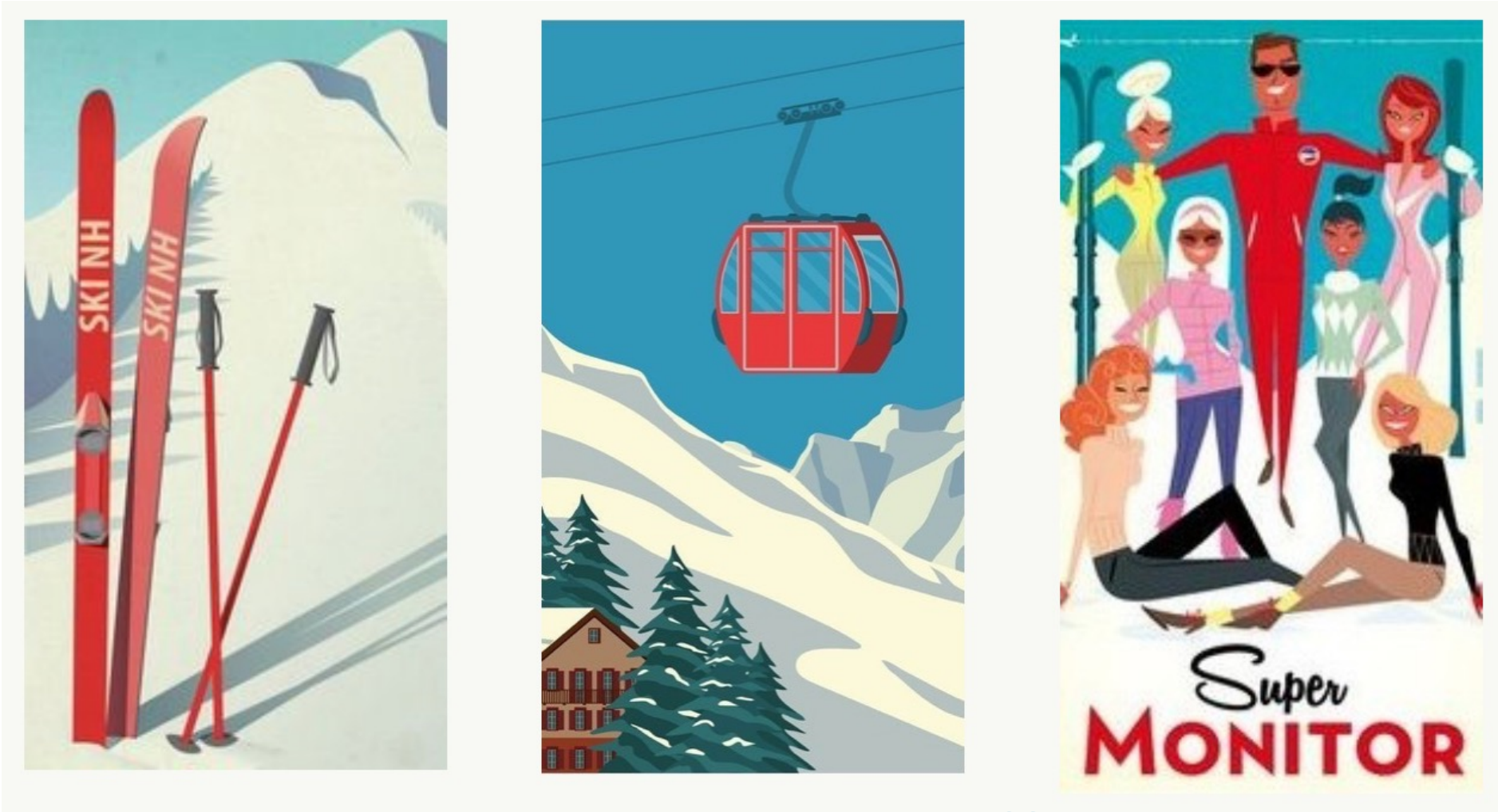


Medial Meniscus Root Tears + OA



Andreas Imhoff



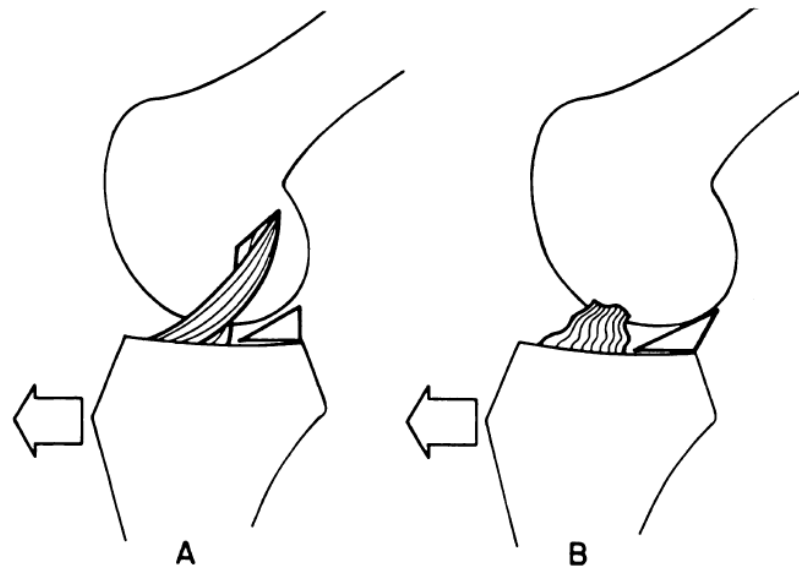
Background / Literature

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The Effect of Medial Meniscectomy on Anterior-Posterior Motion of the Knee*

BY I. MARTIN LEVY, M.D.†, PETER A. TORZILLI, PH.D.‡, AND RUSSELL F. WARREN, M.D.‡, NEW YORK, N.Y.

