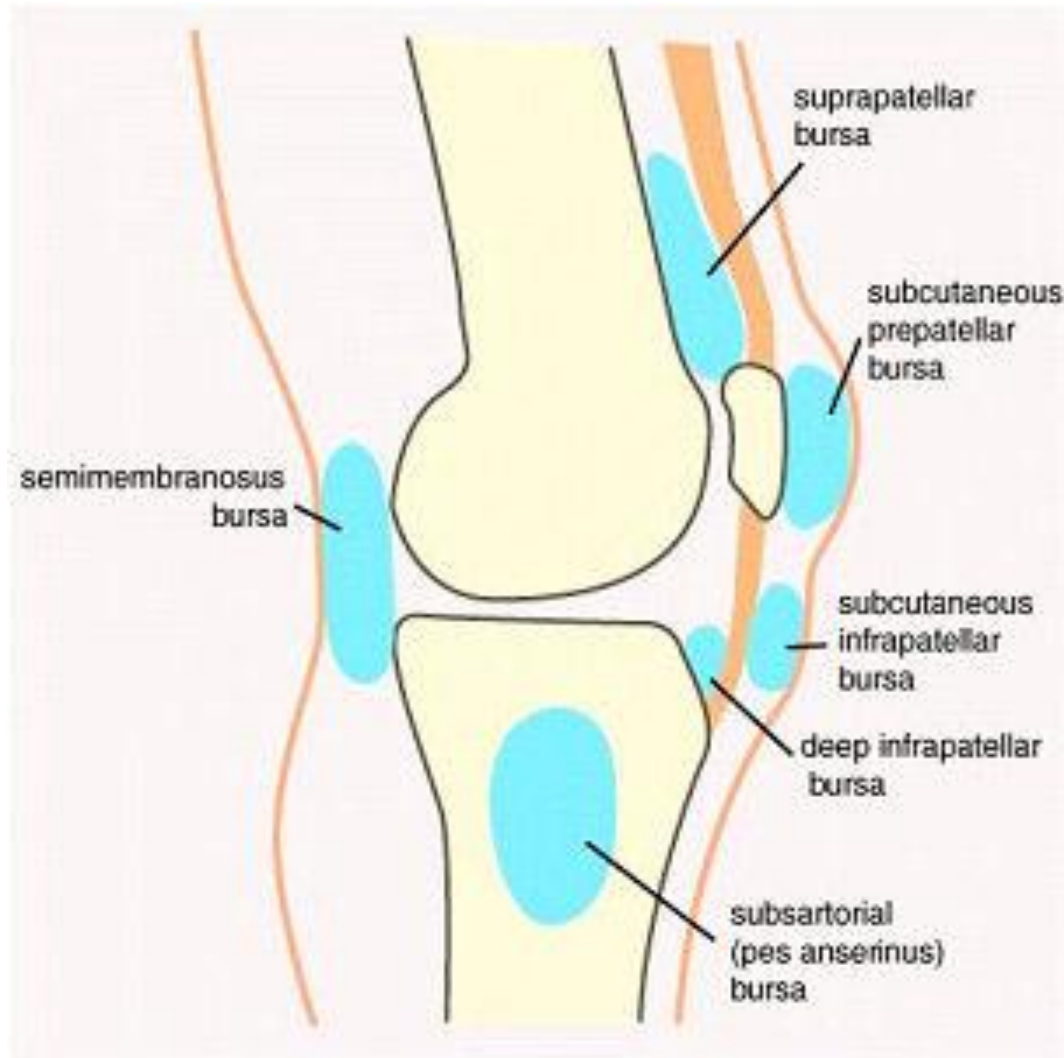
# RELATIONS





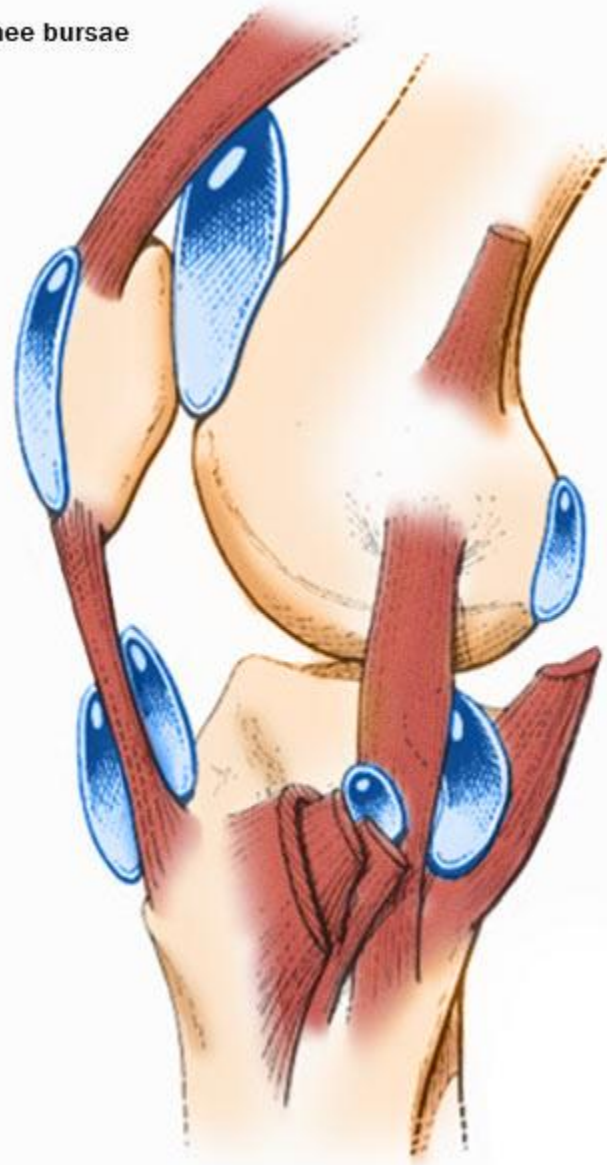
Kanan Shah

