



CENTER OF ORTHOPAEDICS AND TRAUMATOLOGY  
UNIVERSITY HOSPITAL BRANDENBURG / HAVEL



# Posterior knee pain

Diagnosis, clinical assessment, imaging

ROLAND BECKER



# International Association for Study of Pain



PAIN: “An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage”.

Personal experience  
influenced by biological,  
psychological and social  
factors

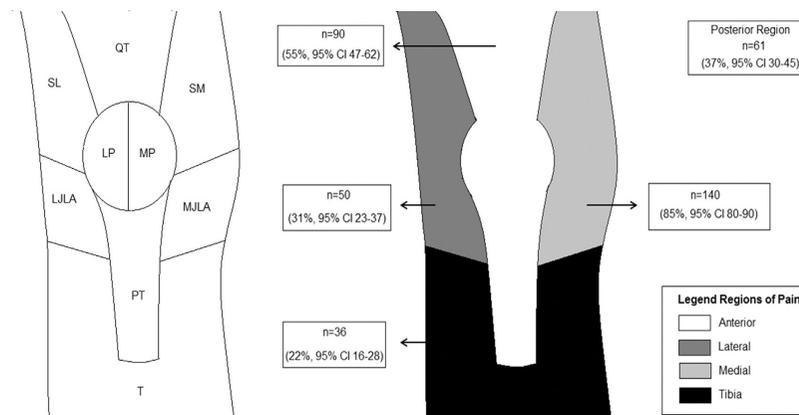
Pain and nociception are  
different phenomena

Learning about concept of  
pain due to life experience

Patients report of pain  
should be respected

Pain has an adaptive role it may have  
adverse effects on function, social  
and psychological well-being.