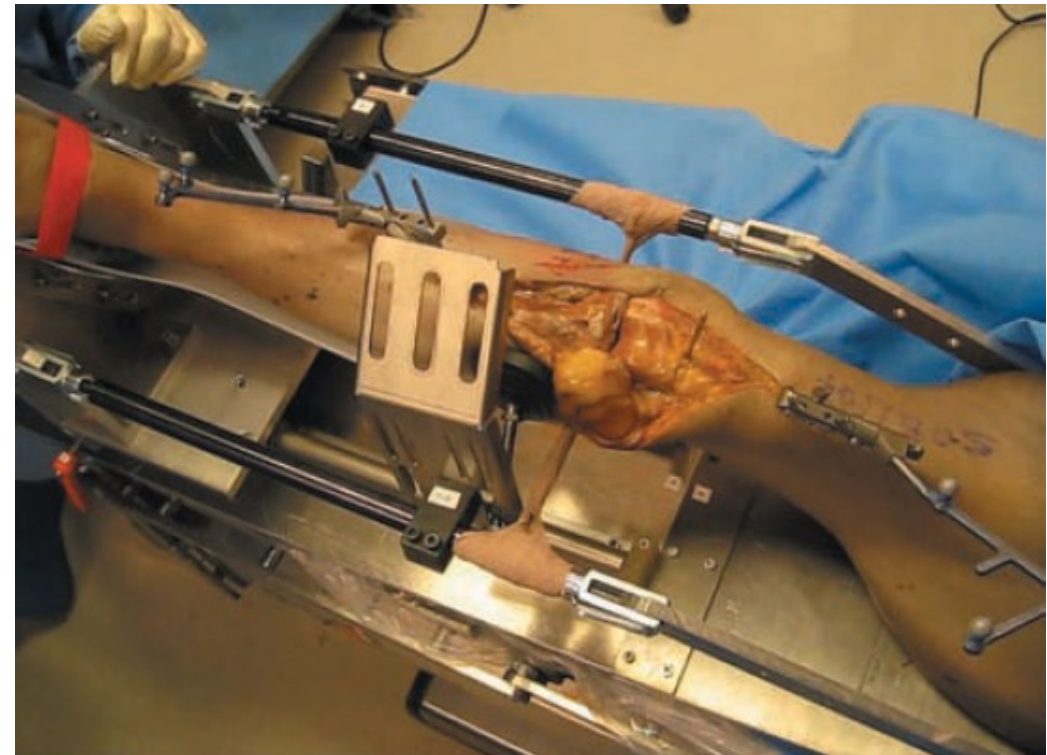
From the Departments of Biomechanics and Sports Medicine, The Hospital for Special Surgery, Affiliated with The New York Hospital-Cornell University Medical College, New York City



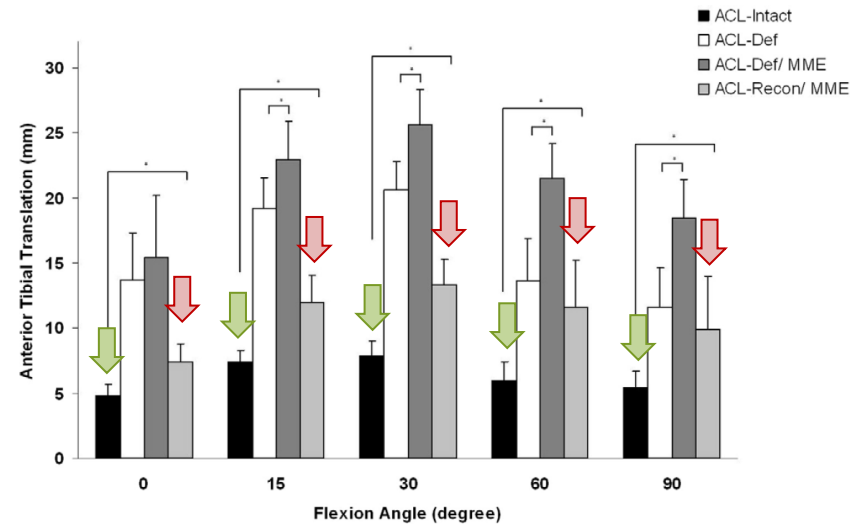
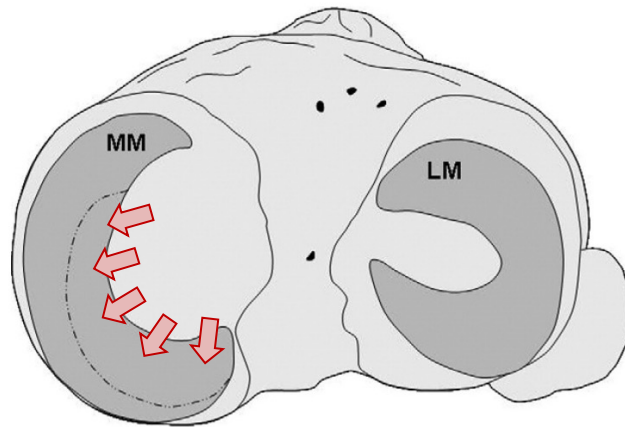
The Effect of Medial Versus Lateral Meniscectomy on the Stability of the Anterior Cruciate Ligament-Deficient Knee

