

Ultrasound of the Knee: Anatomy and Scanning Technique

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Disclosures

- Consultant: Bioclinica
- Book Royalties: Elsevier
- Contractor: POCUS PRO
- Advisory Board: Philips
- Not relevant to this talk

Syllabus and other educational material can be found at www.jacobsonmskus.com

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Sonographic Technique:

- Focused examination
- Complete assessment
 - Anterior
 - Medial
 - Lateral
 - Posterior
- Transducers: 5 - 17 MHz linear

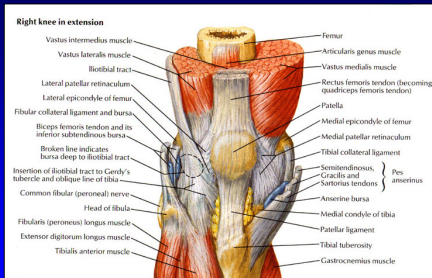
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Technique: anterior

- Quadriceps tendon
- Patellar tendon
- Suprapatellar recess: joint effusion
- Bursa:
 - Prepatellar, superficial infrapatellar, deep infrapatellar

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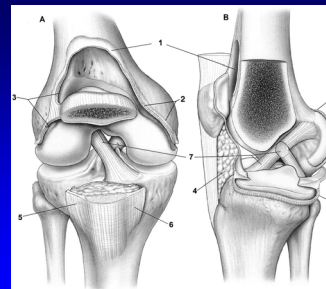
Anatomy: anterior



From: Netter's Atlas of Human Anatomy

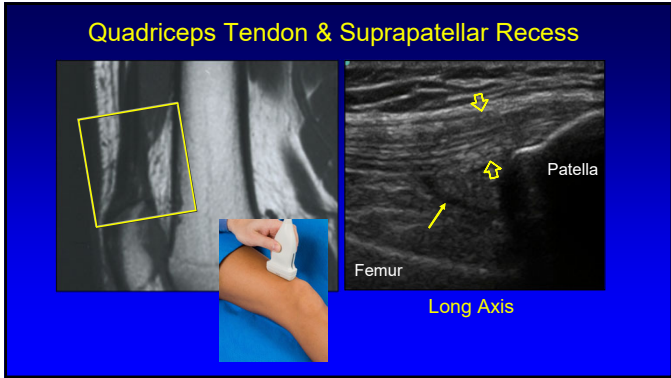
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Suprapatellar Recess and Gutters

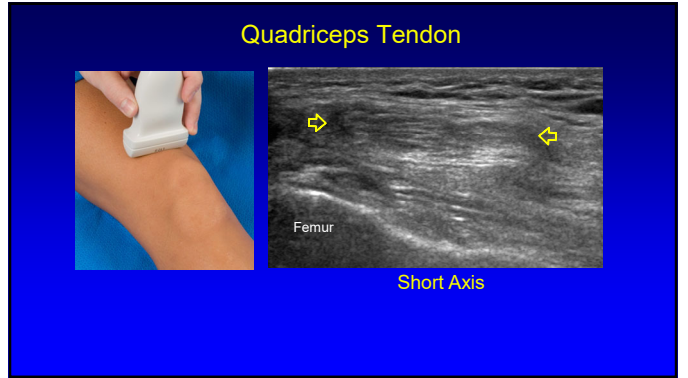


From: Miller PJ et al. Am J Sports Med 2001;29:822.

