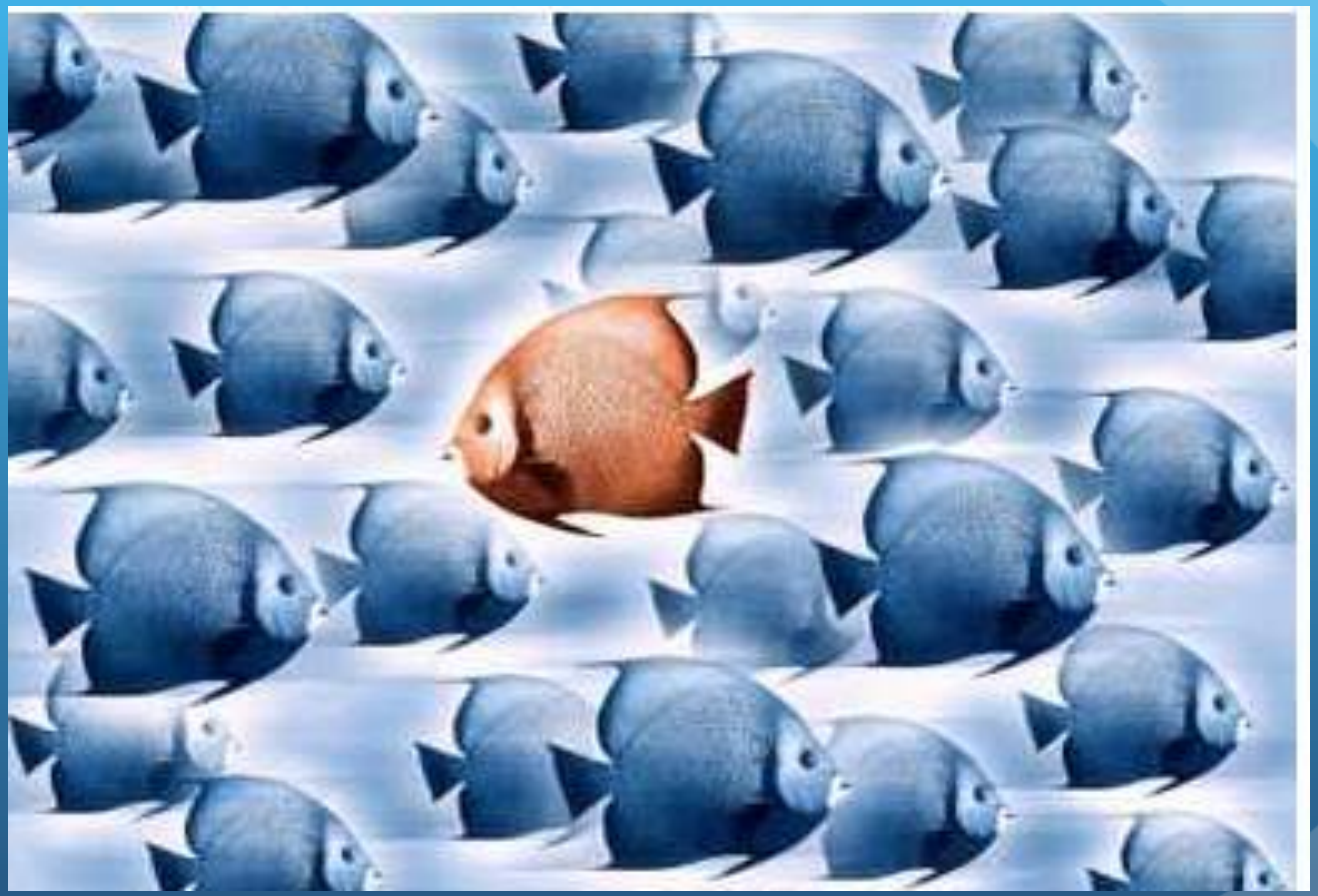
Patellofemoral pain and treatment of PF chondral lesions

A C W Hui
James Cook University Hospital
2015



Case 1

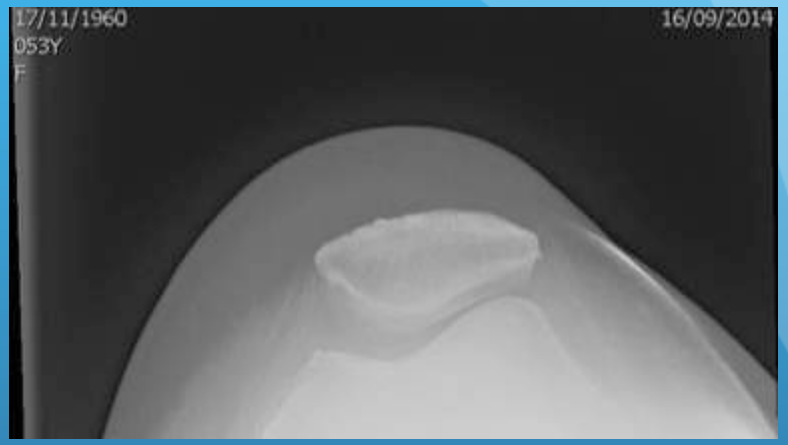
- 14 yrs old girl
- Patella dislocation
- Sent for physio
- MRI after 1 month

Case 2

52 yrs old female

Previous lateral release

Persistent pain and instability



Case 3

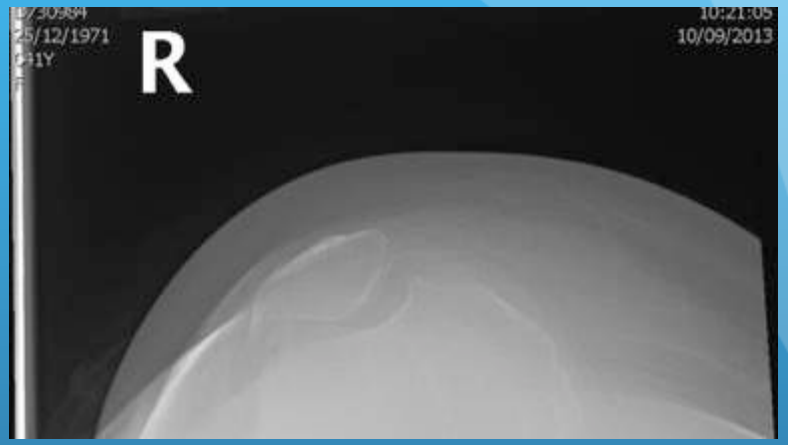
44 yrs old female

Down's syndrome

Obese

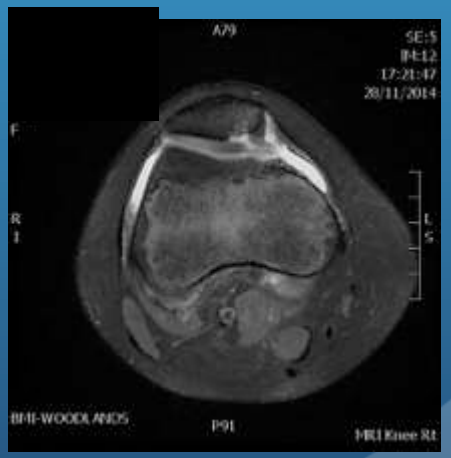
Recurrent dislocation of patella since her teens

Constant pain



Case 4

- 12 yrs old
- No trauma, no instability
- Anterior knee pain for 2 years
- Plays hockey to high standard



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- Pain ++
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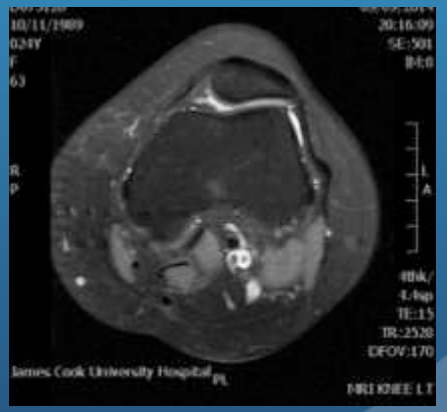
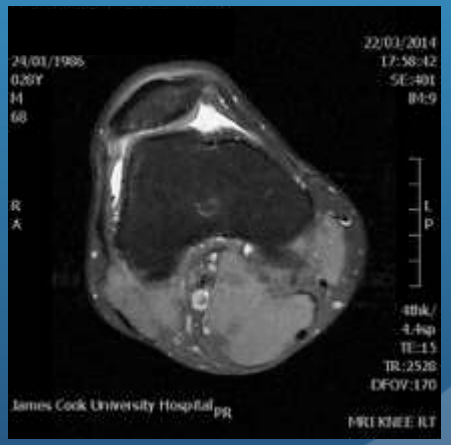
- Failed physio 6 months



Case 6

- 28 yrs old ground worker
- “Crack” in the knee after crawling on all fours
- No instability