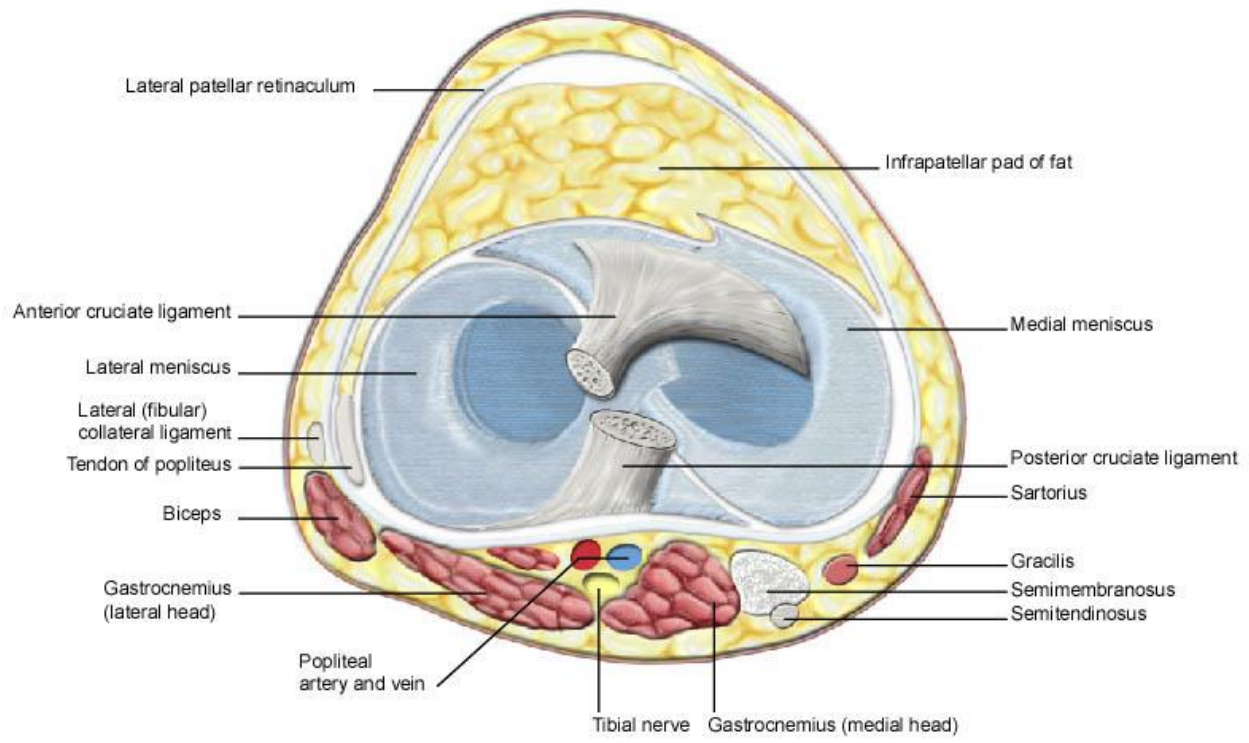
# BURSAE AROUND KNEE JOINT

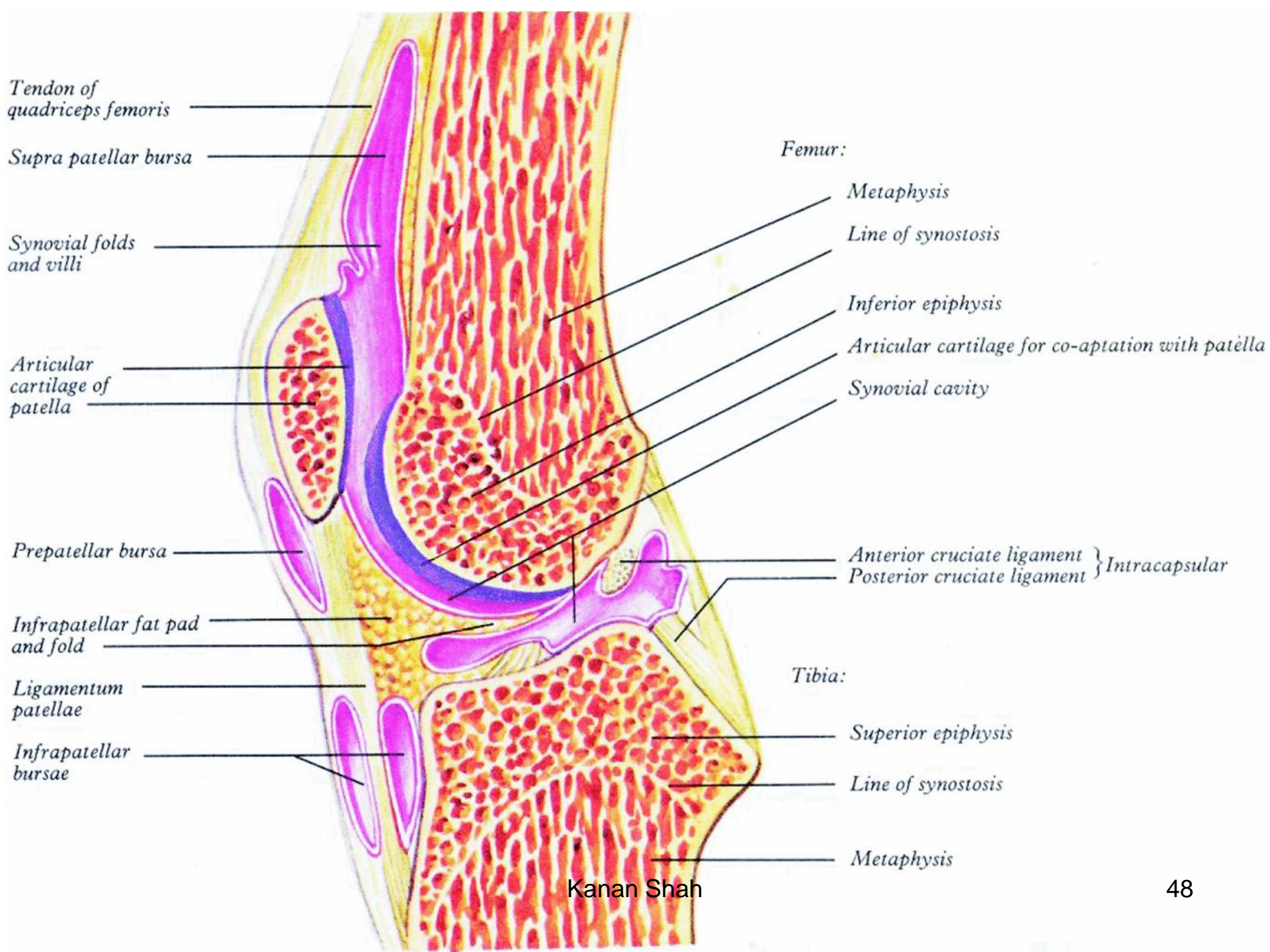




Knee bursae