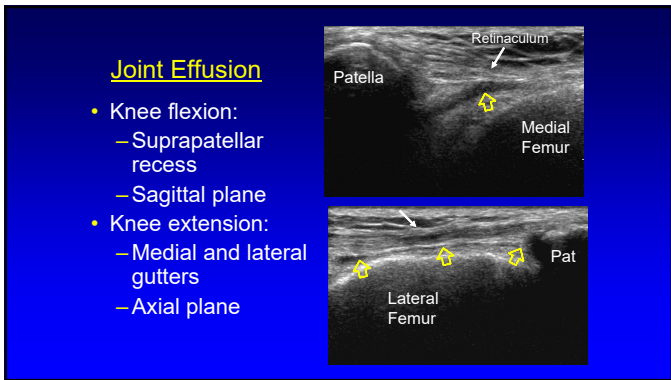
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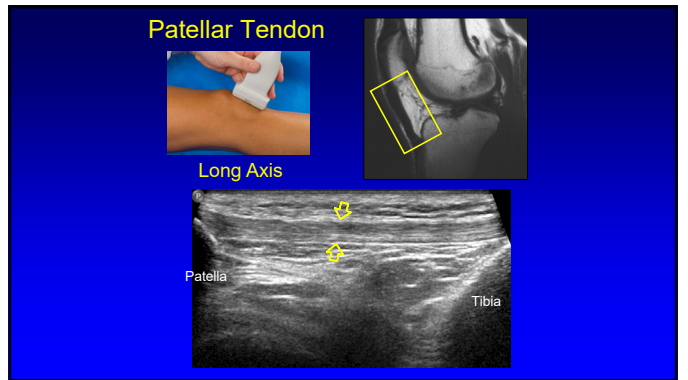
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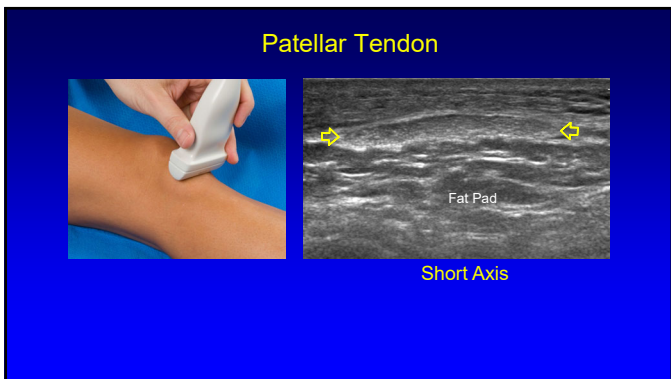
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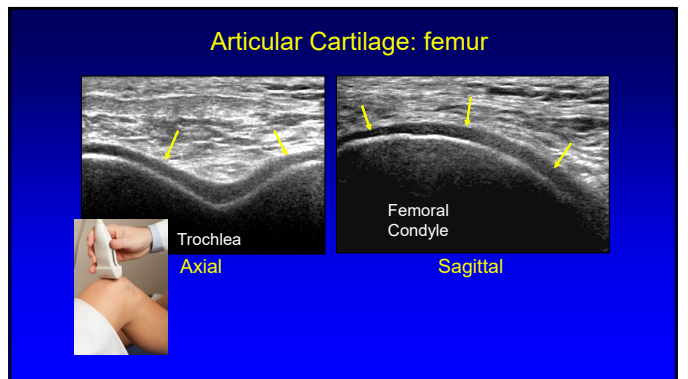
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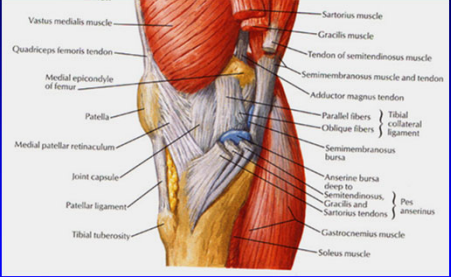
Technique: medial

- Medial collateral ligament
- Medial meniscus
 - Body
 - Anterior horn
- Pes anserinus



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Anatomy: medial



From: Netter's Atlas of Human Anatomy

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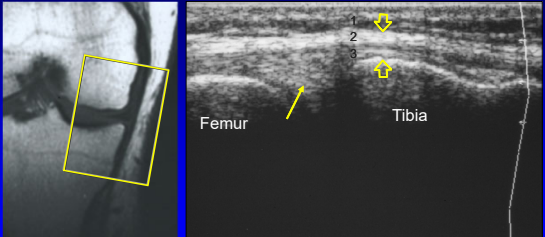
Medial Collateral Ligament:

- MCL Complex: 3 layers*
 - ✓ 1: deep fascia (not important)
 - ✓ 2: tibial collateral ligament (thickest layer)
 - ✓ 3: capsular ligament (deep)
- Second and third layers seen best
 - Hyperechoic and fibrillar

*Radiographics 2000; 20:S83

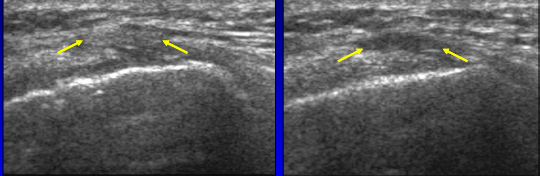
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MCL and Medial Meniscus