**Medial Meniscectomie:
Increase of a.-p. Translation**

Lateral Meniscectomie:
Increase of Innenrotation

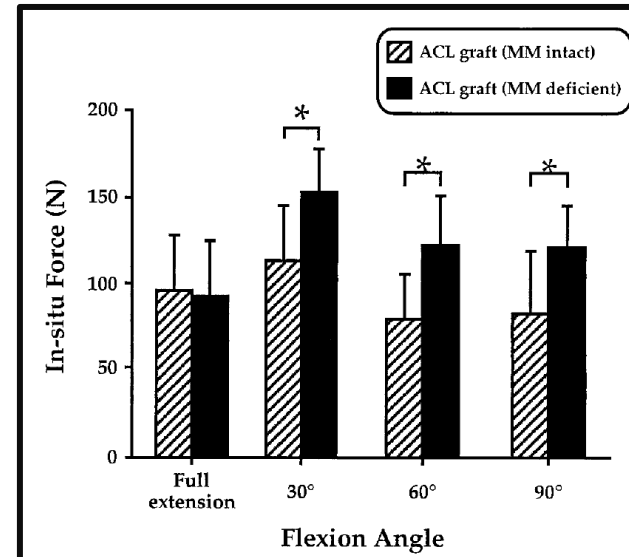


The Effect of Anterior Cruciate Ligament Reconstruction on Kinematics of the Knee With Combined Anterior Cruciate Ligament Injury and Subtotal Medial Meniscectomy: An In Vitro Robotic Investigation



Not restoring the stability after ACL-Reco if the meniscus is missing

The Biomechanical Interdependence Between the Anterior Cruciate Ligament Replacement Graft and the Medial Meniscus*

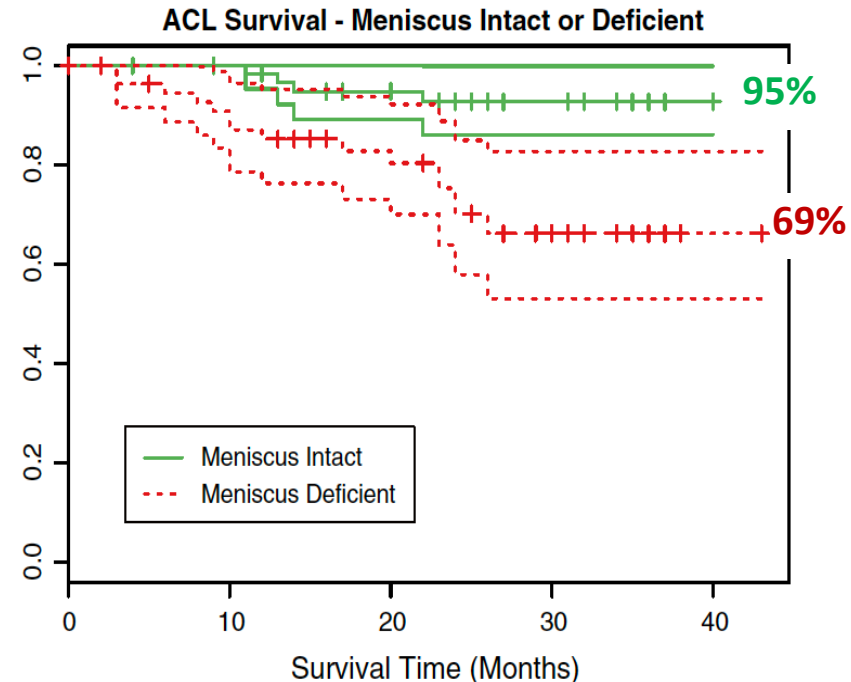


Increasing forces to the ACL graft after meniscectomy up to 30-50%

Meniscal integrity predicts laxity of anterior cruciate ligament reconstruction

123 ACL Reco. Fup 2 years
Factors for failure of the ACL Reco

Risk factor	Hazard ratio (95 % CI)	p value
Medial meniscal deficiency	4.5 (1.8–11.5)	0.0017
Lateral meniscal deficiency	3.5 (1.3–9.3)	0.011
<i>Other factors</i>		
Age	0.95 (0.9–1.0)	n.s.
Gender male	2.7 (0.6–11.9)	n.s.
BMI	1.03 (0.9–1.2)	n.s.
Time to surgery (months)	1.0 (1.0–1.0)	n.s.
Hamstring strand number	0.47 (0.1–1.8)	n.s.
Triple	0.42 (0.1–1.8)	n.s.
Hamstring size (mm)	0.96 (0.4–2.6)	n.s.
Hamstring graft < 8 mm	1.4 (0.5–3.5)	n.s.
Medial meniscal repair	1.6 (0.4–7.2)	n.s.
Lateral meniscal repair	1.4 (0.3–6.3)	n.s.



Medial Meniscus Resection Increases and Medial Meniscus Repair Preserves Anterior Knee Laxity

A Cohort Study of 4497 Patients With Primary Anterior Cruciate Ligament Reconstruction

Mean KT-1000 Arthrometer 134-N Anterior Side-to-Side Difference Values in Each Patient Subgroup Preoperatively and at Follow-up^a