# Knee pain in OA – Interview based

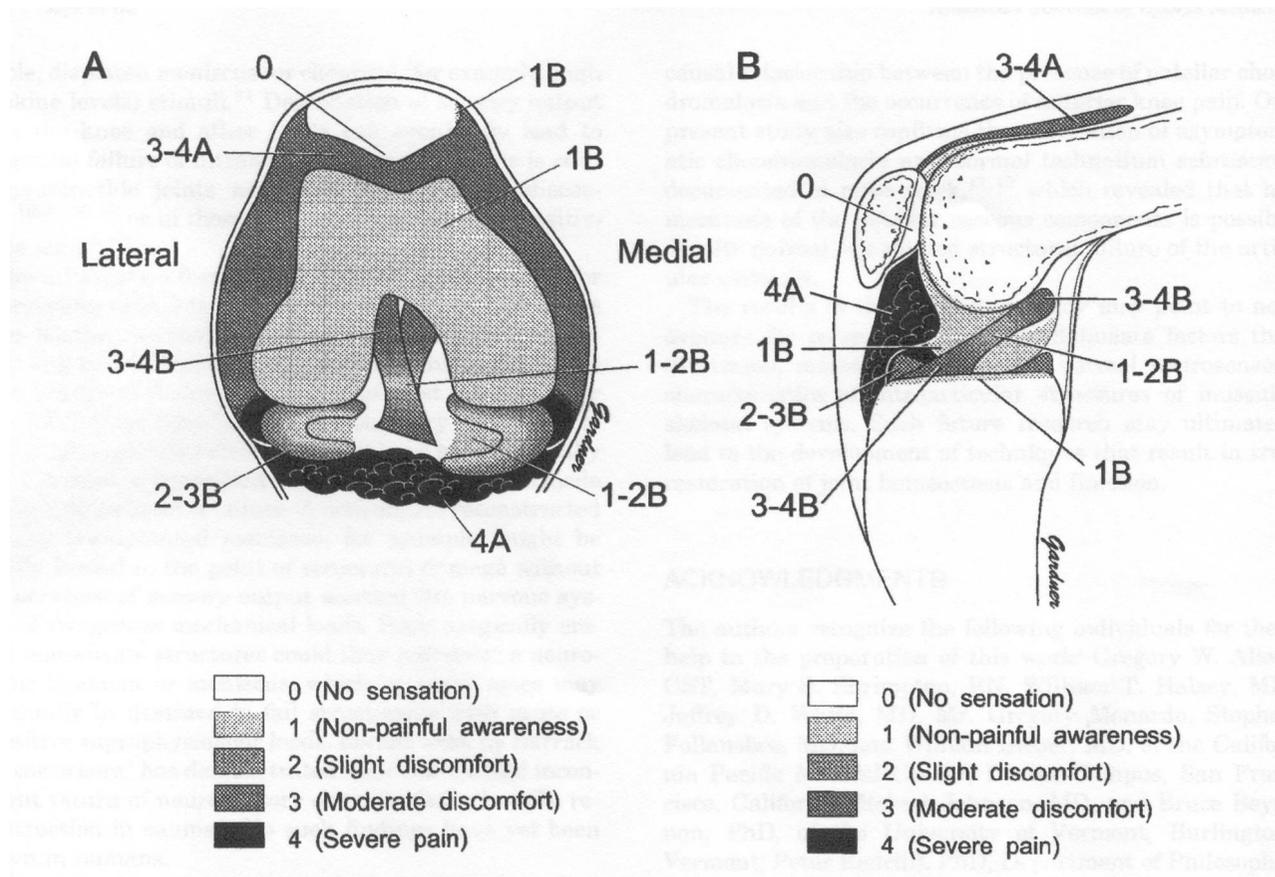


Photographic knee pain map

Patients medial femorotibial OA

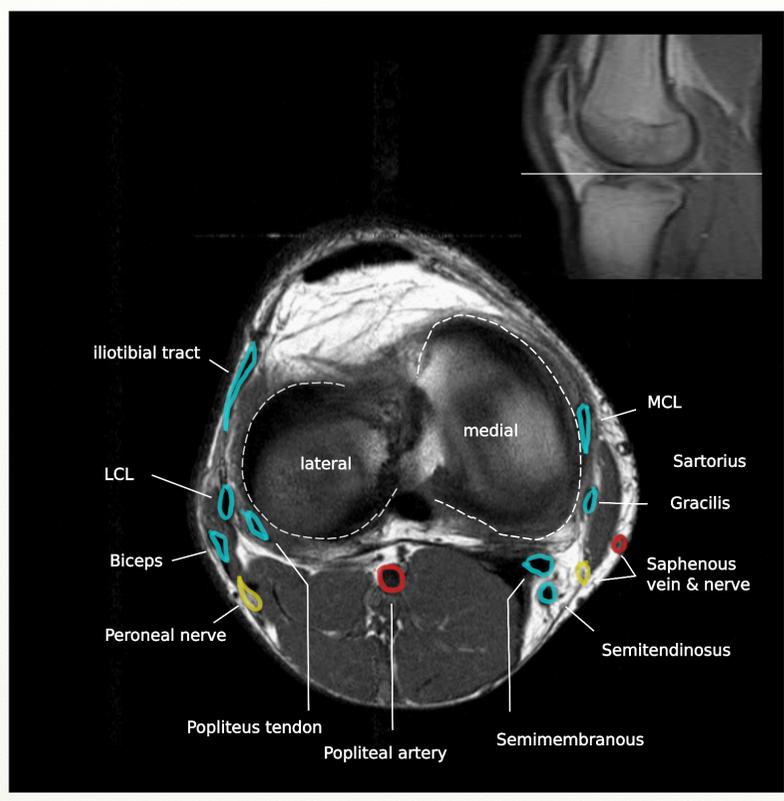
Zones	Frequency n (% , 95% CI)
Medial aoint line area	123 (75, 68–82)
Patellar tendon	62 (38, 31–45)
Posterior	61 (37, 30–45)
Superior medial	56 (34, 27–42)
Lateral joint line area	43 (26, 20–33)
Medial patella	43 (26, 20–33)
Tibia	36 (22, 16–28)
Lateral patella	30 (18, 13–24)
Superior lateral	14 (9, 4–13)
Quadriceps tendon	9 (5, 2–9)