THE NATURAL HISTORY OF ANTERIOR KNEE PAIN IN ADOLESCENTS

M. J. SANDOW, J. W. GOODFELLOW

From the Nuffield Orthopaedic Centre, Oxford

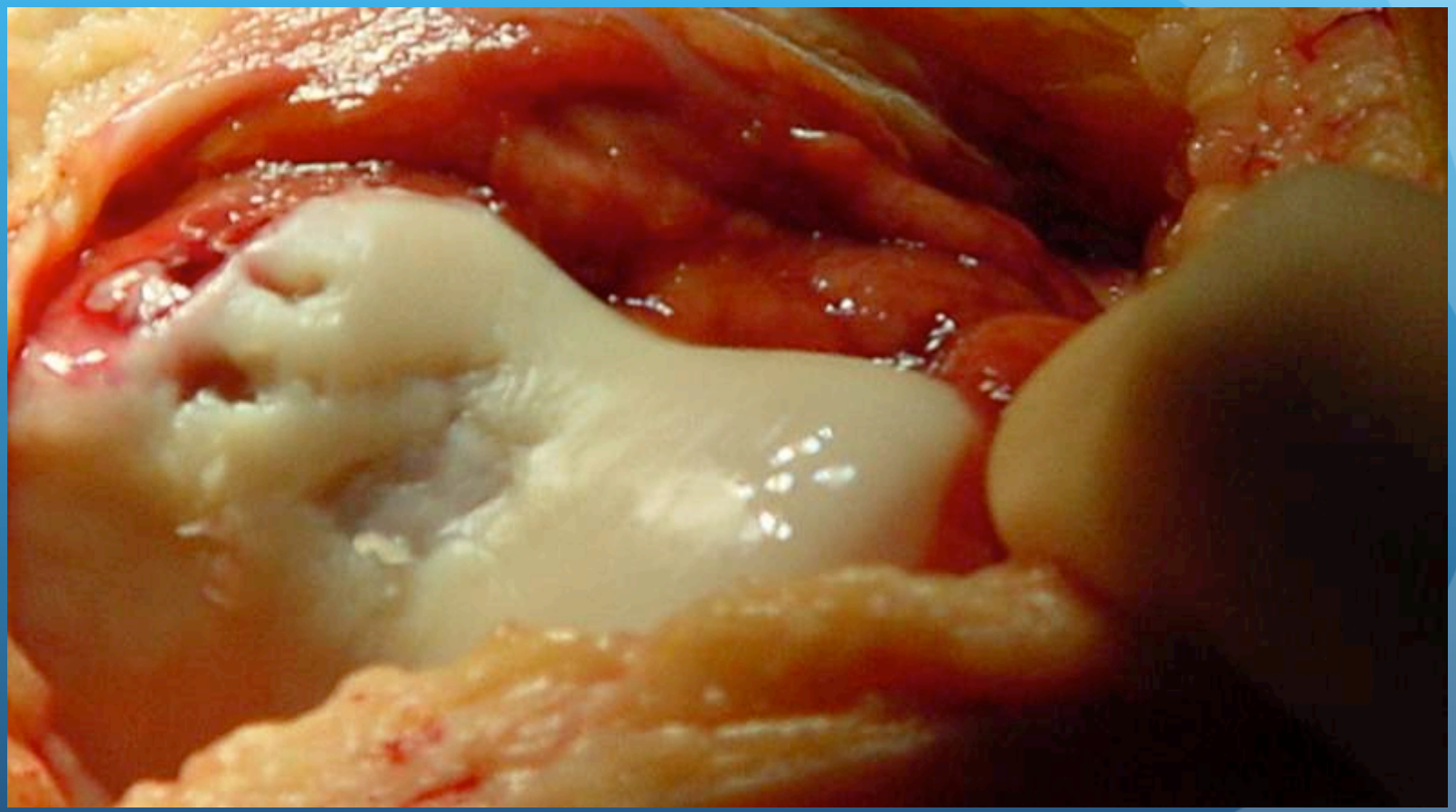
Table II. Responses to questionnaires

	Number	*Per cent*
Presence of pain		
Yes	51	94.4
No	3	5.6
Side affected		
Bilateral	26	48.1
Left	16	29.6
Right	12	22.3
*Severity of pain**		
Better	25	46.3
Worse	7	13.0
Same	22	40.7

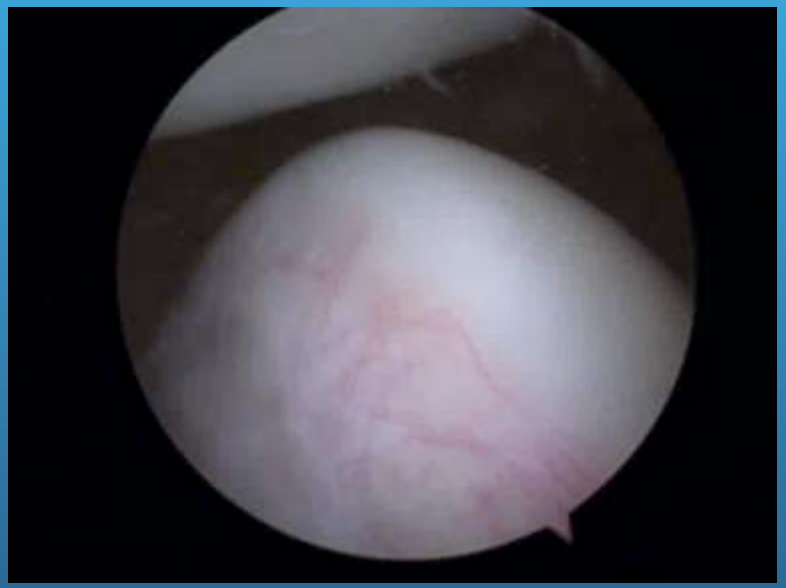
Chondral lesions in PFJ

- Degenerate, genetic, familial
- Traumatic, sports, occupational
- Maltracking, subluxation, dislocation
- Idiopathic
- Iatrogenic

Primary degeneration



Concept of instability and maltracking



Does it lead to OA?

RESEARCH ARTICLE Open Access

Anterior knee pain in younger adults as a precursor to subsequent patellofemoral osteoarthritis: a systematic review

Martin J Thomas[1*], Laurence Wood[1], James Selfe[2], George Peat[1]

Conclusions: There is a paucity of high-quality evidence reporting a link between AKP and PFOA. Further, well-designed cohort studies may be able to fill this evidence gap.

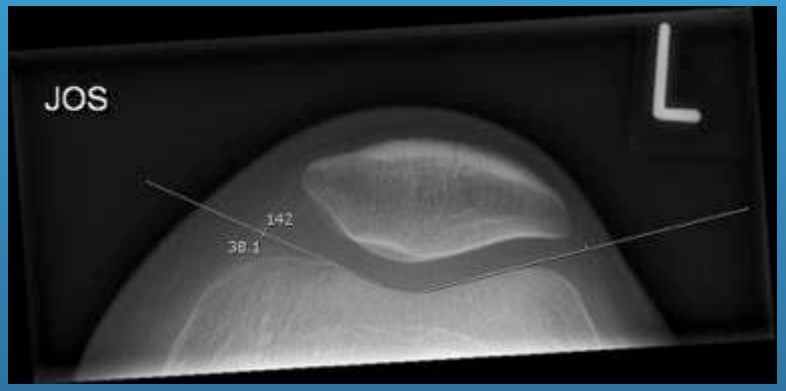
Clinical assessment

- Alignment – genu valgum, hindfoot valgus
- Rotational alignment – hip rotation, Q-angle
- Hypermobility – Beighton scores
- Hamstring tightness
- Patella tracking – reverse J
- Patella height

Radiological assessment

- Trochlear dysplasia
  - Cross over sign
  - Medial bone boss
  - Sulcus angle
- Patella alta
  - Insall-Salvati index
  - Blackburn-Peel