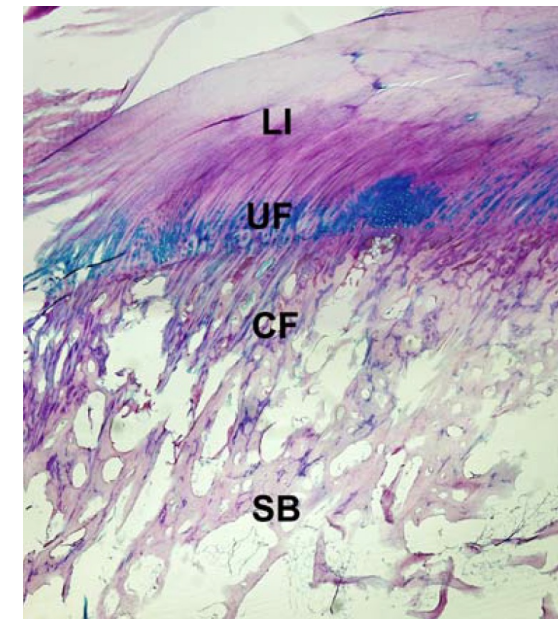
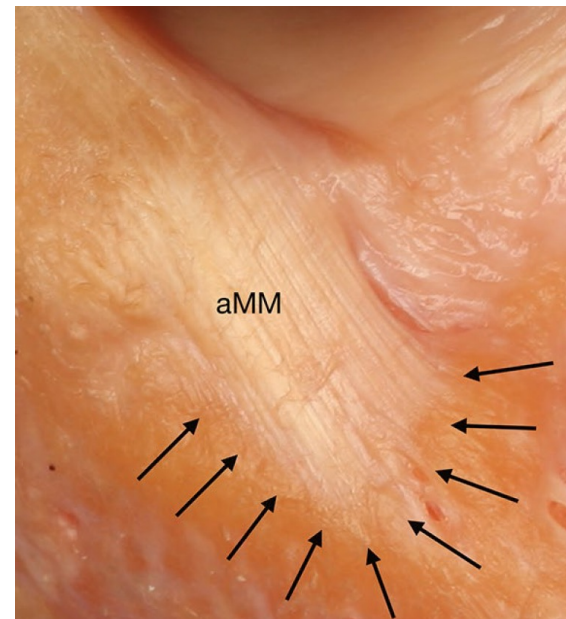
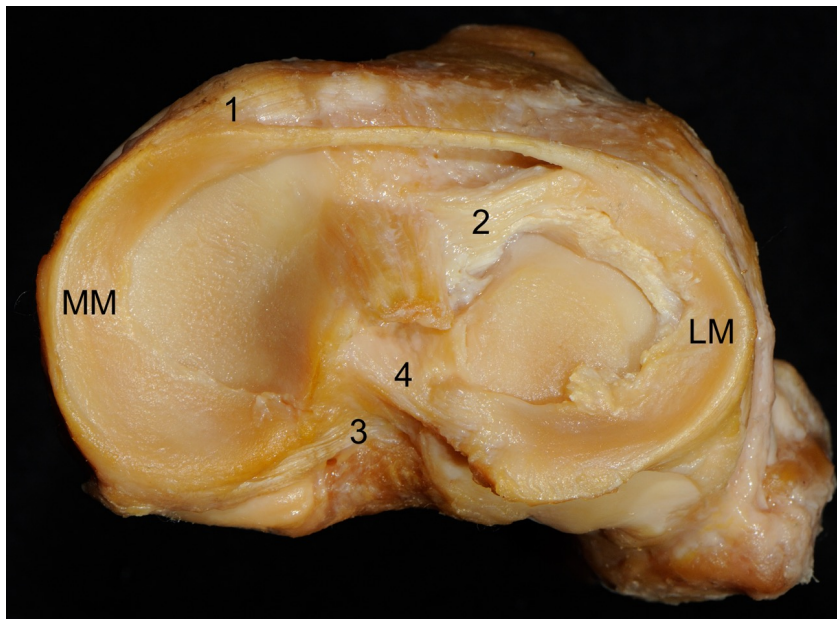
Group	No.	Preoperative, mm		Follow-up, mm	
		Mean	SD	Mean	SD
Isolated ACLR	2837	3.46	3.26	→ 1.74	2.11
ACLR + MM resection	559	4.19	2.82	→ 2.20 ^o	2.55
ACLR + LM resection	593	3.72	2.54	1.90	2.04
ACLR + MM + LM resection	148	4.21	2.87	2.35 ^b	2.30
ACLR + MM suture	207	4.16	2.96	→ 1.69	2.37
ACLR + LM suture	153	4.24	2.39	1.98	2.05

“ Surgeons should make every effort to repair the meniscus whenever possible to avoid the residual postoperative laxity.”

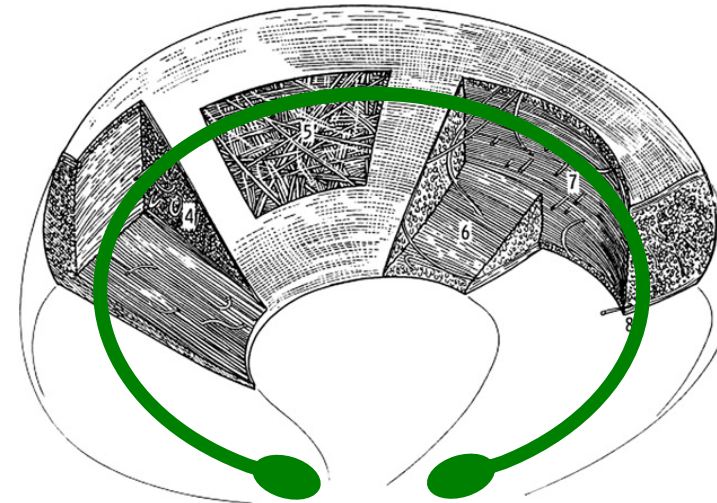
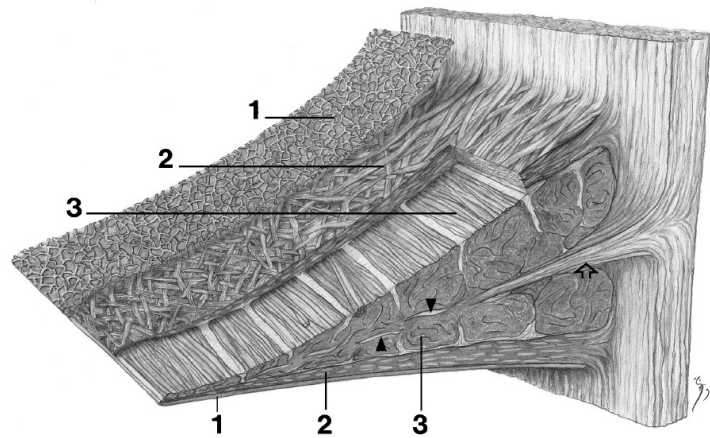