# Knee pain



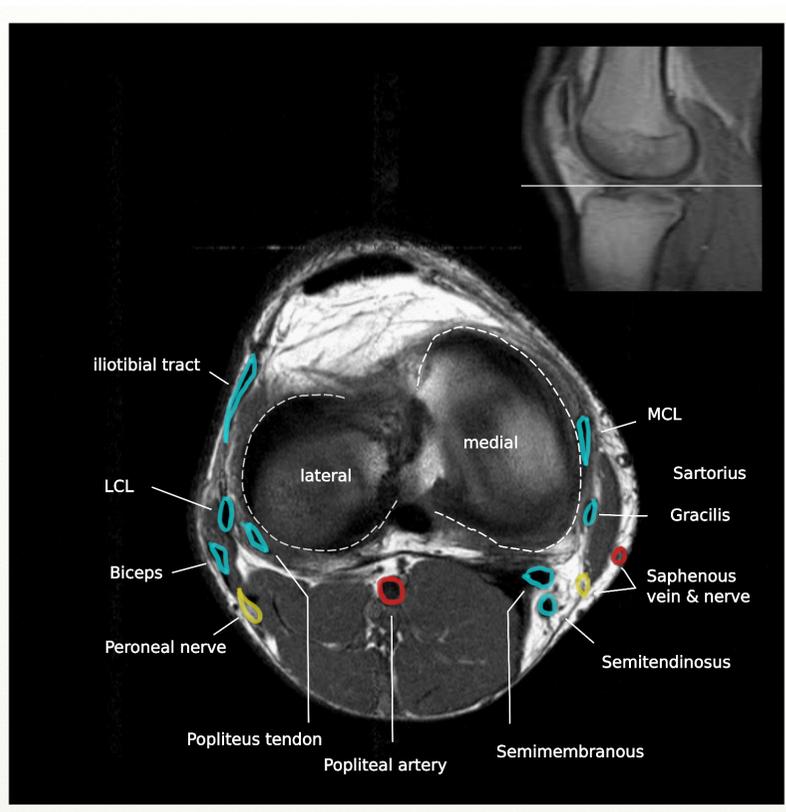
Dye SF et al.: AJSM 1998

# Posterior knee pain



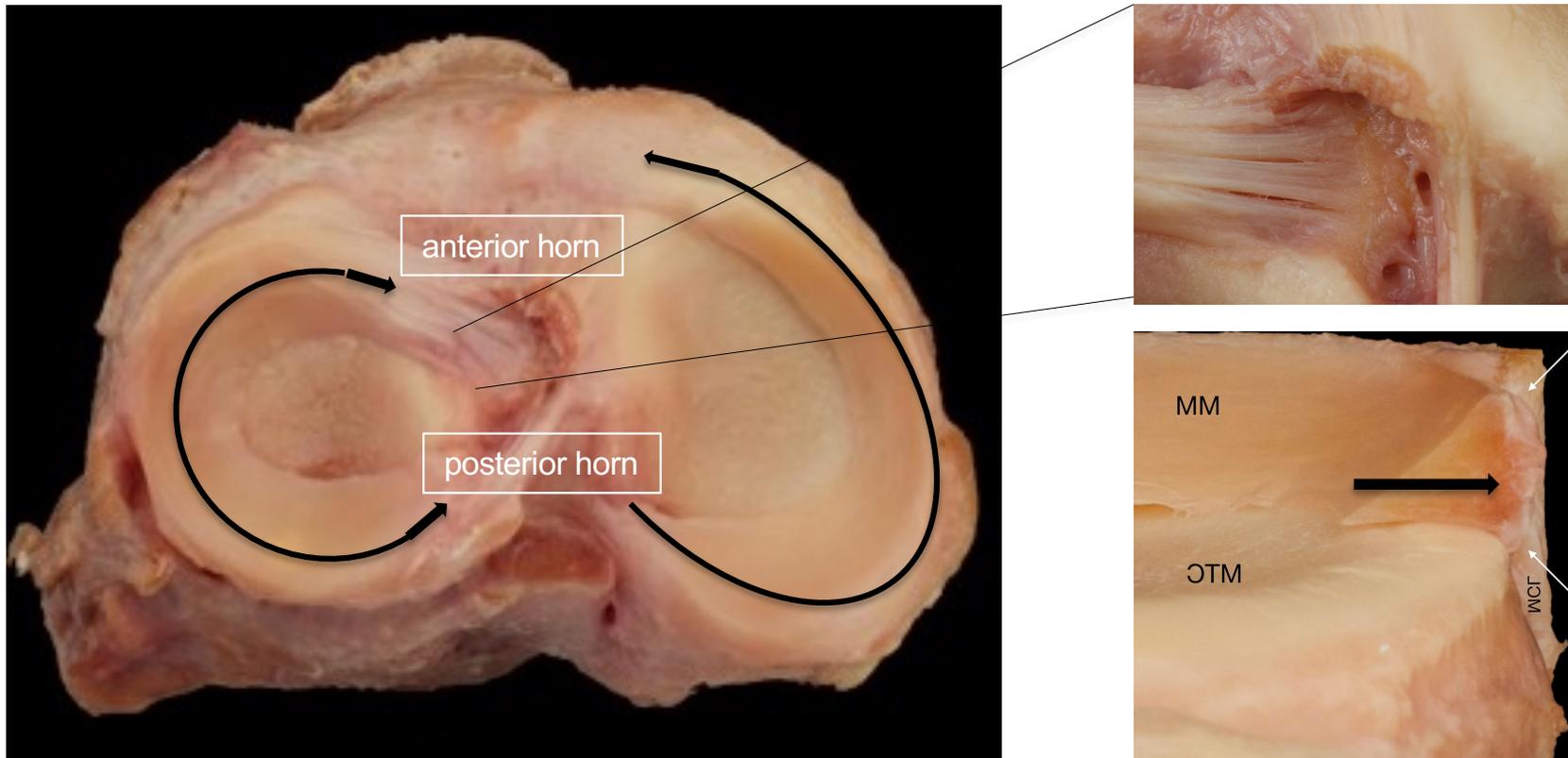
- 1. Meniscus lesion
- 2. Popliteus syndrom
- 3. Bakers cyst
- 4. Tightness of the posterior capsule
- 5. Thrombophlebitis
- 6. Popliteal artery aneurysm
- 7. Sarkoma