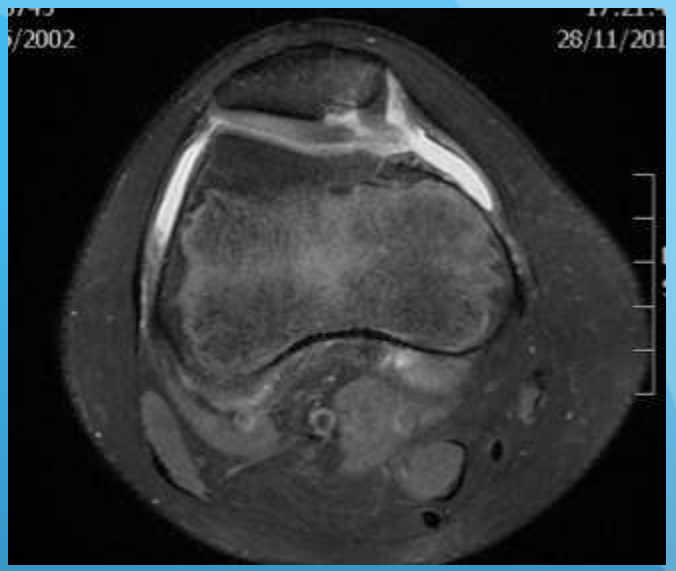
Skyloine view

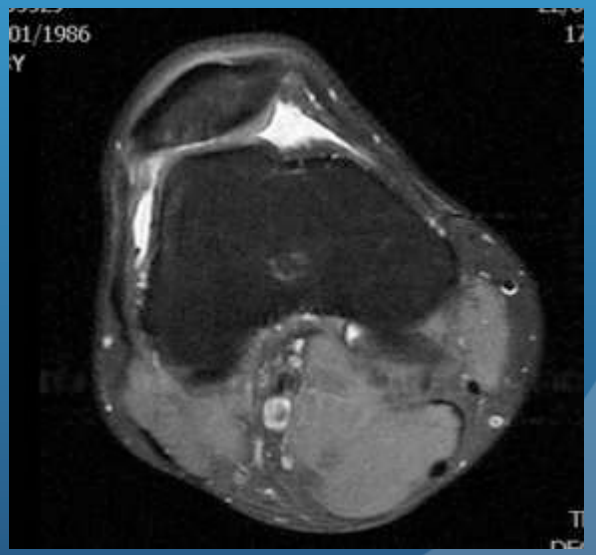


- Sulcus angle
- Merchant’s angle
- Tilt angle

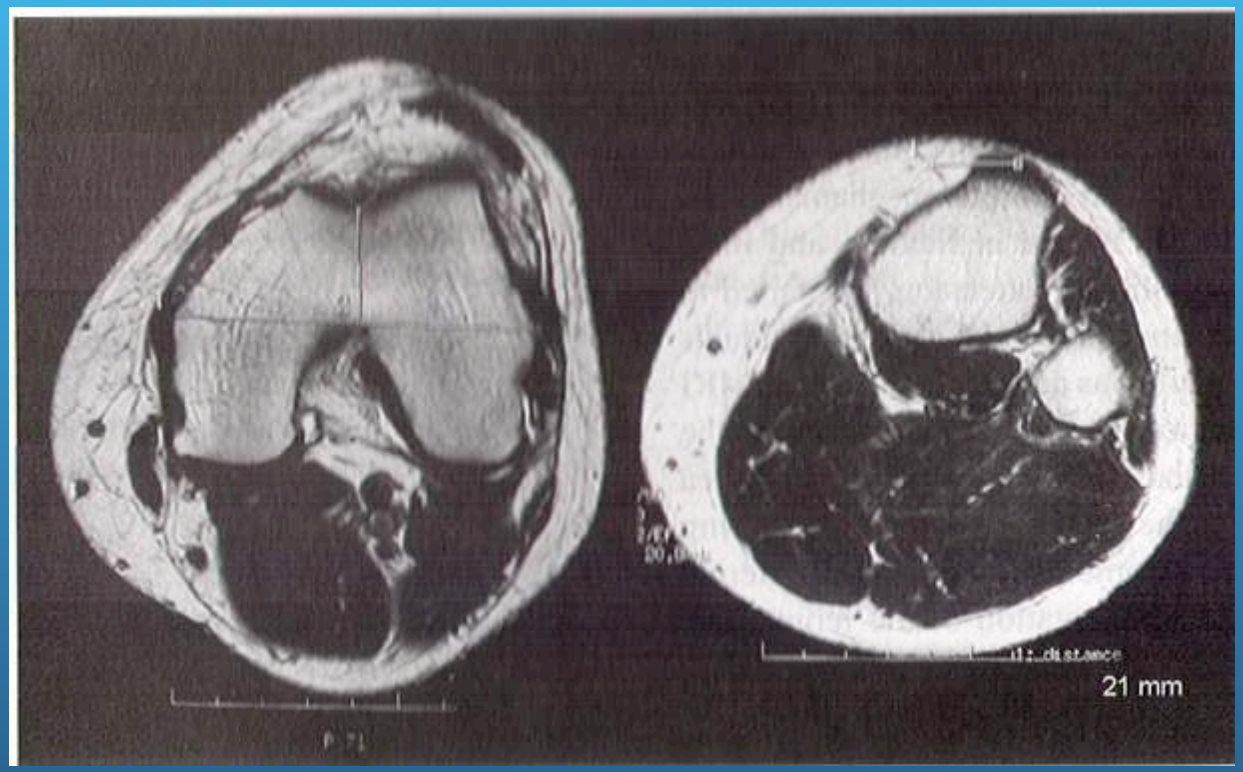
MRI

- Site of lesion
- Trochlear anatomy
- Subluxation
- Engagement
- ? mPFL





TT – TG distance

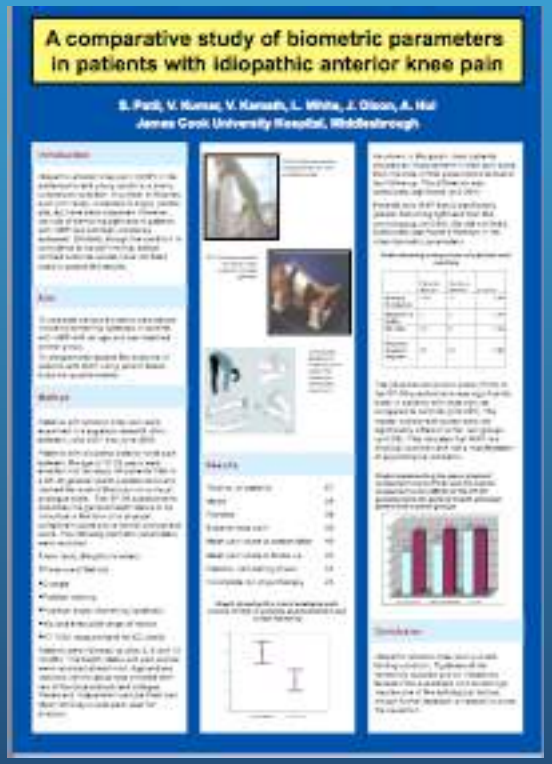


> 20mm = abnormal (Dejour)

Principles of Treatment

- Establish aetiology of pain
- Conservative management if no structural abnormality
- Can chondral lesion/s be offloaded by stabilisation/re-alignment
- If biomechanical environment cannot be improved, is chondral repair procedures appropriate
- PFJ replacement in >40
- Obesity and psycho-somatic pain cannot be treated by T&O

Conservative management



Acta Orthop. Belg., 2010, **76**, 356-359

ORIGINAL STUDY

Idiopathic anterior knee pain in the young
A prospective controlled trial

Sunit PATIL, Lisa WHITE, Alex JONES, Anthony C. W. HUI

From James Cook University Hospital, Middlesbrough, United Kingdom

ELSEVIER

The Knee

Volume 18, Issue 5, October 2011, Pages 329–332

An electromyographic exploratory study comparing the difference in the onset of hamstring and quadriceps contraction in patients with anterior knee pain

Sunit Patil[a], John Dixon[b], Lisa C. White[c], Alex P. Jones[a], Anthony C.W. Hui[a]

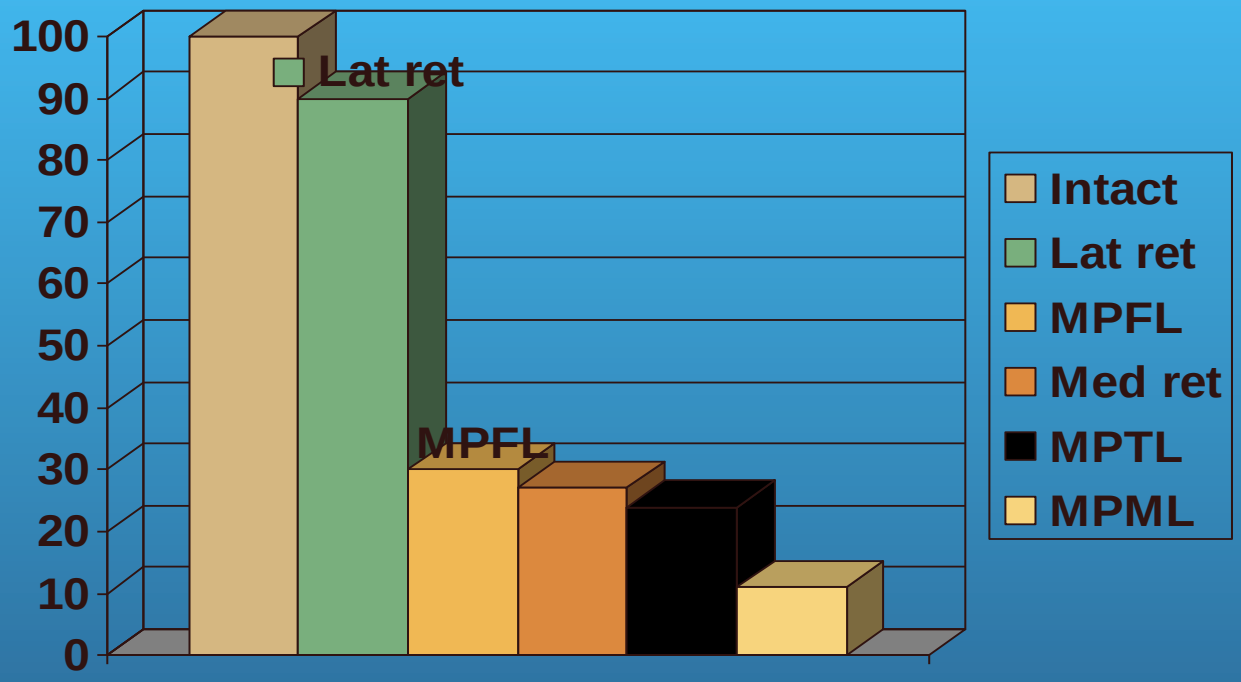
My arch enemy

What is the role of lateral retinacular release?