Anatomy

Meniscus root:
functional entity of meniscus, meniscotibial ligament and tibiaplateau

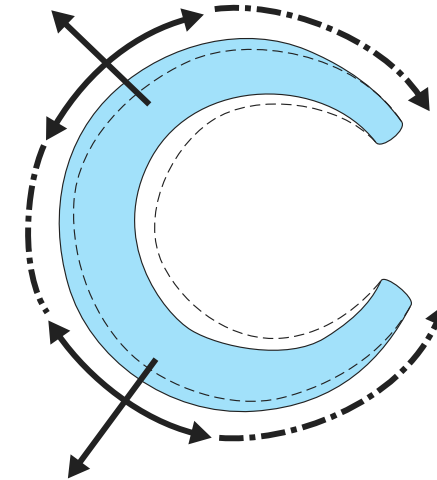
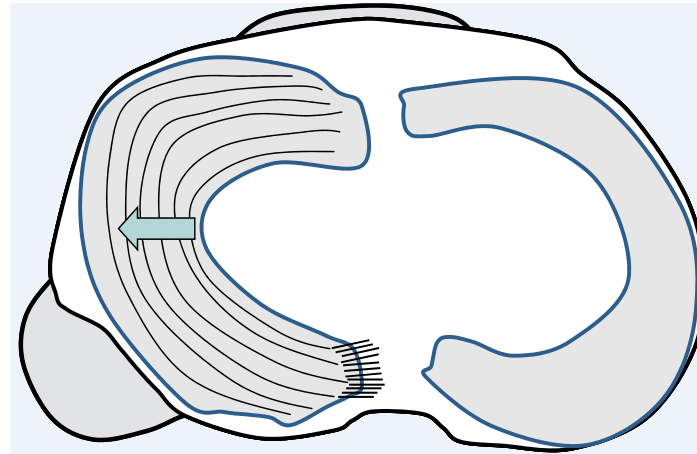
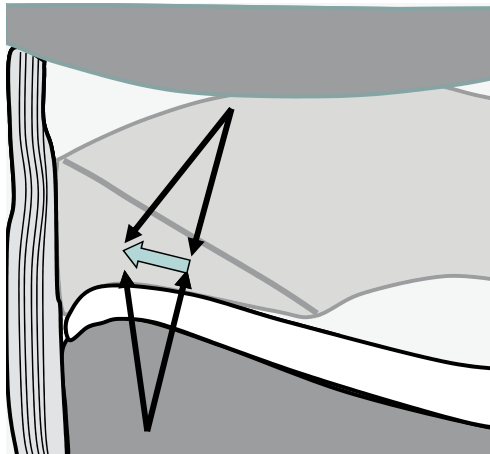