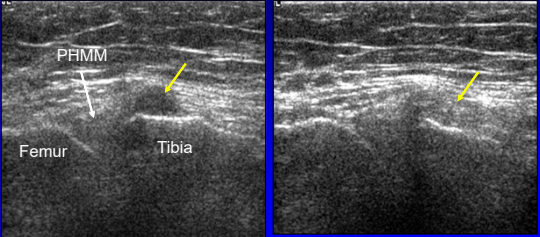
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Tibial Collateral Ligament: anisotropy

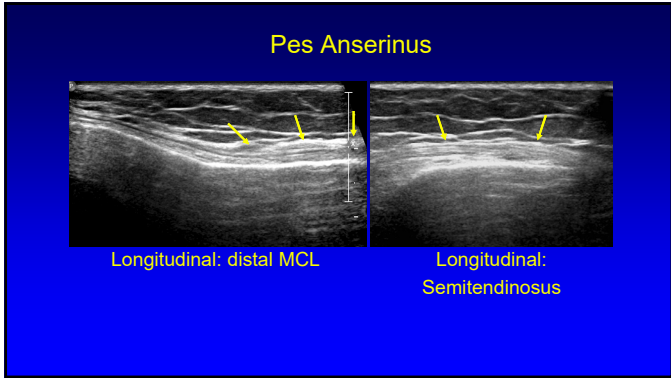


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Semimembranosus Anisotropy: pseudo-mensical cyst



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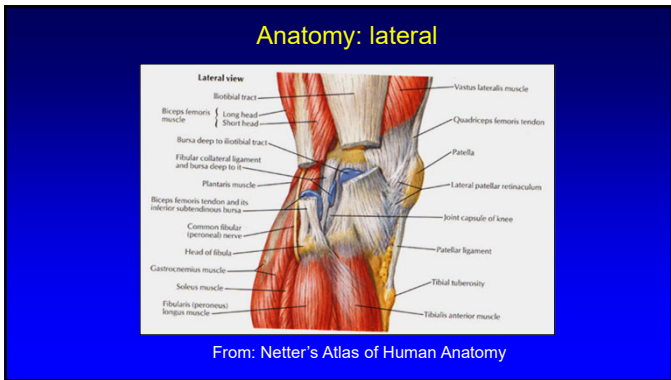


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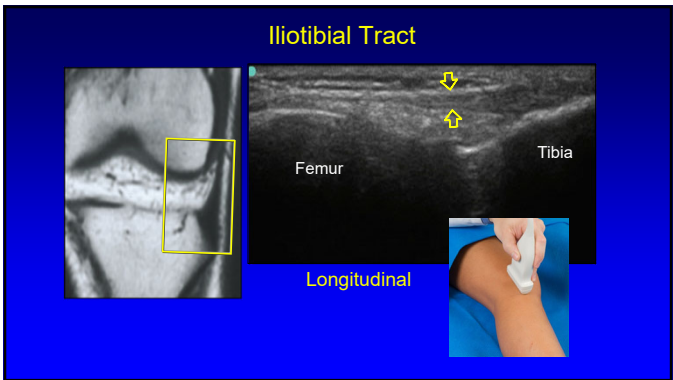
Technique: lateral

- Iliotibial tract
- Lateral collateral ligament
- Popliteus tendon
- Biceps femoris tendon
- Common peroneal nerve
- Lateral meniscus: body & anterior horn