R. Clifton, MSc(Orth Eng), FRCS(Trauma & Orth), Locum Consultant Orthopaedic Surgeon1; C. Y. Ng, MRCS Ed, Specialist Registrar2; and R. W. Nutton, MD, FRCS, Consultant Orthopaedic Surgeon2

- Over release destabilizes patella
- Lateral retinaculum contributes 10% of lateral stabilizing force
- 14 -100% good results for anterior knee pain
- 30-100% good results for instability
- Poor results for Grade III and IV chondromalacia
- Poor for OA

Significance of lateral retinacular ligaments

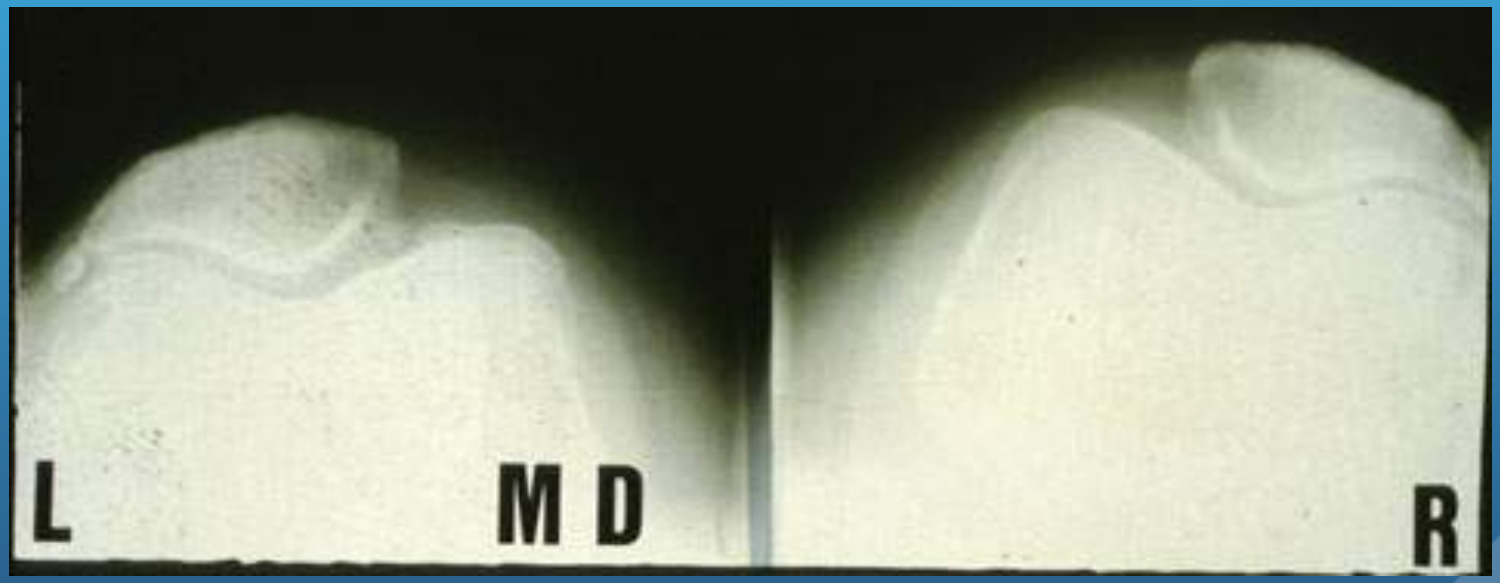


Desio SM,Burks RT, Bachus KN. "Soft tissue restraints to lateral patellar translation in the human knee" *Am J Sports Med* Vol 26(1);59-65

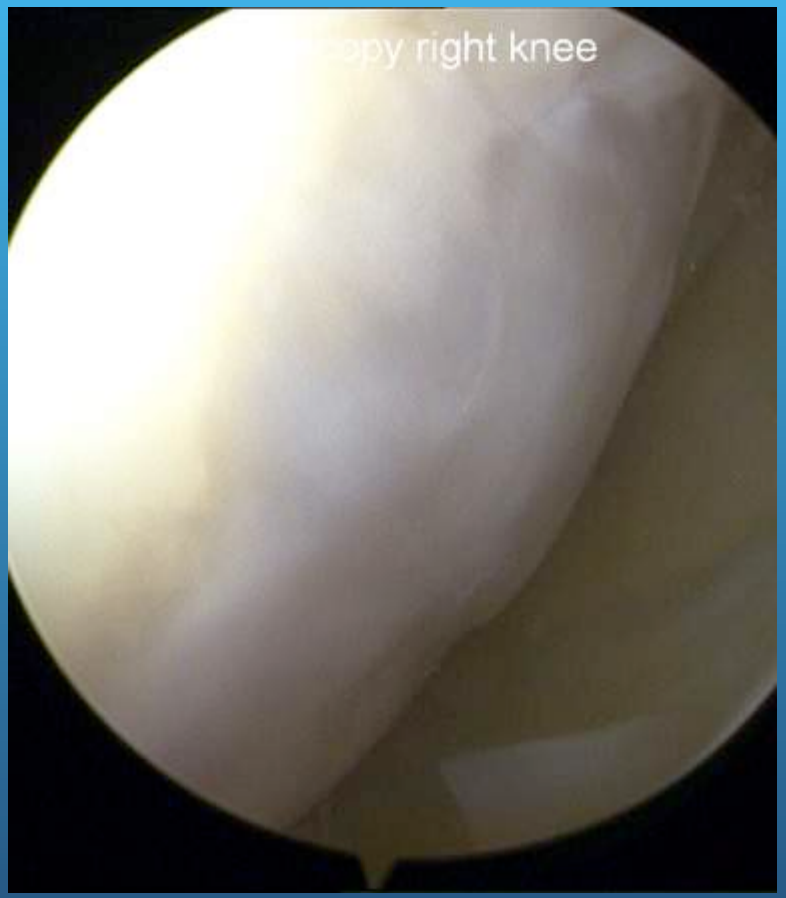
Lateral release

- Don’t for instability
- Don’t for hypermobility
- Don’t for OA
- ? Lateral excessive pressure syndrome

Subluxation or excessive lateral pressure?



Cartilage repair?



Results of mosaicplasty

Site of lesion	% excellent to good
Femoral codyles	91%
Tibial condyles	89%
Patella	84%

Hangody 1997

Autologous Chondrocytes Implantation Reported results

Good to excellent

- Isolated femoral condylar lesions 95%
- Trochlea lesions 80%
- Patella lesions 50%
- Multiple lesions 70%

Brittberg et al

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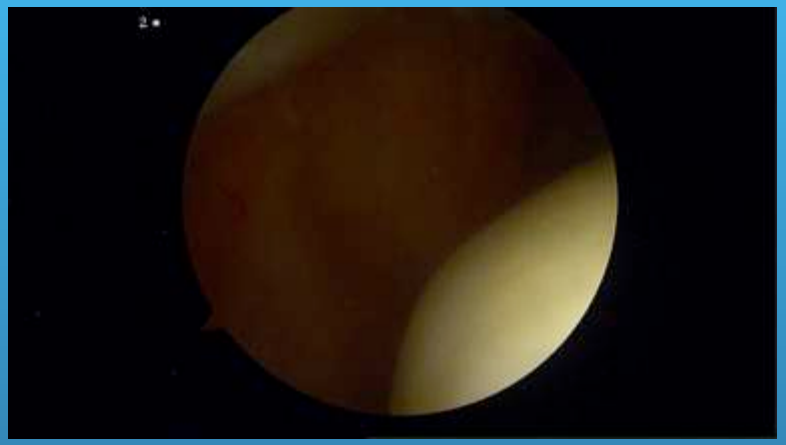
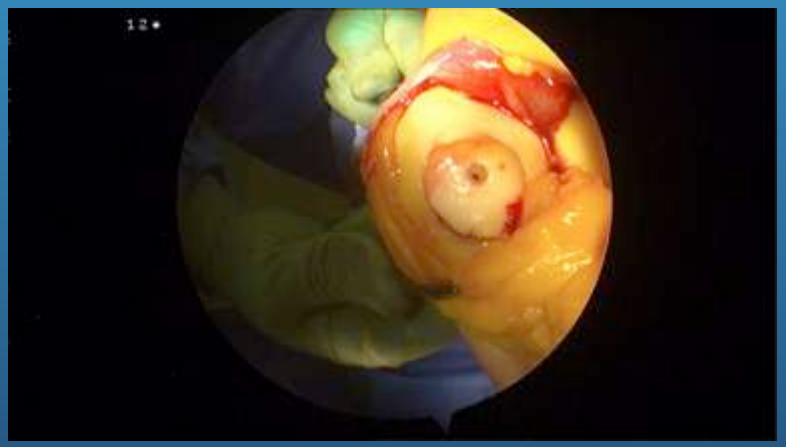
Case 1 – osteochondral fixation + MPFL