Importance of the root to the function of the meniscus



Most of the fibres are running in a circle from **root to root**

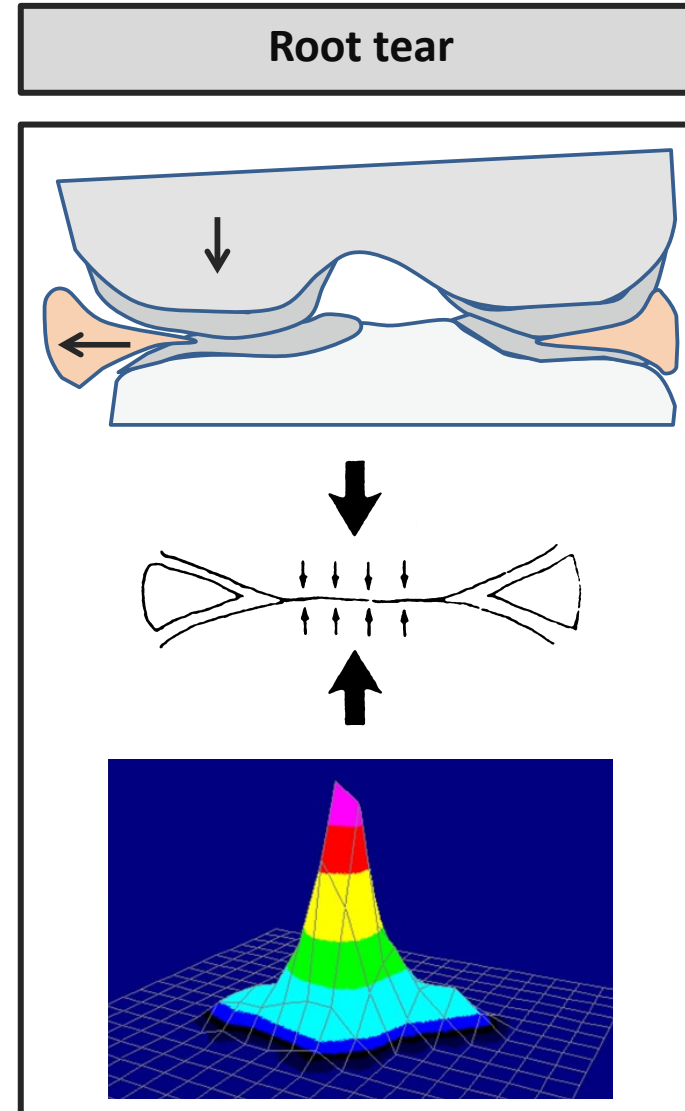
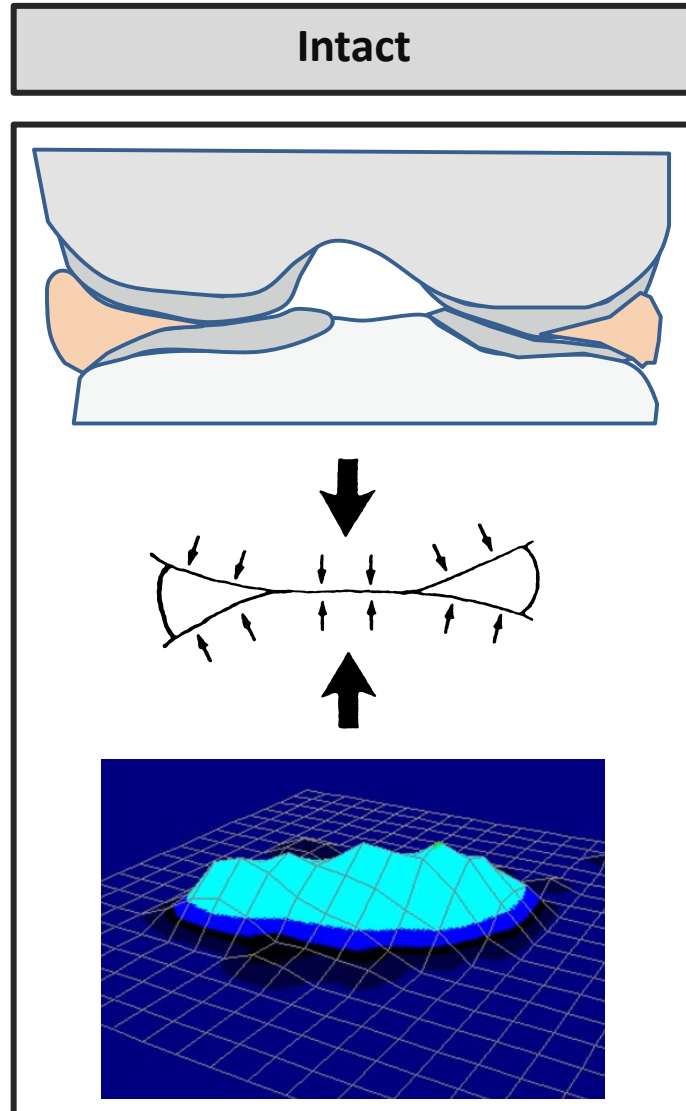
Importance of the root to the function of the meniscus