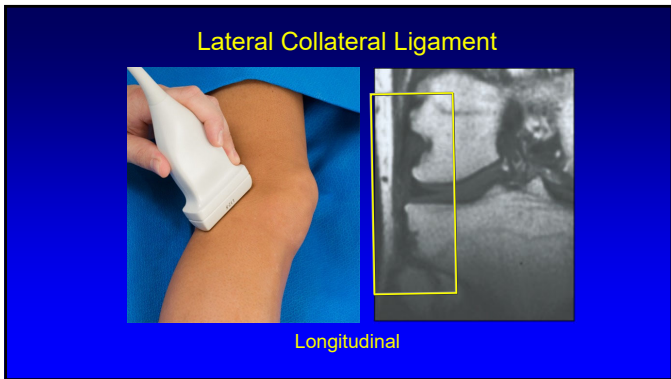
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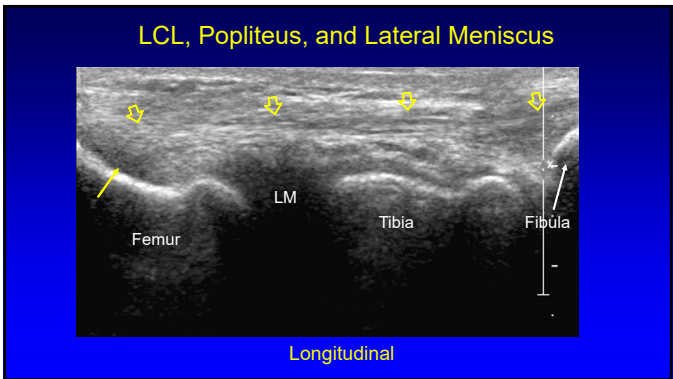
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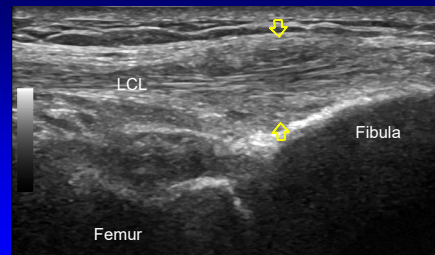
Bifurcating Distal Biceps Femoris:

- Long axis of fibular collateral ligament
- Biceps separates: superficial, deep layers
- Surrounds fibular collateral ligament
- May be mistaken as tendinosis or ligament abnormality

Smith, J Ultrasound Med 2011; 30:1156

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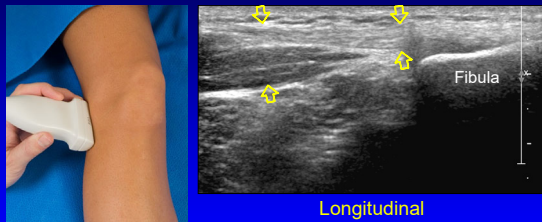
Bifurcating Biceps Femoris Tendon



Fibular Collateral Ligament (long axis)

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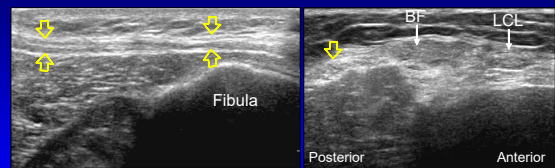
Biceps Femoris Tendon



Longitudinal

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Common Peroneal Nerve



Longitudinal

Transverse

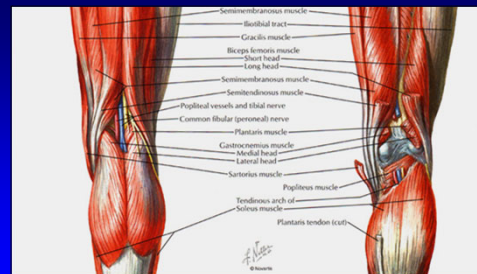
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Technique: posterior

- Baker cyst
- Menisci: posterior horns
- Cruciate ligaments

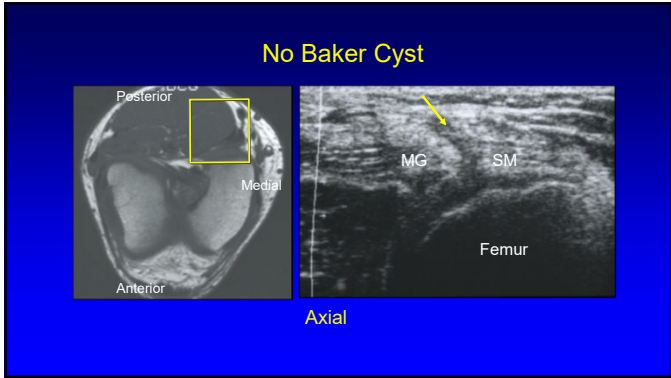
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Anatomy: posterior