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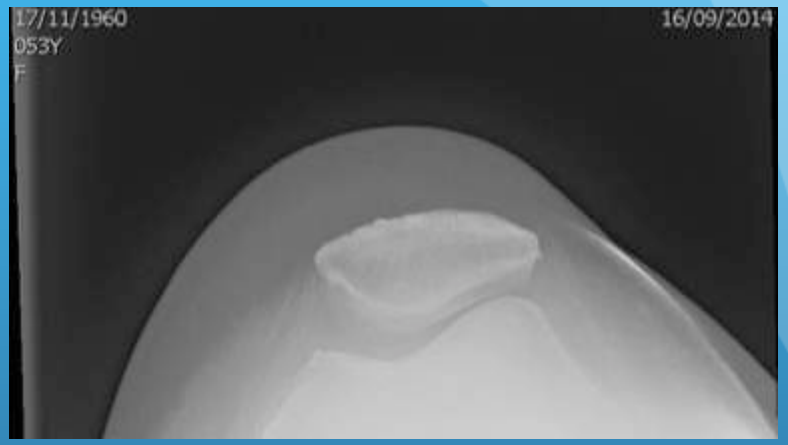
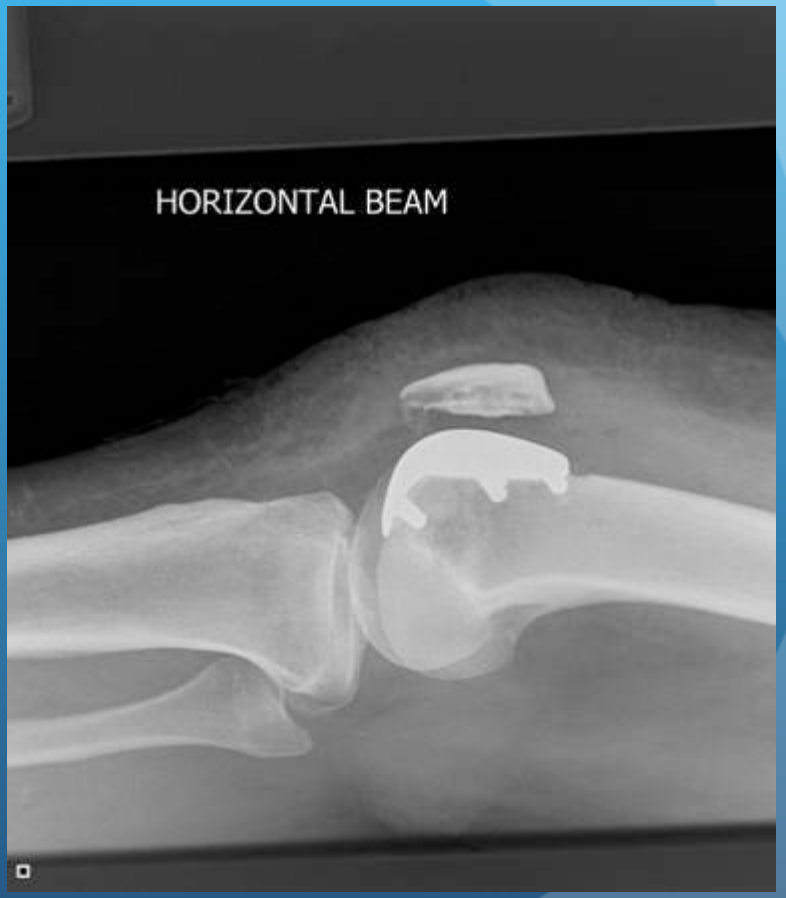


Case 2 – PFJ replacement



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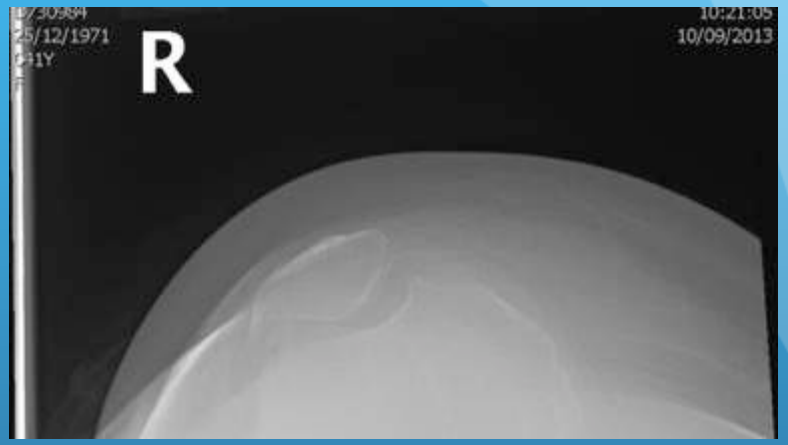

Case 3 – PFJ replacement + MPFL

Case 4

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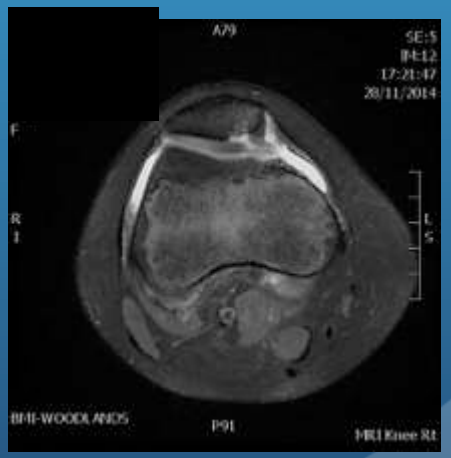
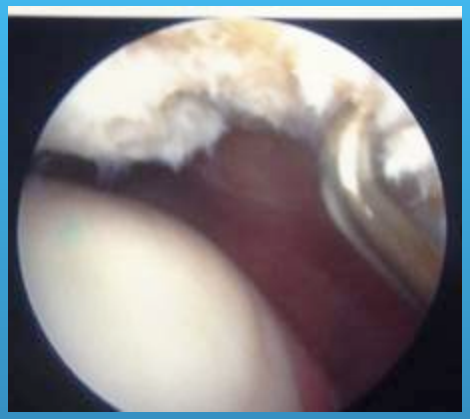
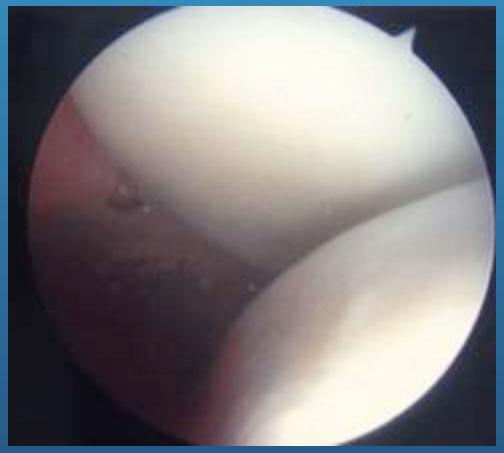
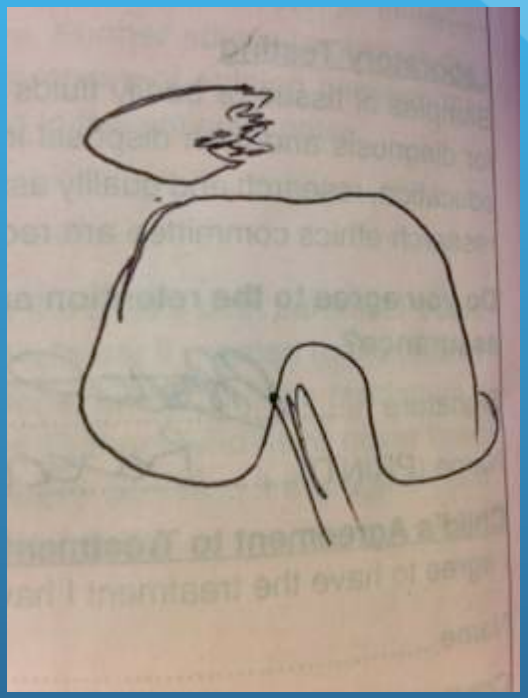