# Posterior knee pain

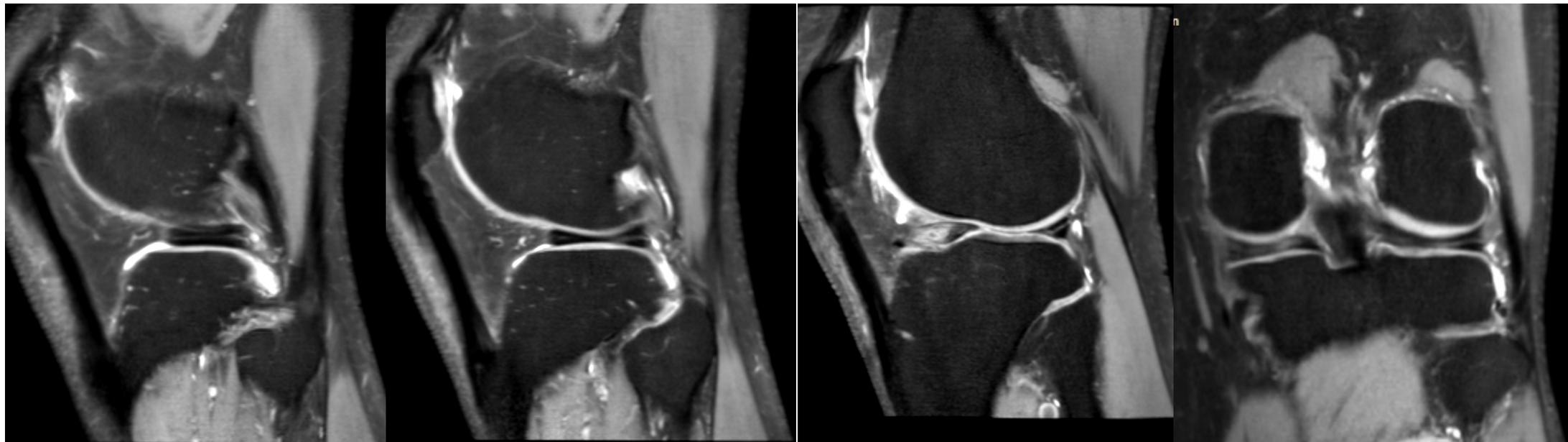


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# 1. Meniscus



# Horizontal tear

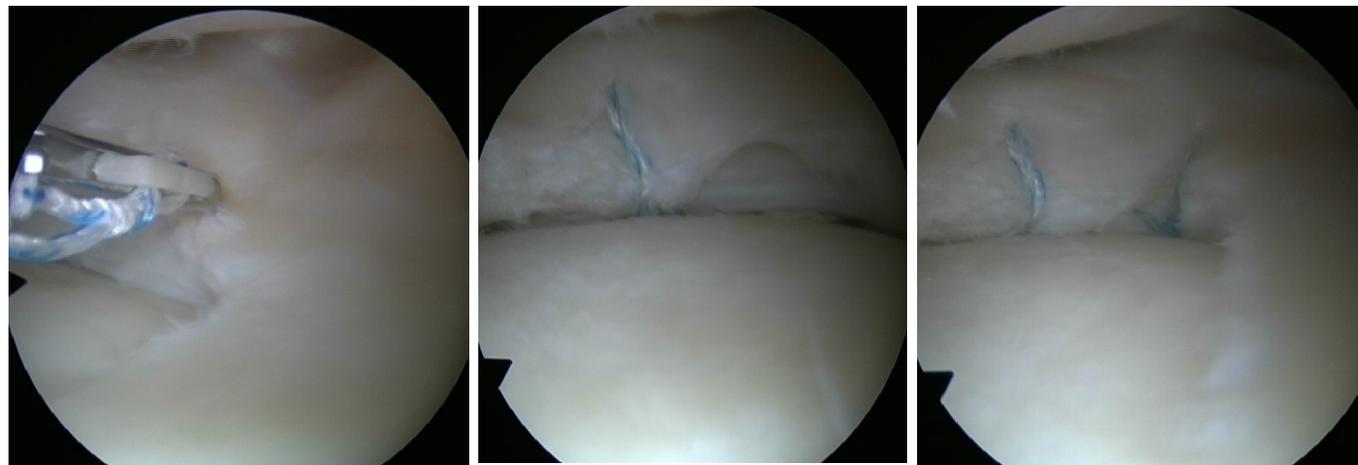


# Horizontal tear

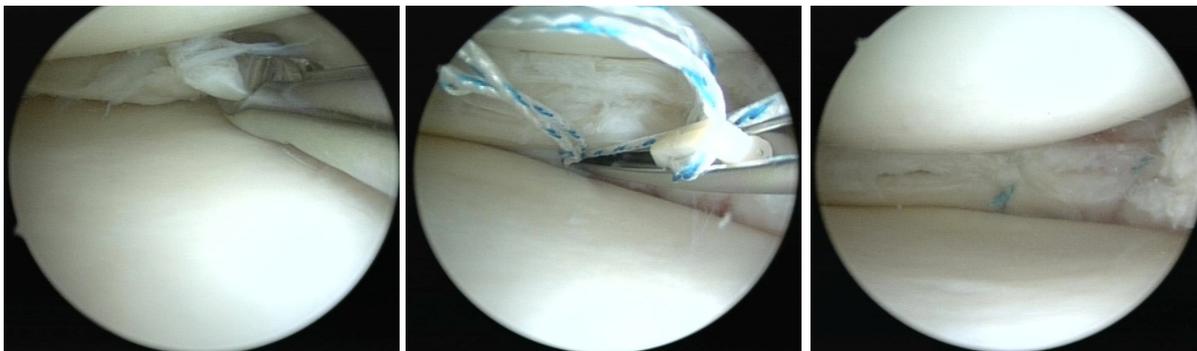
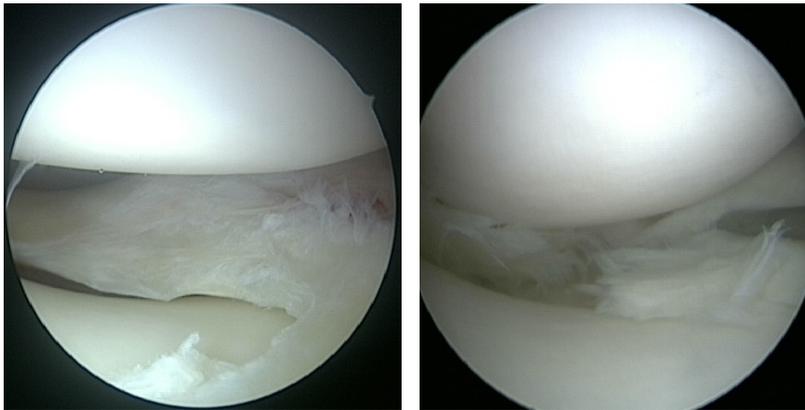
**Arthroscopic view**