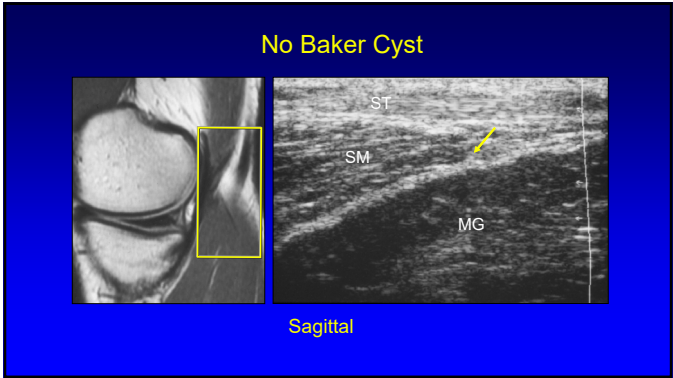


From: Netter's Atlas of Human Anatomy

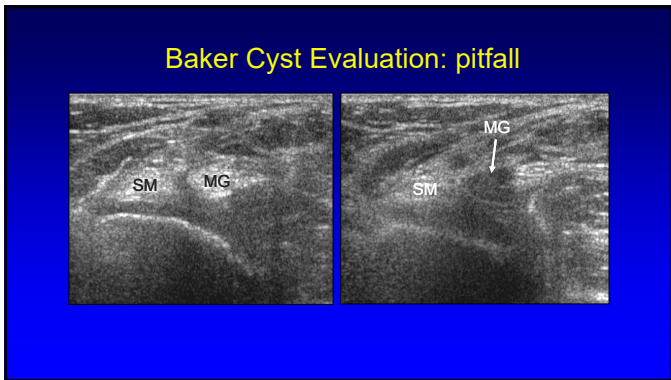
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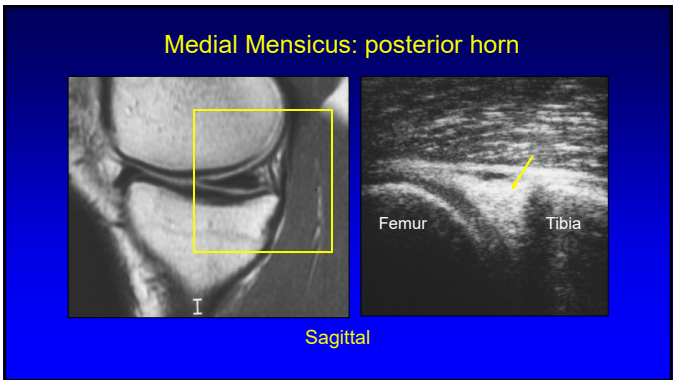
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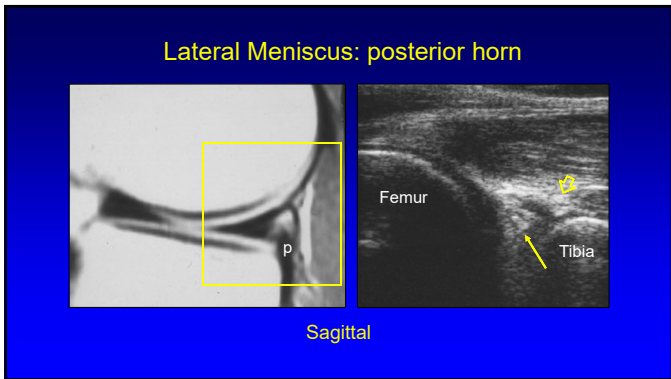
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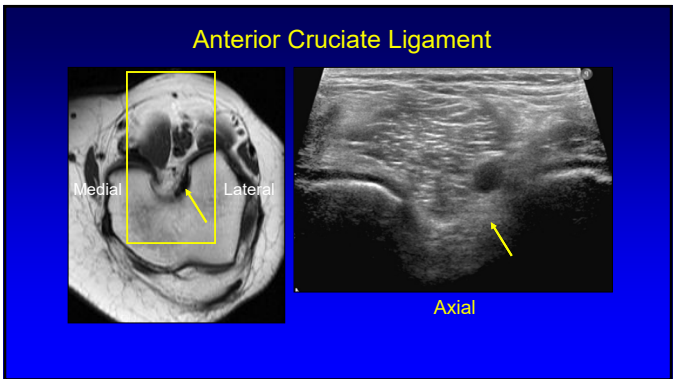
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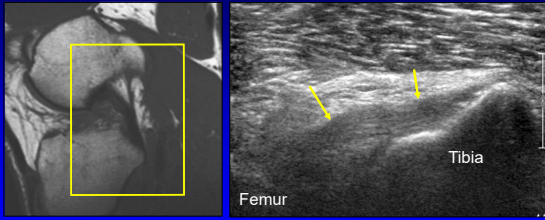


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Posterior Cruciate Ligament



Sagittal

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Syllabus on line and additional educational material:
www.jacobsonmskus.com

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