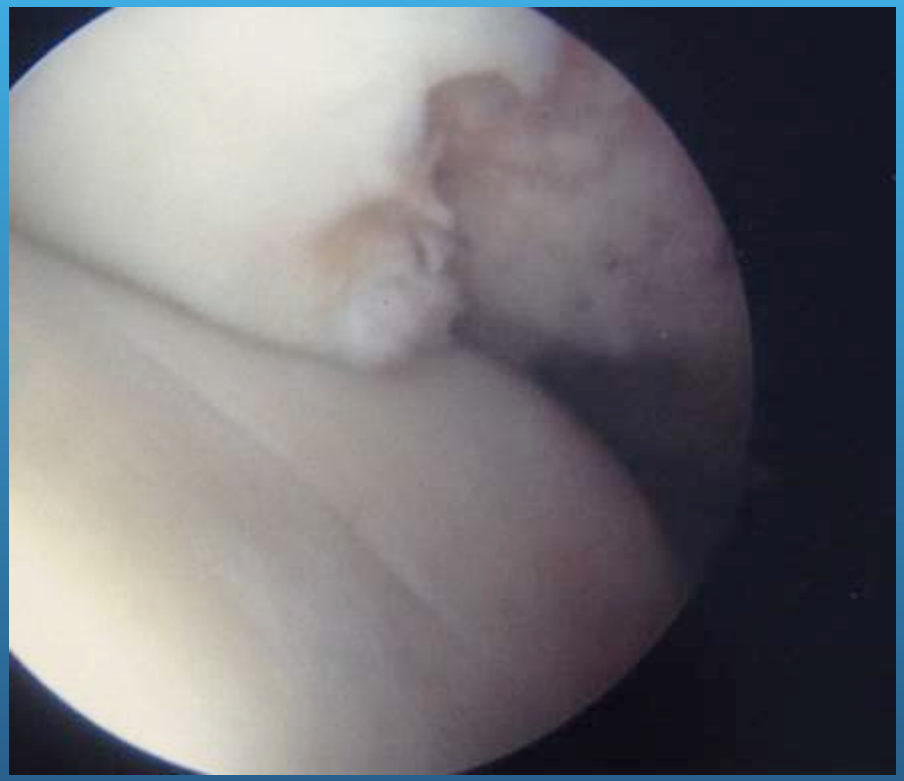
Case 4





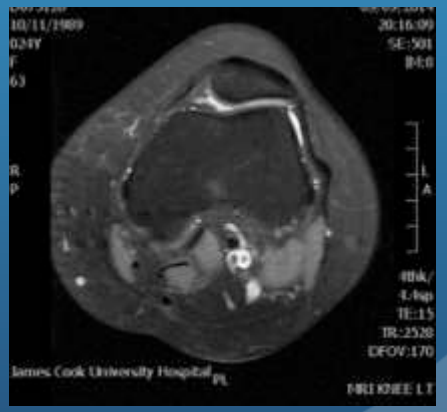


Case 4 – chondral debridement + MPFL

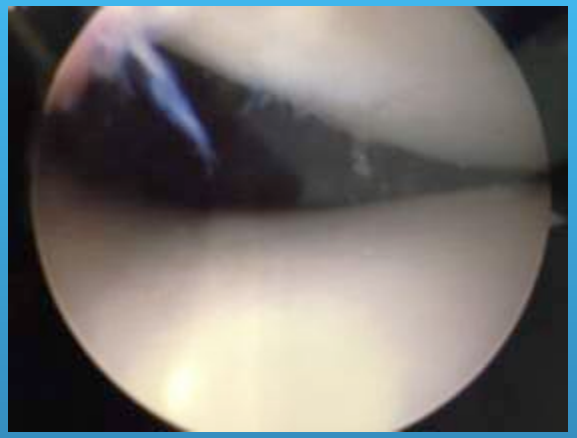


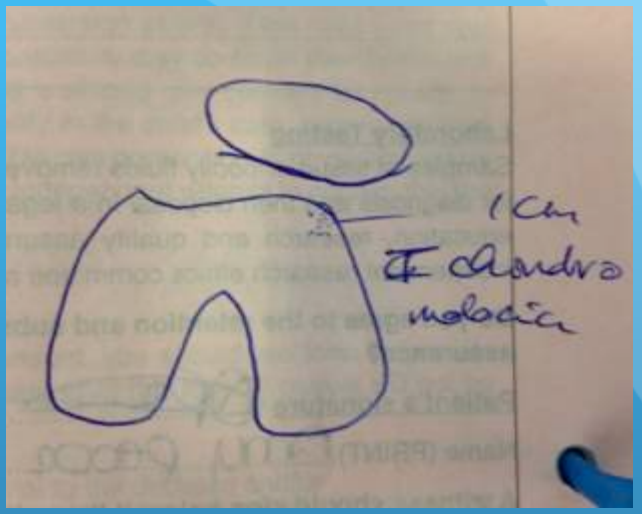
Case 5

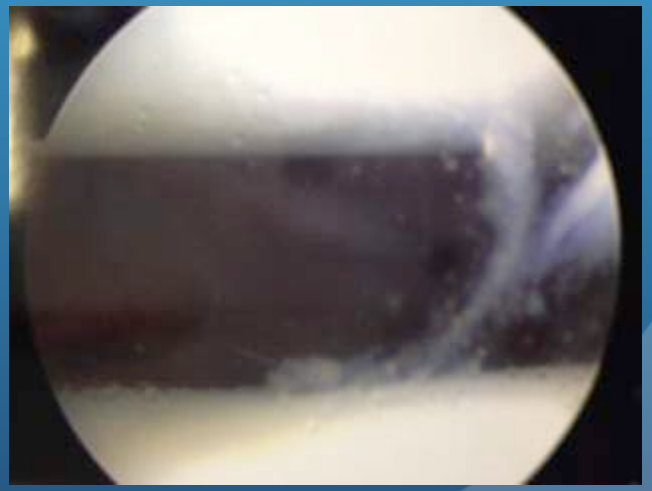
- 36 yrs old female
- Paramedic
- Forced valgus injury
- Pain ++
- Subjective instability
- Failed physio 6 months



Case 5 - MPFL

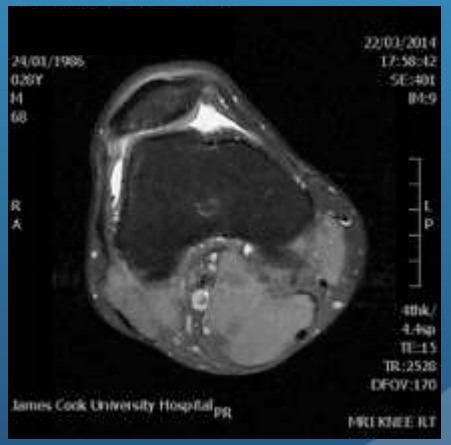




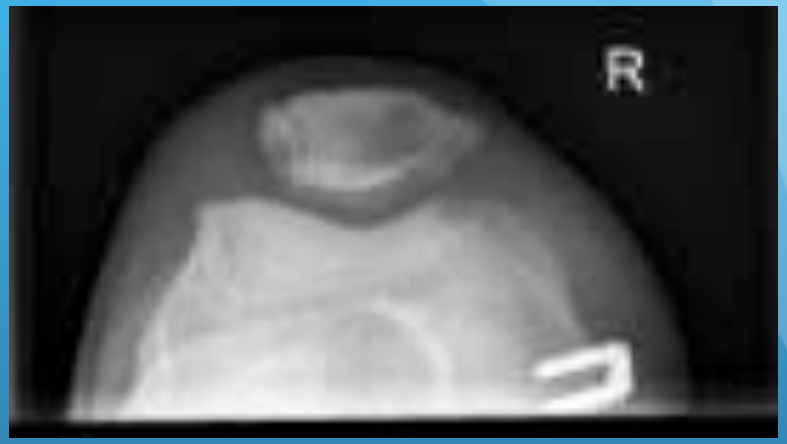


Case 6

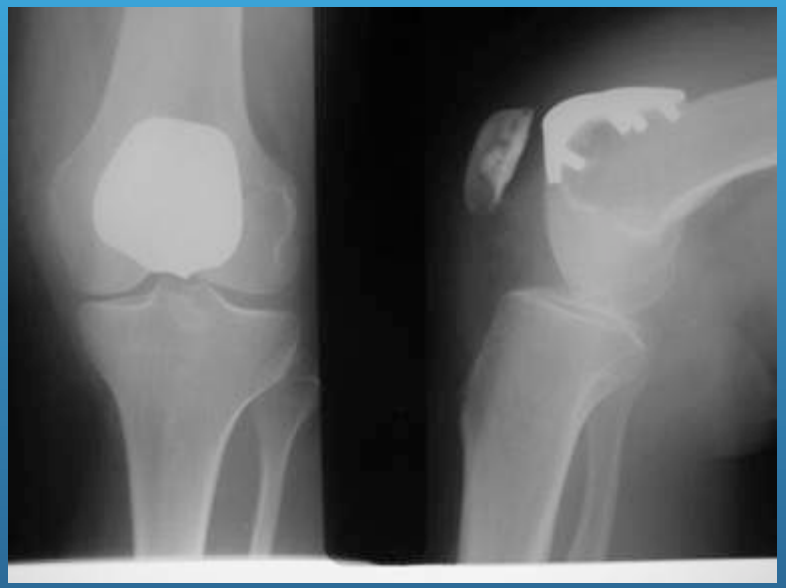
- 28 yrs old ground worker
- “Crack” in the knee after crawling on all fours
- No instability