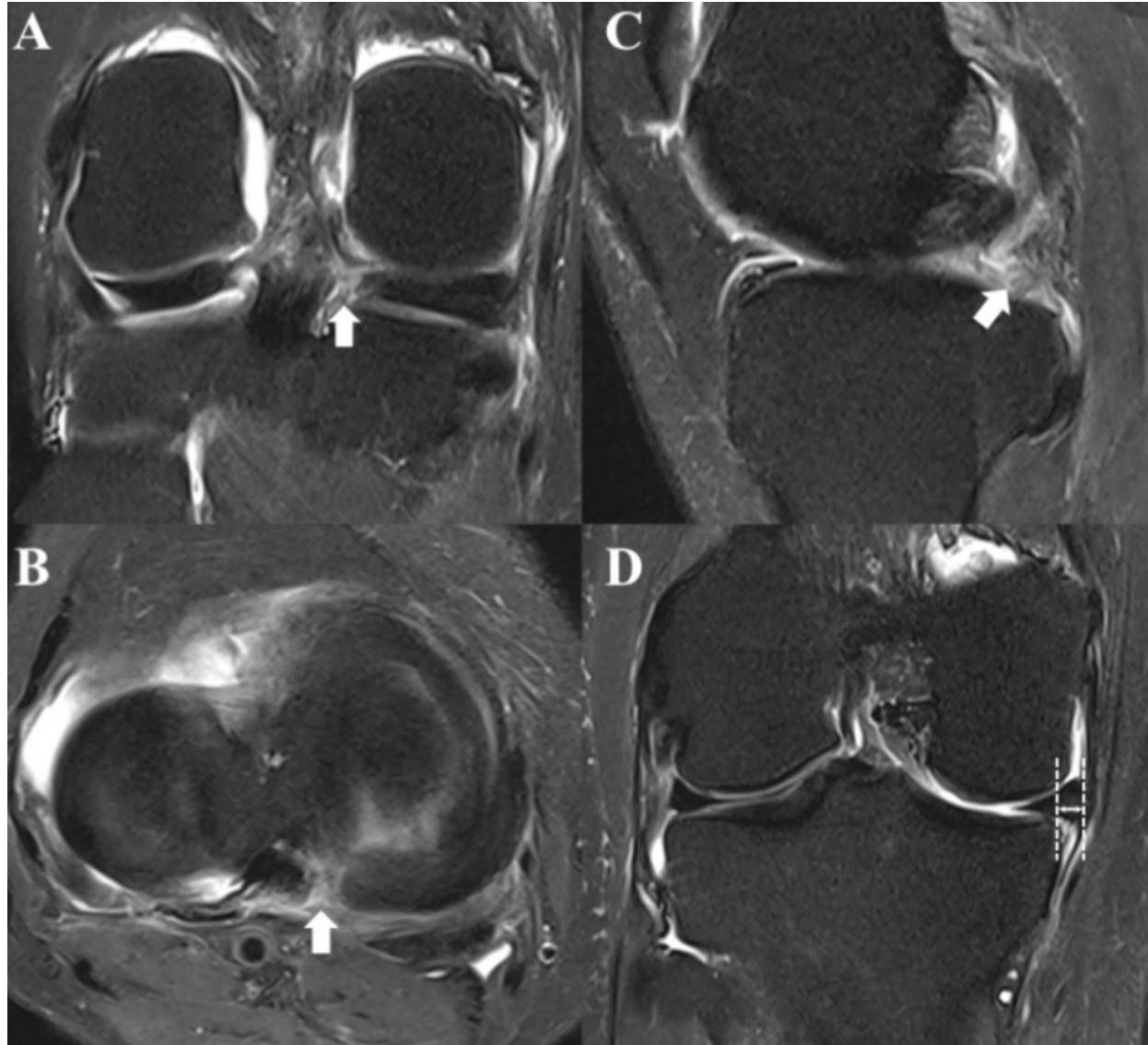


Axial load

- forces to the periphery and subluxation of the meniscus
- restriction by the roots
- will reduce the load to the cartilage

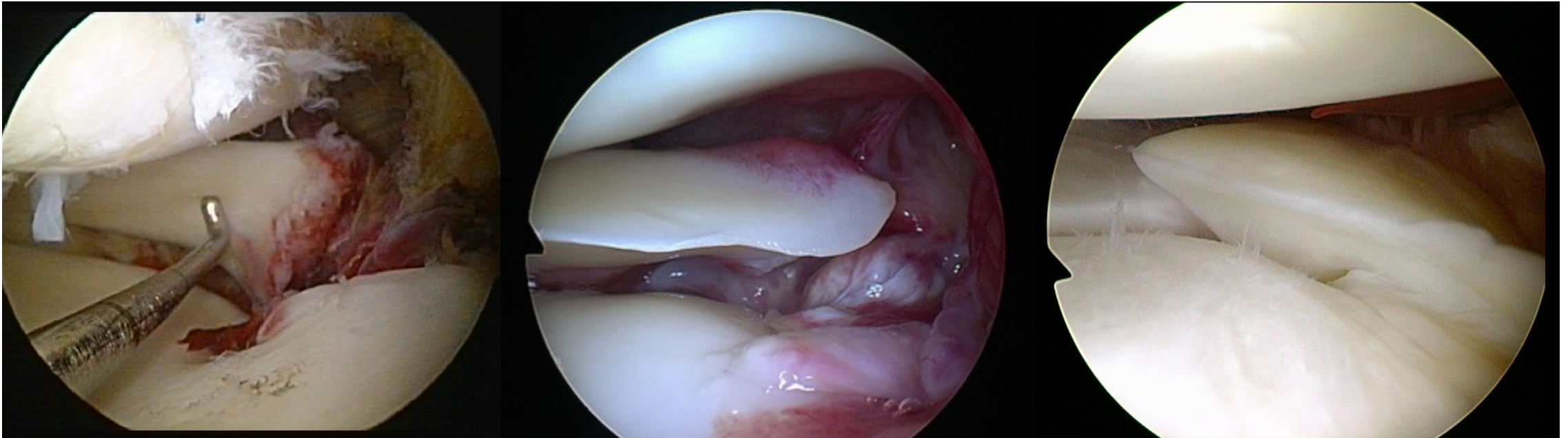
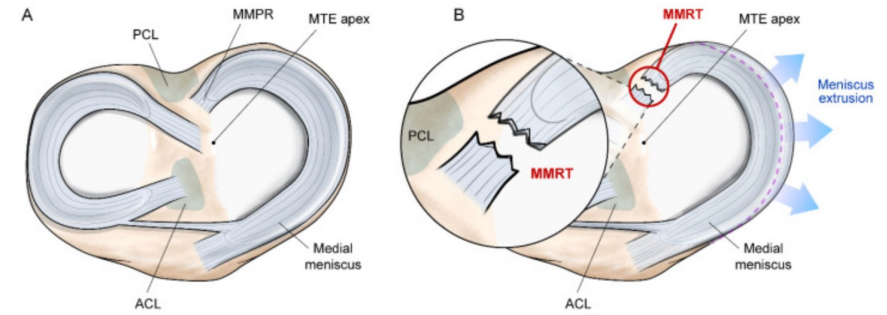
Root tears > increasing of axial load