**Partial removal and  
meniscus repair**



# Complex tear

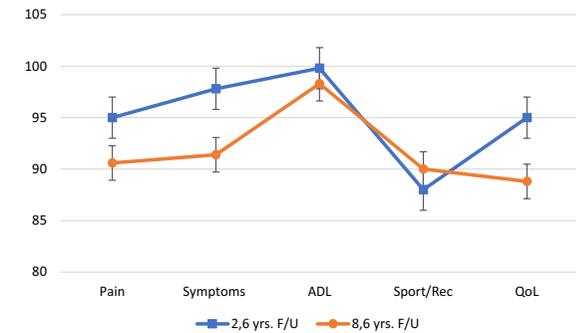


**Partial resection and meniscal repair**

14 pts with partial meniscectomy  
and open repair w/o OA



1 Pat. lost for FU  
2 failures

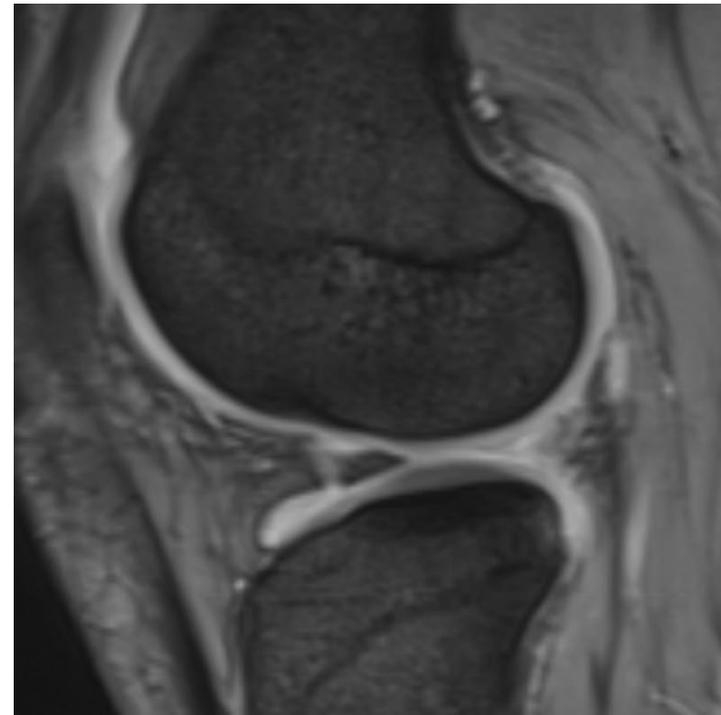


Billières, Pujol and U45 Com. KSSTA, 2018

# Diagnostic - MRI



Cleft sign on coronal image



Ghost sign on sagittal image

# Root tear

## Posteromedial root

- Incidence ?
- degenerative etiology
- Chronic medial knee pain
- No significant knee trauma (pop)

## Posterolateral root

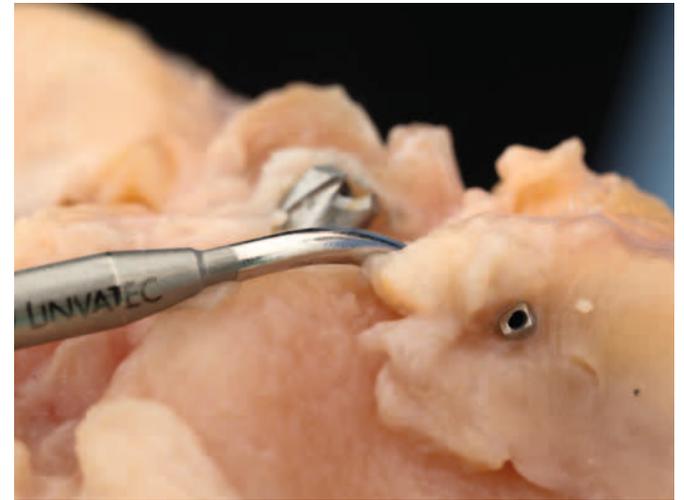
- Incidence 6.6%
- Risk factors: contact sport, concomitant medial meniscus tear
- Male > female
- Often in conjunction with ACL tear in 7-12%

# Treatment options

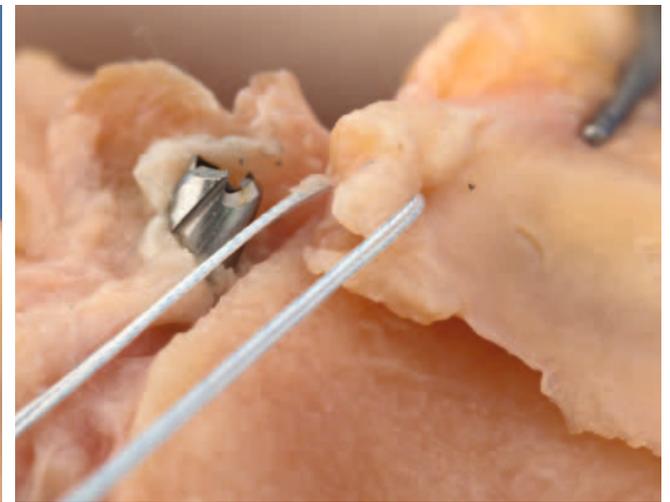
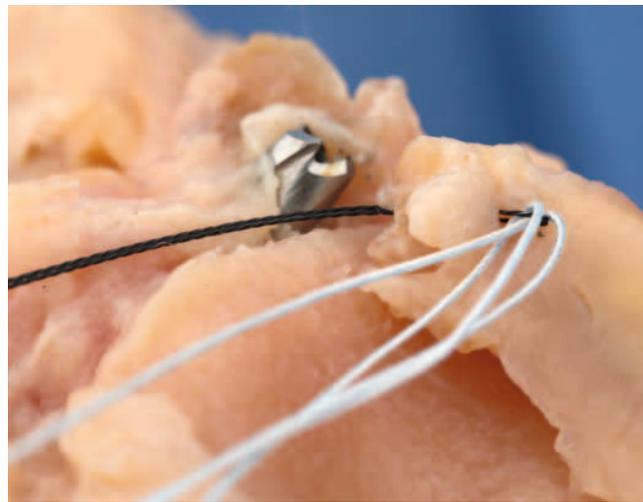
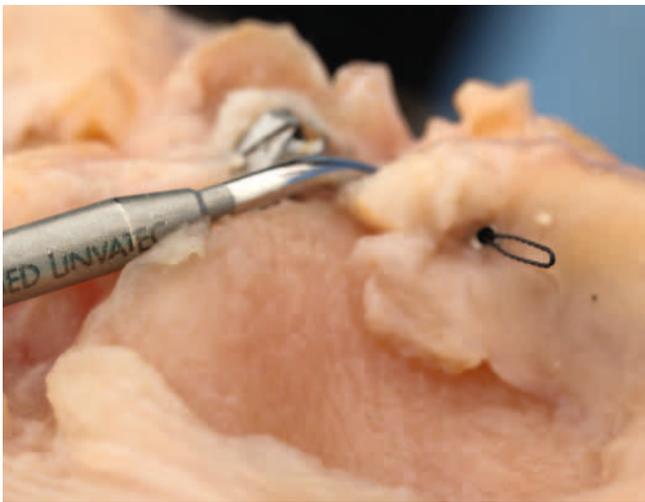