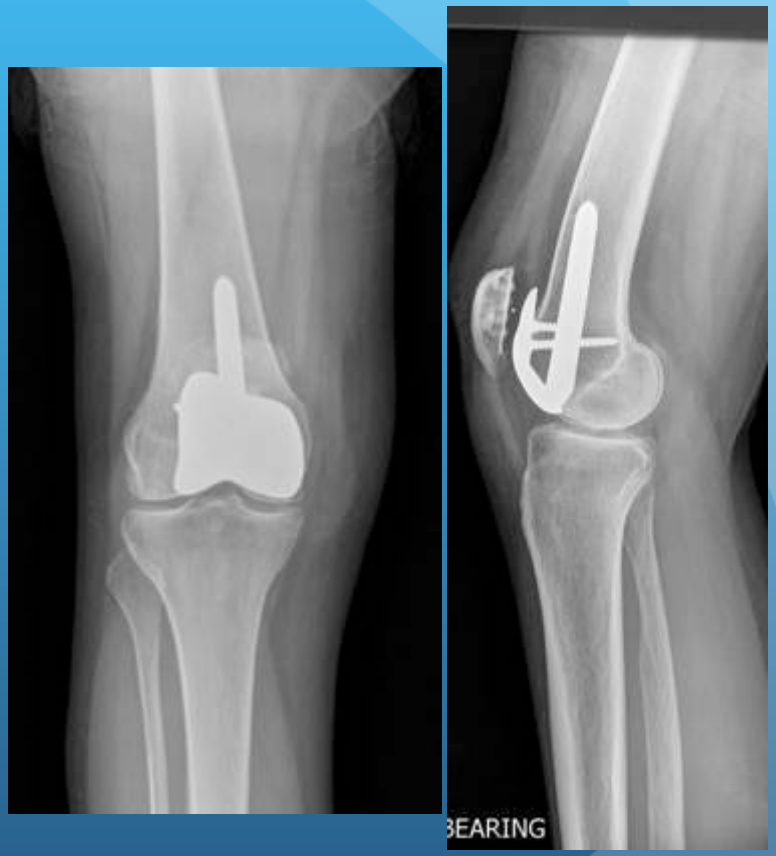


Case 6 - Lateral facetectomy + MPFL

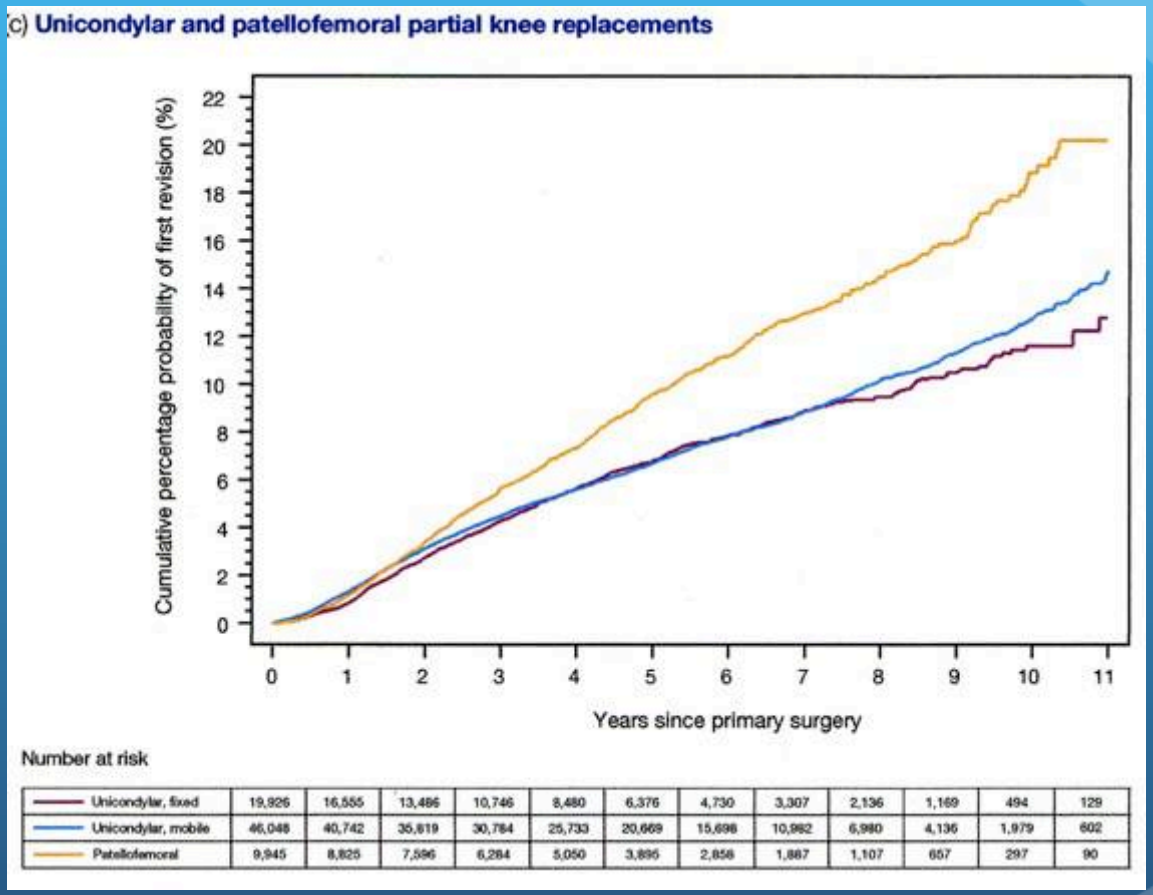


PFJ replacement





PFJ replacement – NJR data



PFJ replacement – technical tips

- Extra 5 degrees of external rotation to femoral component
- Slight notching
- Accurate sagittal alignment
- Add MPFL if significant patella alta or laxity
- Secure repair of medial parapatellar arthrotomy
- Zimmer of Avon PFJ

Failure of LCS PFJ replacement

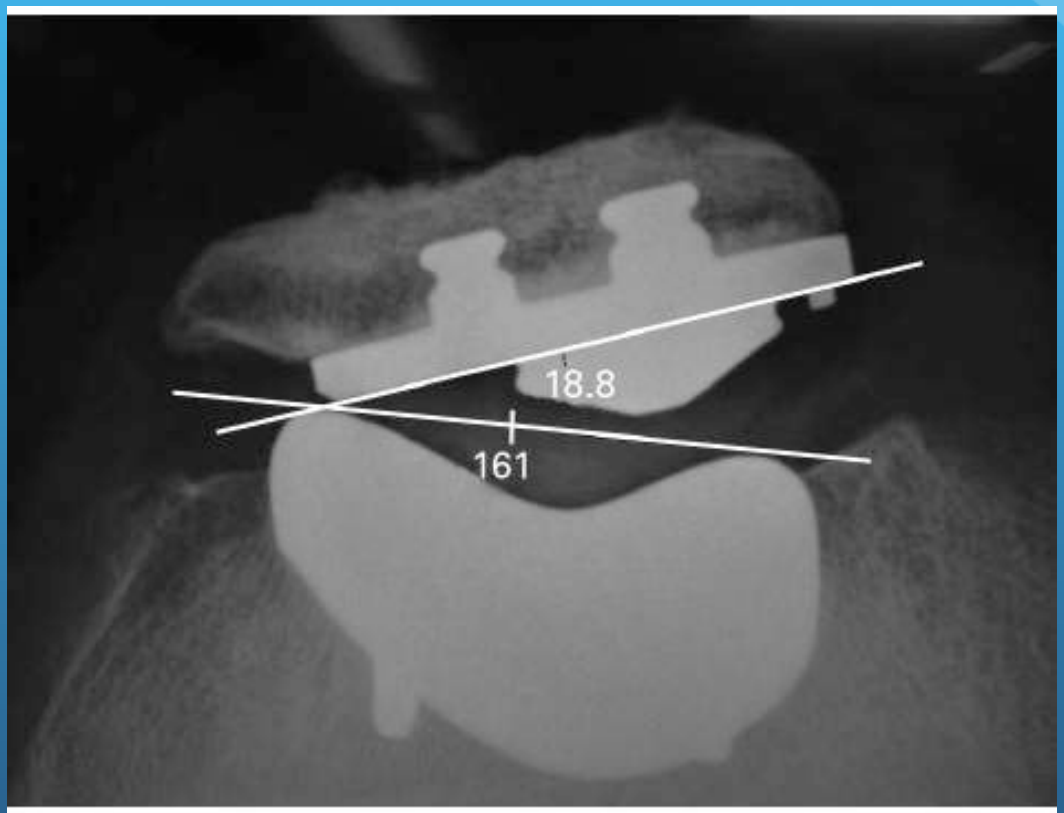
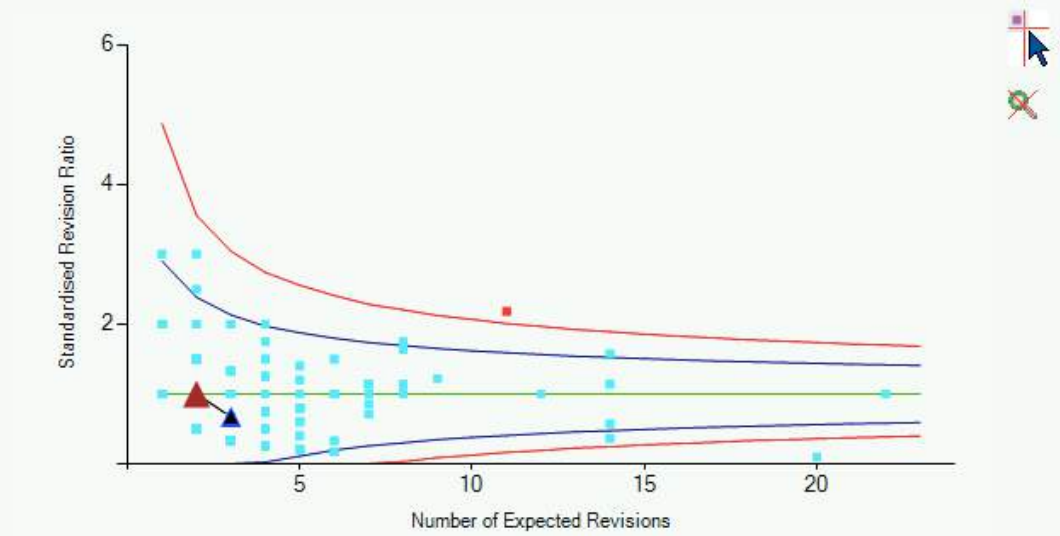