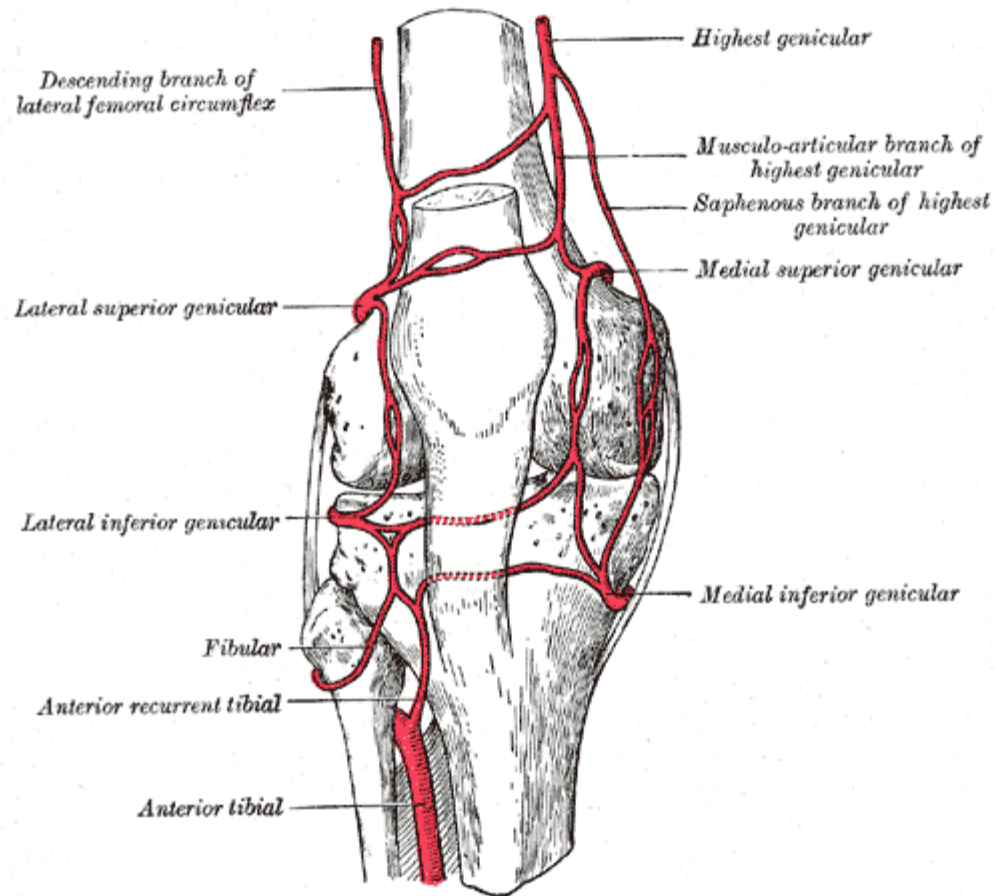




*Tendon of quadriceps femoris*  
*Supra patellar bursa*  
*Synovial folds and villi*  
*Articular cartilage of patella*  
*Prepatellar bursa*  
*Infrapatellar fat pad and fold*  
*Ligamentum patellae*  
*Infrapatellar bursae*