- Conservative
- Partial meniscectomy
  - Better than conservative treatment regarding Lysholm score results
  - BUT progression of OA
  - If K&L < 2 and no Genu varum = after 10y no TKA in 85 % of pxt

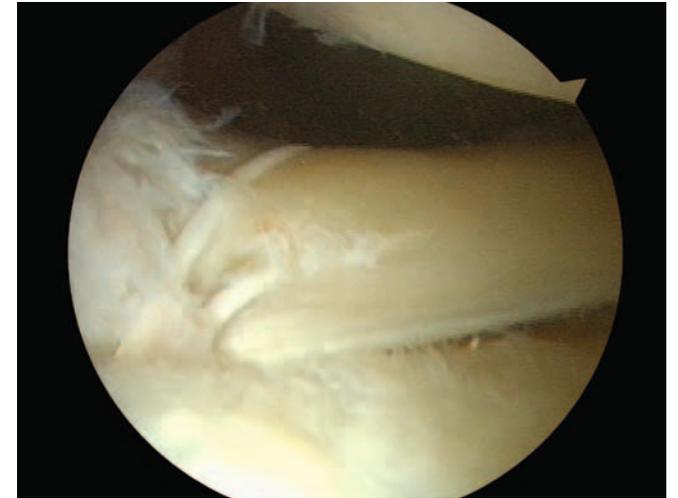
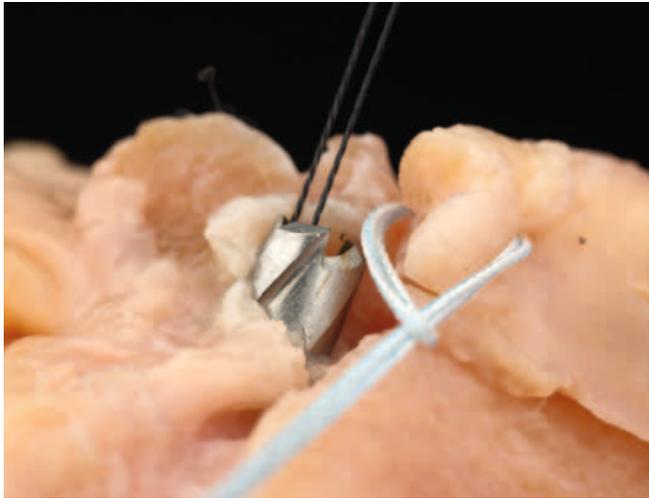
# Surgical technique



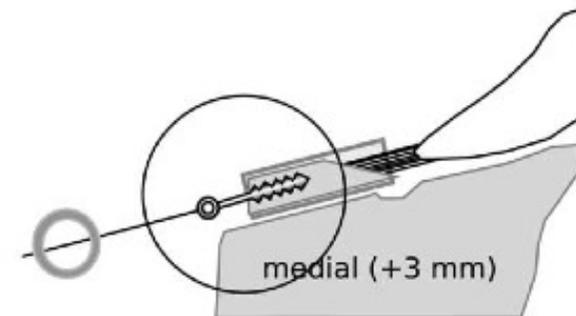
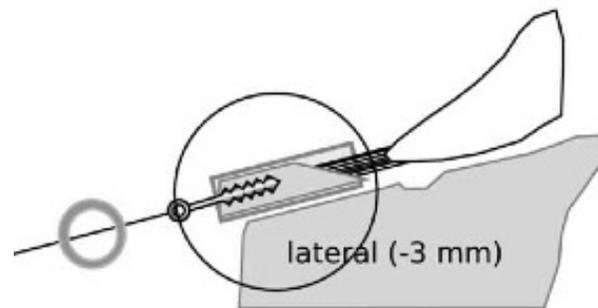
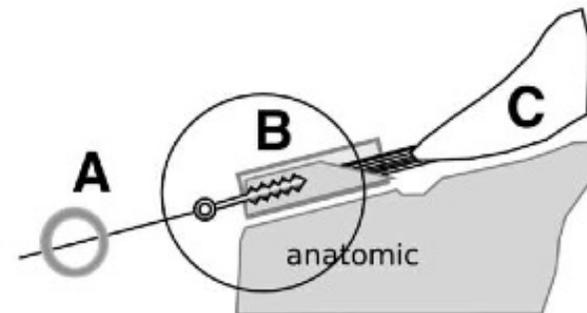
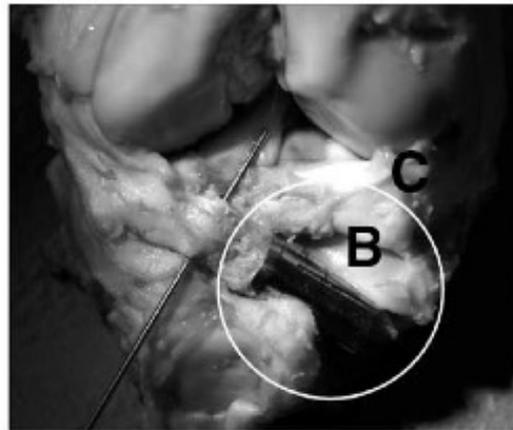
# Surgical technique