Fig. 1

My NJR



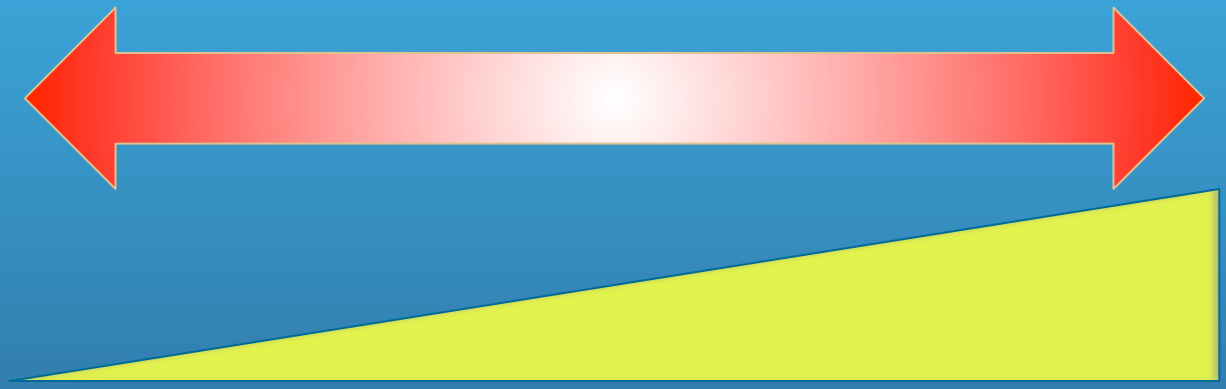
Counts

Type	Code	Name	Primaries	Revisions	Incidence Rate
Surgeon		Hui, Anthony Chi Wing	30	2	0.67

Summary

Instability and anterior knee pain

Idiopathic Pain Instability Dislocation



Idiopathic
Obesity
Psychosomatic
Degenerate/genetic

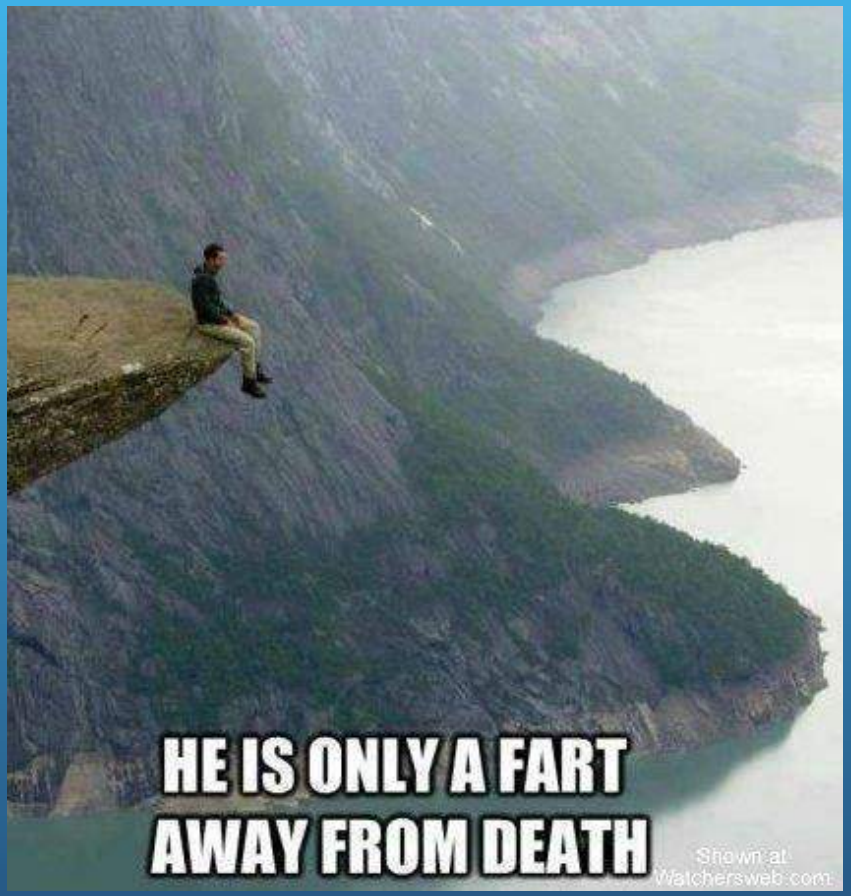
Quads/hamstrings imbalance
Hypermobility/laxity

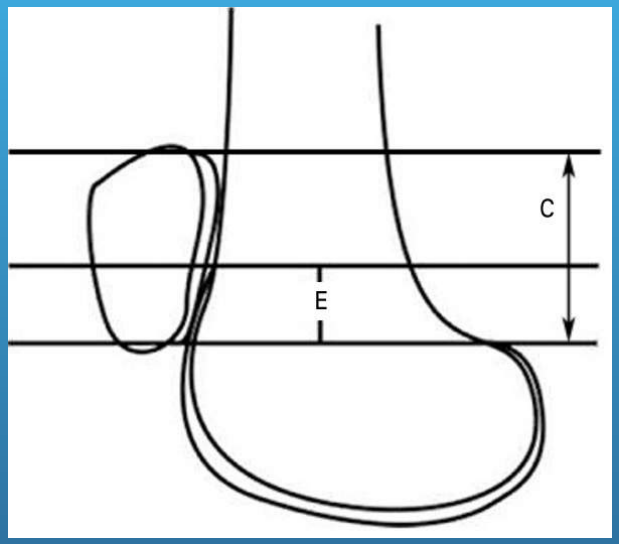
Known trauma

Conservative

Surgery

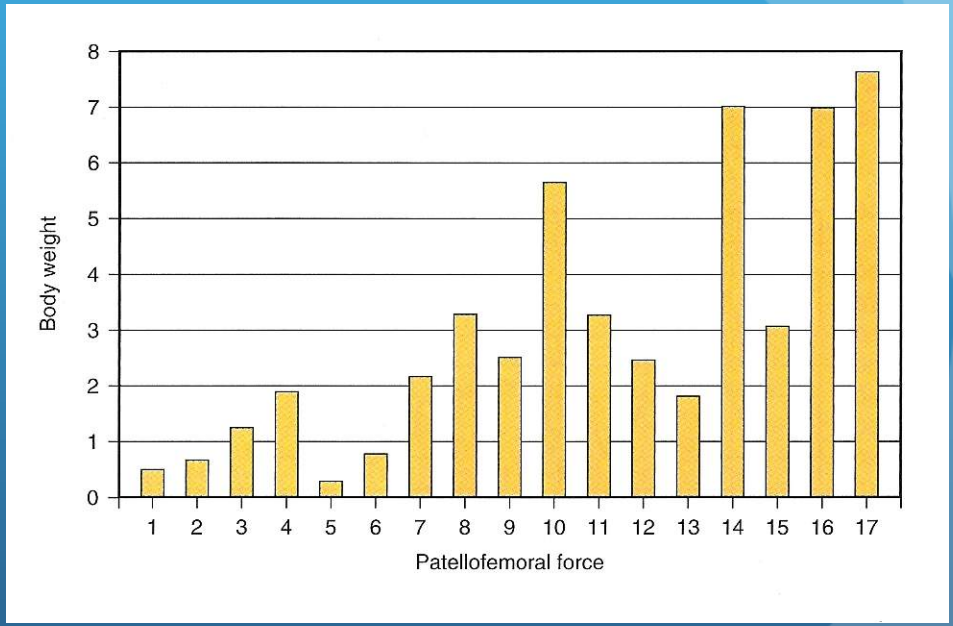
Warning!




C
E

Patello-femoral joint forces

1. Level walking
4. Level walking
10. Descending stairs
14. Jogging
16. Rising from chair
17. Squat descent



Significance of MPFL in extension

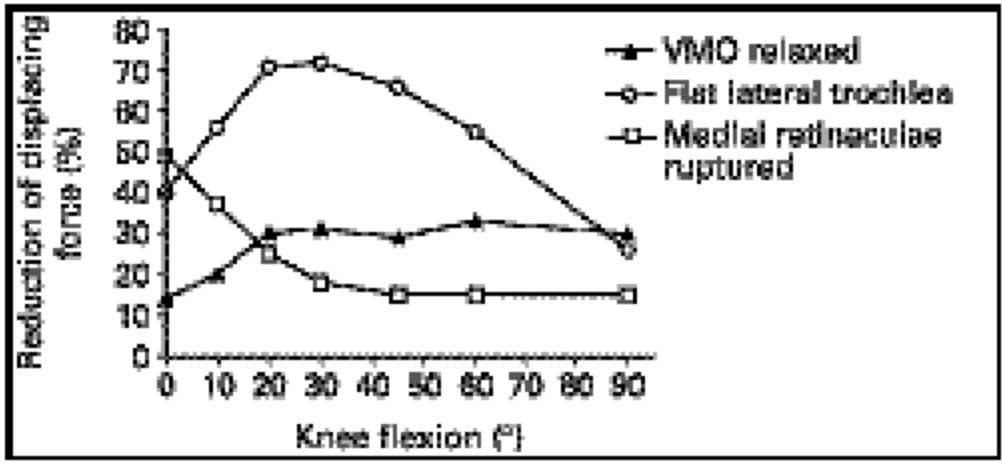


Fig. 6. Percentage loss of resistance to 10 mm lateral patellar displacement caused by each of the three simulated pathologies in isolation.

J Bone Joint Surg [Br] 2005; 87-B; 577-82

Patella anatomy