*Femur:*  
*Metaphysis*  
*Line of synostosis*  
*Inferior epiphysis*  
*Articular cartilage for co-aptation with patella*  
*Synovial cavity*  
*Anterior cruciate ligament*  
*Posterior cruciate ligament* } *Intracapsular*  
  
*Tibia:*  
*Superior epiphysis*  
*Line of synostosis*  
*Metaphysis*

# ARTERIAL SUPPLY

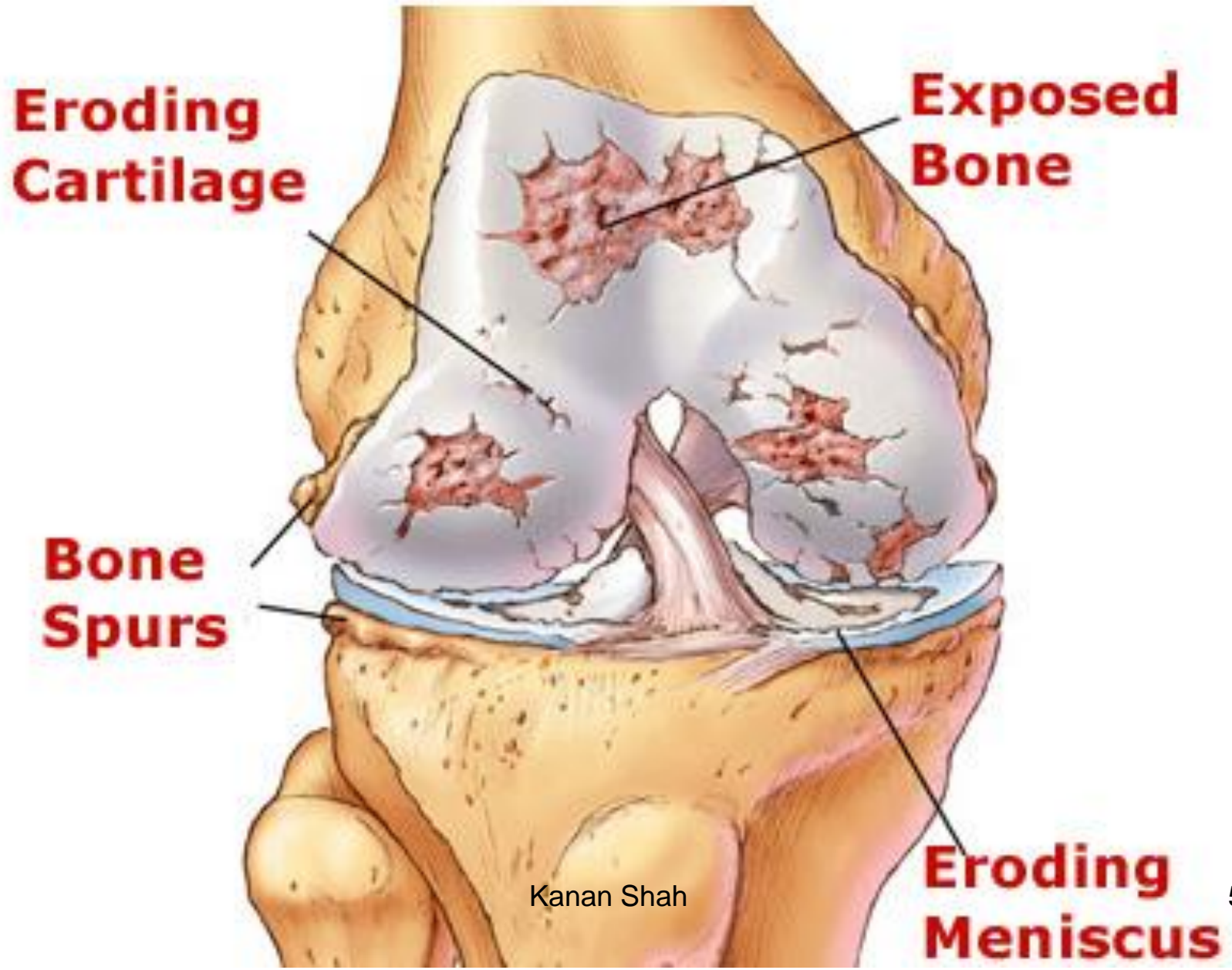


# APPLIED ANATOMY

- Osteoarthritis
- Syphilitic arthritis
- Injuries to menisci
  - Medial menisci is more likely to injure than lateral.
- Bucket handle tear
- Rupture of cruciate ligaments
  