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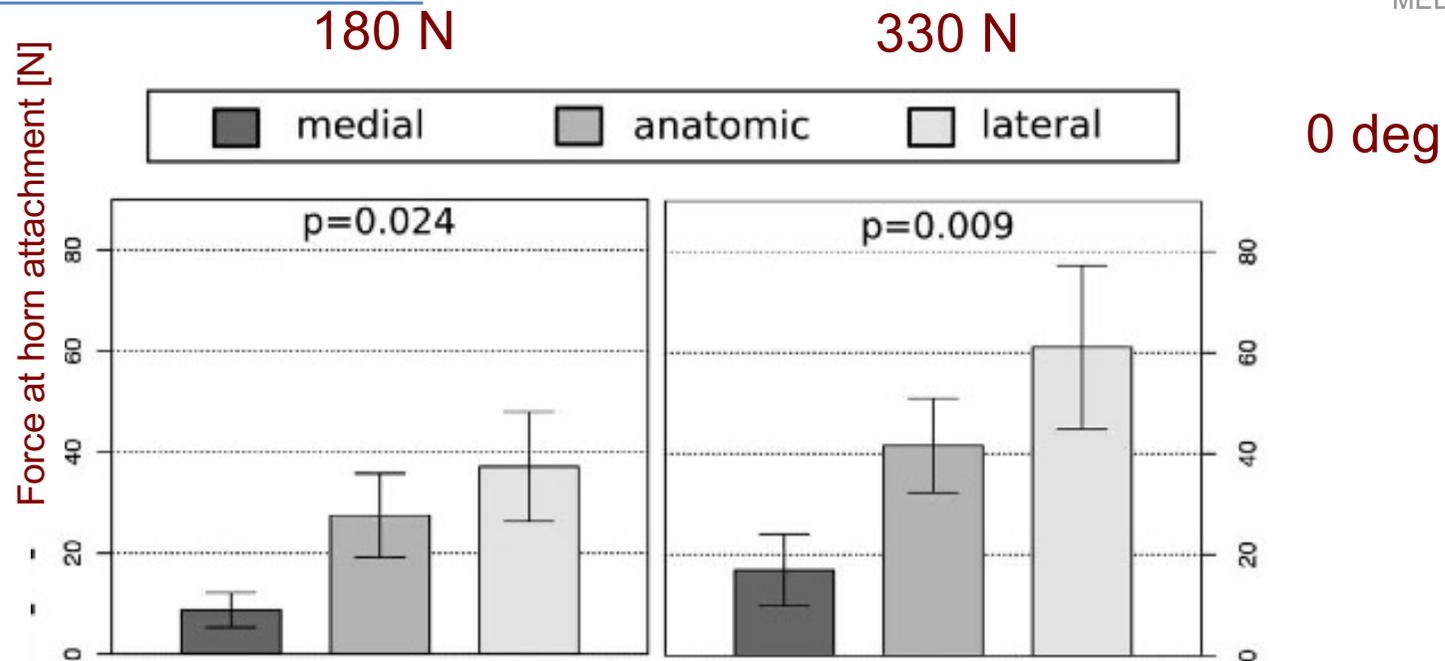


# Biomechanical considerations



at 0 deg, 30 deg, 60 deg

# Biomechanical considerations



- 3 mm medial: tension - 49 to 73 % (depends on flexion and tib-fem forces)
- 3 mm lateral: tension +28 to 68 %.
- Low forces on the meniscus means more cartilage deformation and load

# Clinical results - degenerative

## Repair vs. partial resection

- 93 - 100 % partial or complete healing after repair (MRI) <sup>1,2</sup> and  
70 % in 2nd look arthroscopy <sup>4</sup>
- Repair: Kaplan-Meier Survival after 8 years 92% (K&L included to 3) <sup>3</sup>

<sup>1</sup> Kim et al. *Arthroscopy* 2011.27(3).346-54

48 months F/U

<sup>2</sup> Lee et al. *Arthroscopy* 2009.25(9).951-8

32 months F/U

<sup>3</sup> Chung et al. *Arthroscopy* 2017

to 10years F/U

<sup>4</sup> Lee SS et al. *Am J Sports Med* 2018

16 months F/U

# Clinical results - degenerative

## Factors affecting outcome

- OA of the knee of more than K/L > Gd 2
- Chondral lesions > Gd3 (IKDC)
- Older age
- Deformity
- Meniscus extrusion in MRI (coronal plane)
- Increased BMI



## 2. Popliteus tendon



Courtesy: Robert Smigielski

### Static and dynamic stabilizer



1. External rotation of the femur when foot fixed on the ground
2. Contraction causes internal rotation of the tibia
3. Concentric and excentric activity
4. Resection of the popliteus tendon results in increase in ext. rotation and lateral shift



### Keyroles:

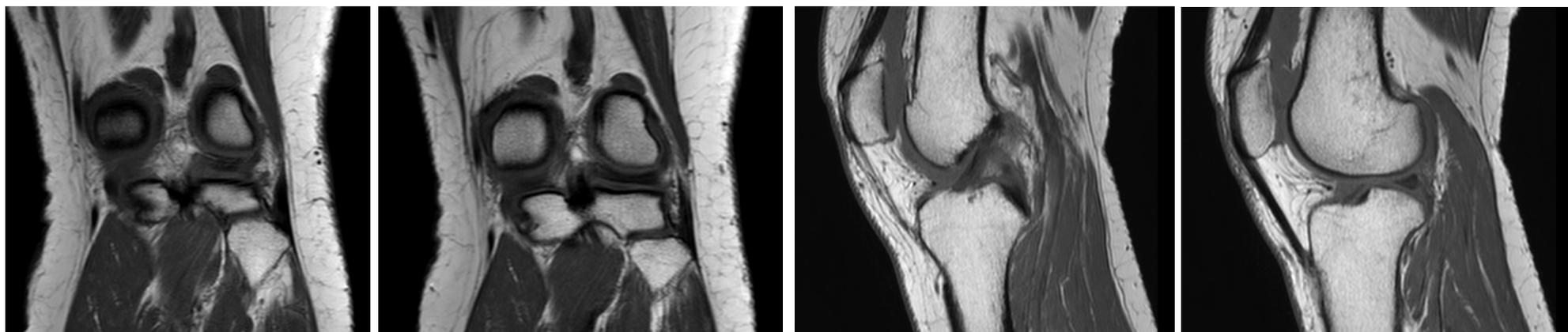
- Unlocking the knee when fully extended
- Restrain the relationship between the femur and tibia

# Popliteus tendon (FORTE-Syndrom)

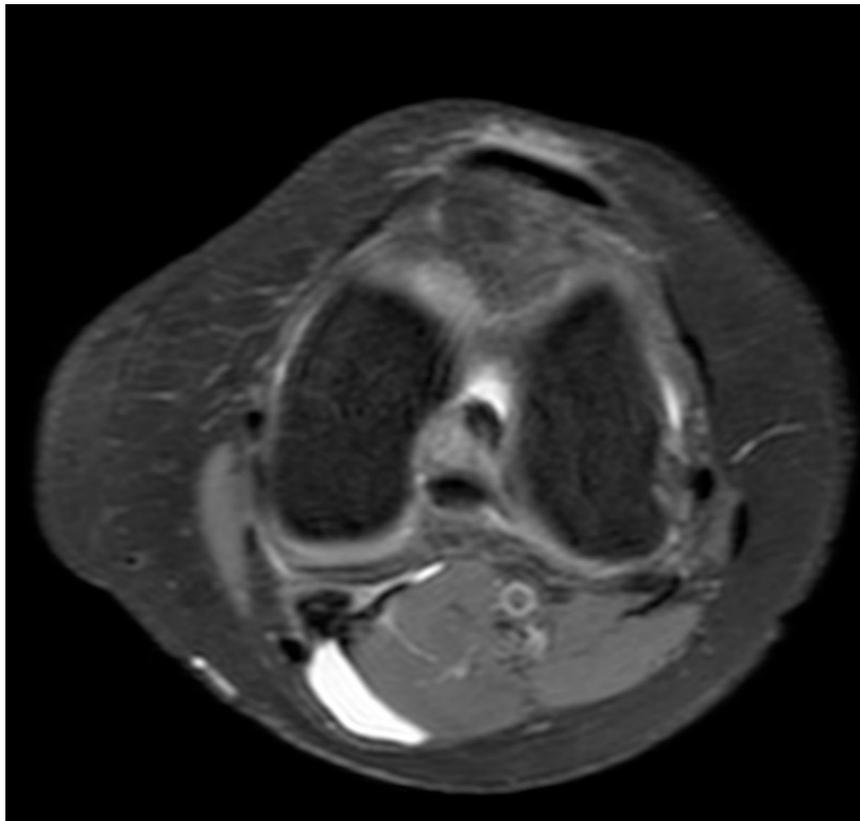
- Isolated dysfunction of the muscle
- Synovitis of the tendon

NASR and Chiropractic

In complex multiligament trauma such as PCL and PLC reconstruction might be recommended



### 3. Bakers cyst



Commonly placed between the M semimembranosus and medial head of the gastrocnemius muscle

# Bakers cyst

**Etiology:** Memsicus lesion  
Cartilage lesion  
Synovitis

Joint effusion

- Sequestration of fluid due to valvum like effect
- Herniation of synovia into the popliteal region

Quadriceps muscle dysfunction

# Bakers cyst

- In symptomatic knee there are baker cysts in 38% - 55%
- Correlation between size of the cyst and intraarticular pathology
- No correlation between Bakers cyst and clinical symptoms
- Large cysts cause pain in knee flexion and numbness



Spontaneous rupture may cause compartment syndrom