- # of patella
  - Bipartite patella
  
  - Baker's cyst
  - Housemaid's bursa
  - Clergyman's bursa
  - Genu valgum(KNOCK KNEE)
  - Genu varum(BOW KNEE)



# Osteoarthritic Knee



Right knee joint

Radial tear

Longitudinal horizontal tear

Meniscus

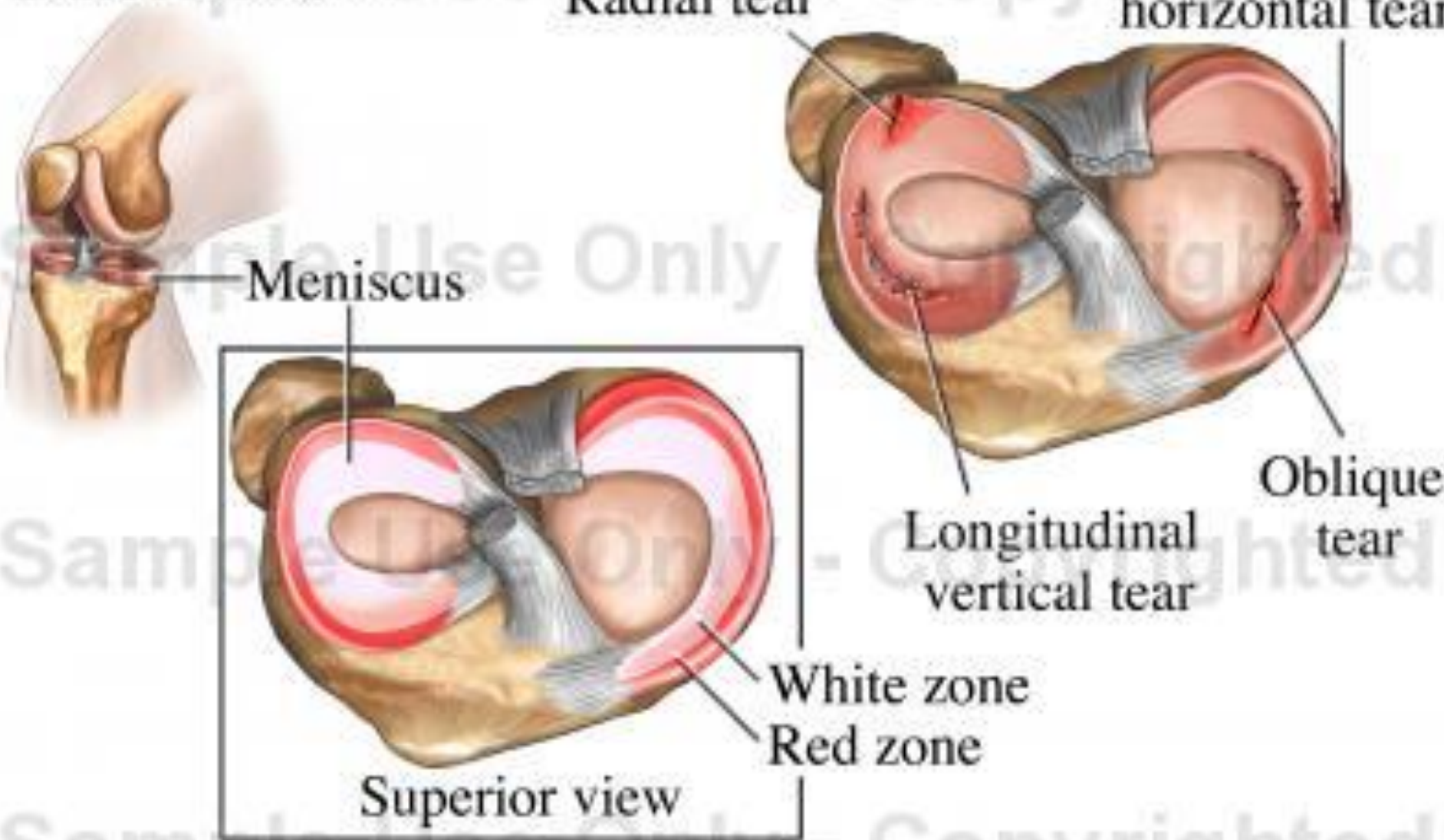
Oblique tear

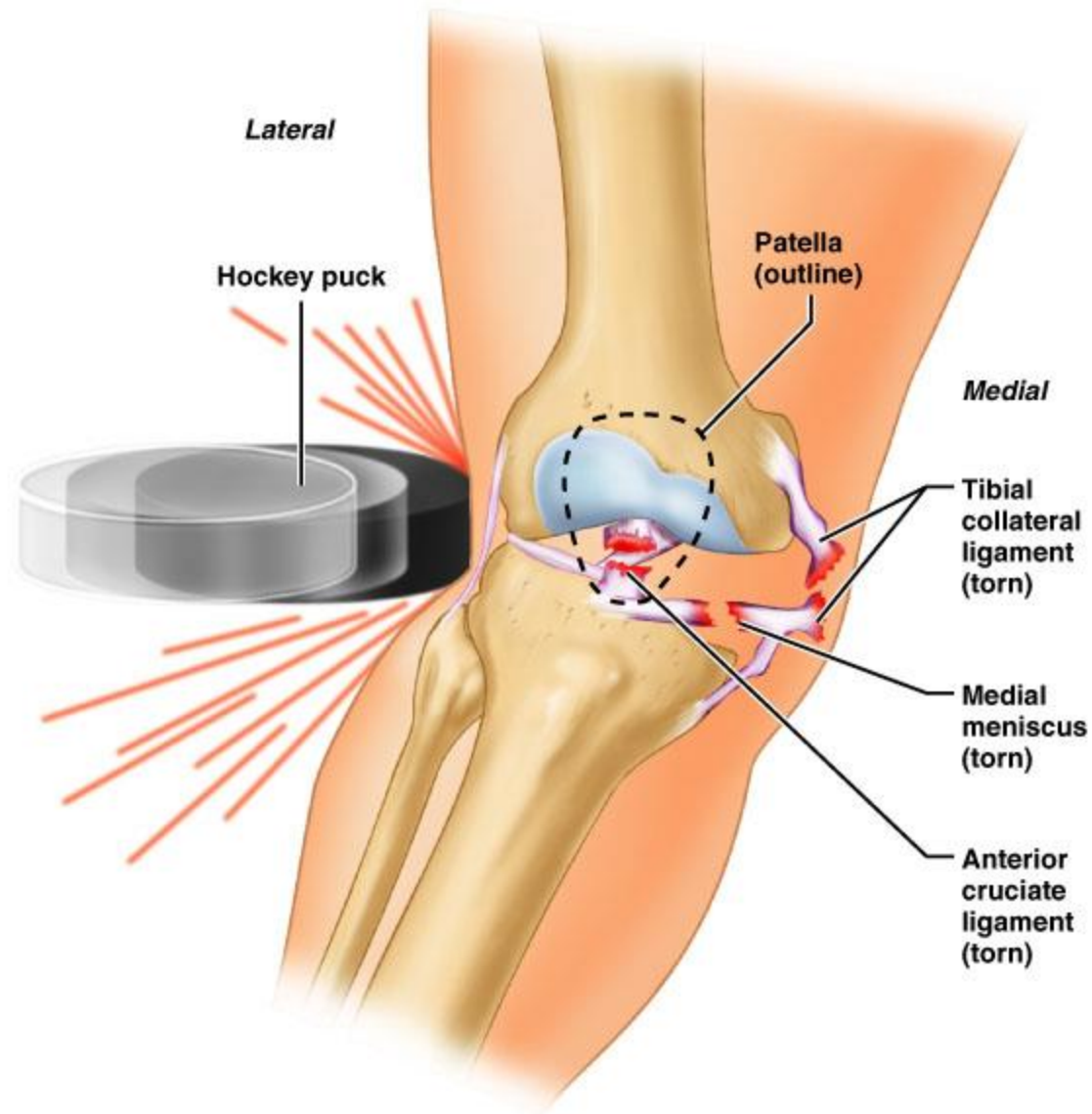
Longitudinal vertical tear

White zone

Red zone

Superior view

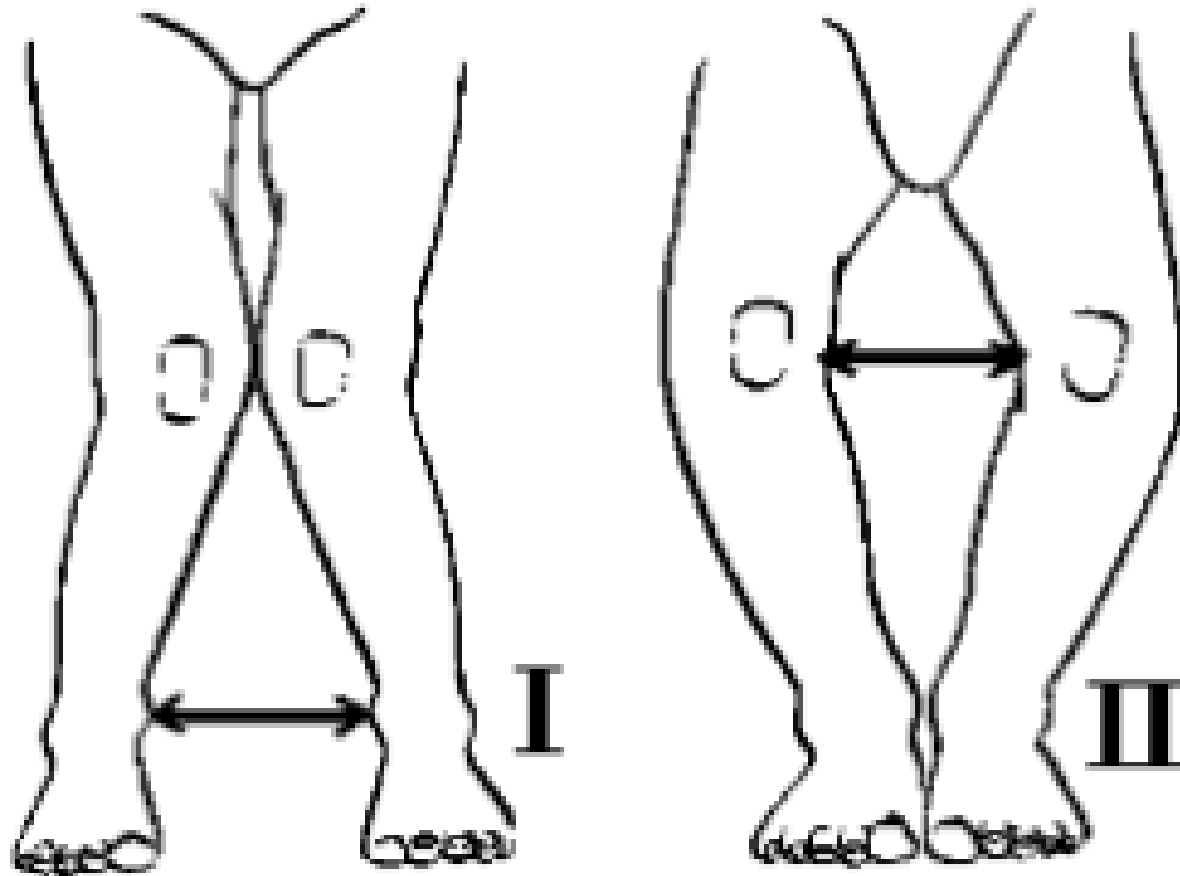




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# GENU VARUM

# GENU VALGUM







# THANKS



# Aknowledgements

- Human Anatomy by BD Chaurasia
- Gray's Anatomy
- Essentials of Human Antomy: Upper Limb and Lower Limb by Asimkumar Dutta