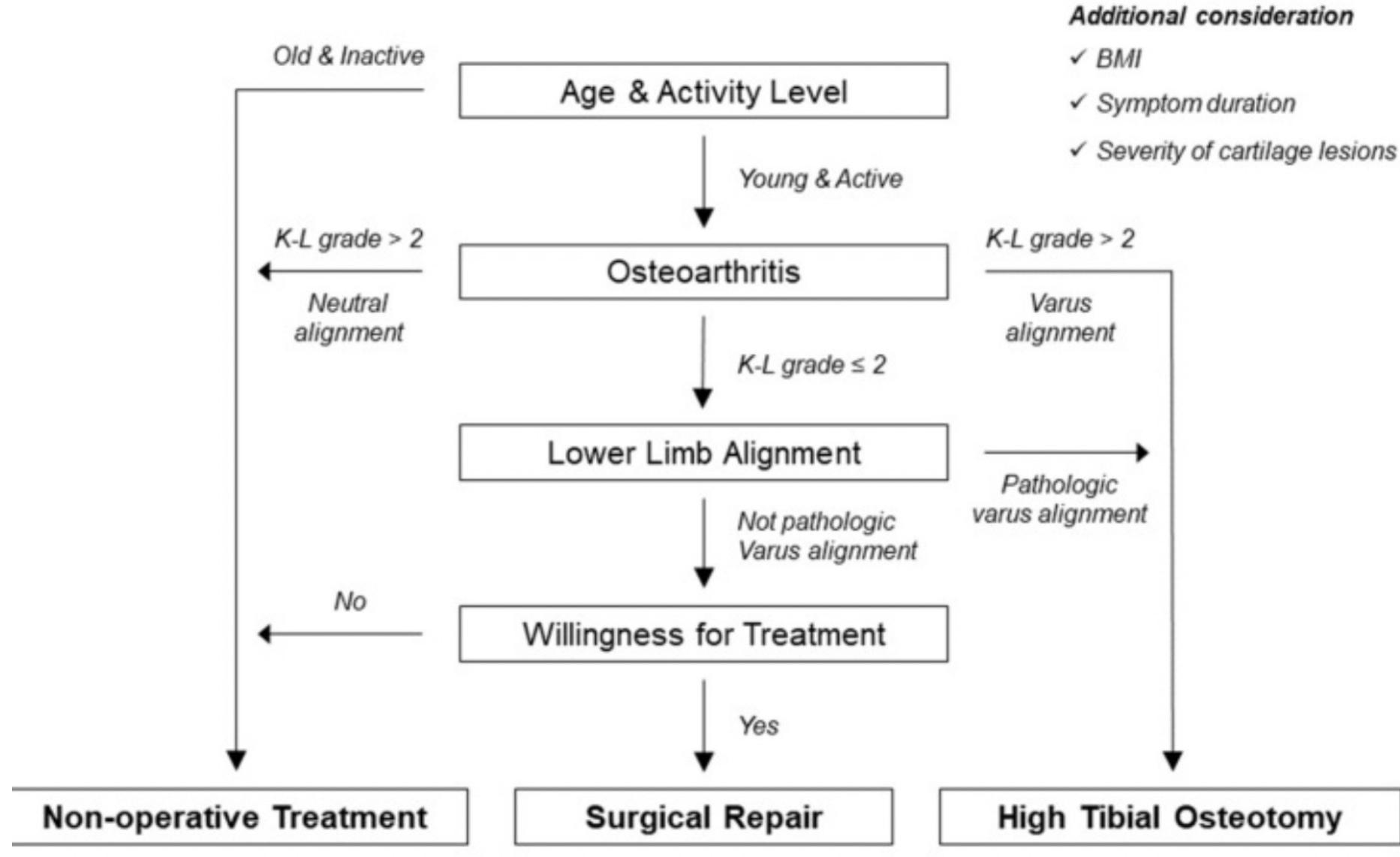


Root tears = 2 Entities

1. Avulsion
of the insertion of meniscal fibres
2. Radial tears near the insertion

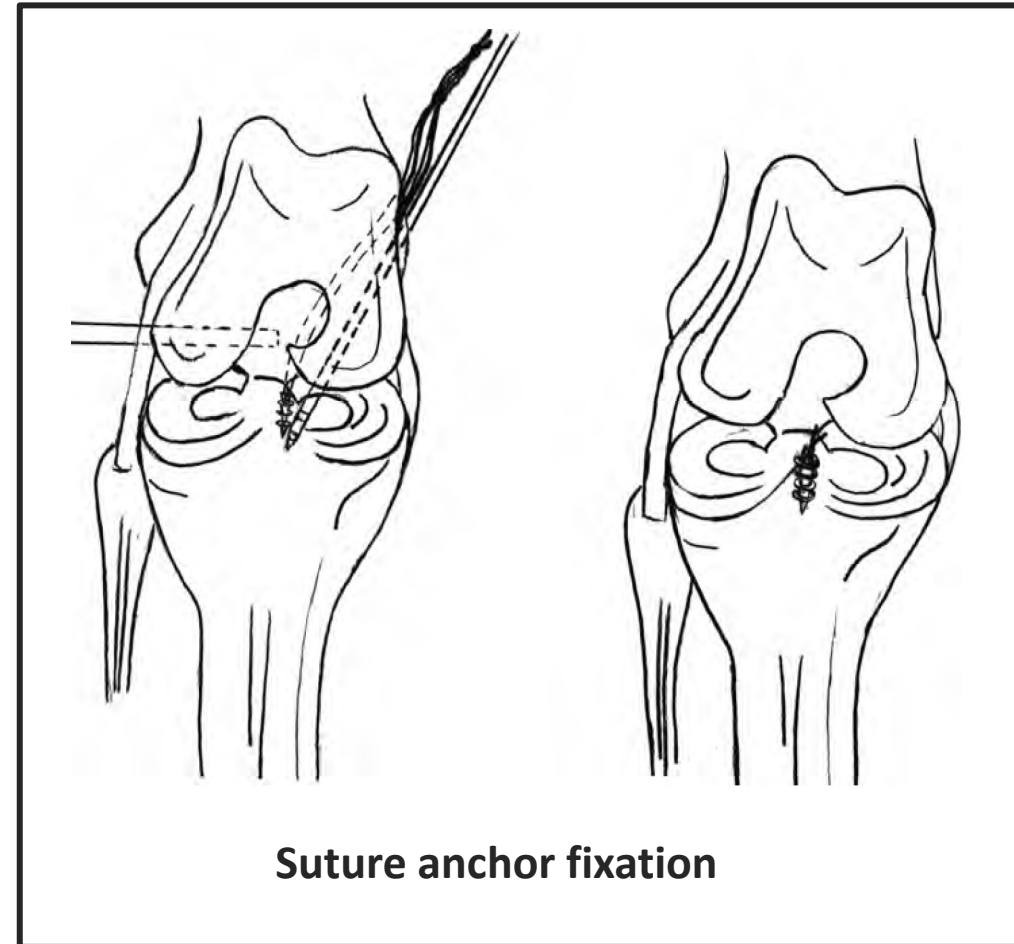
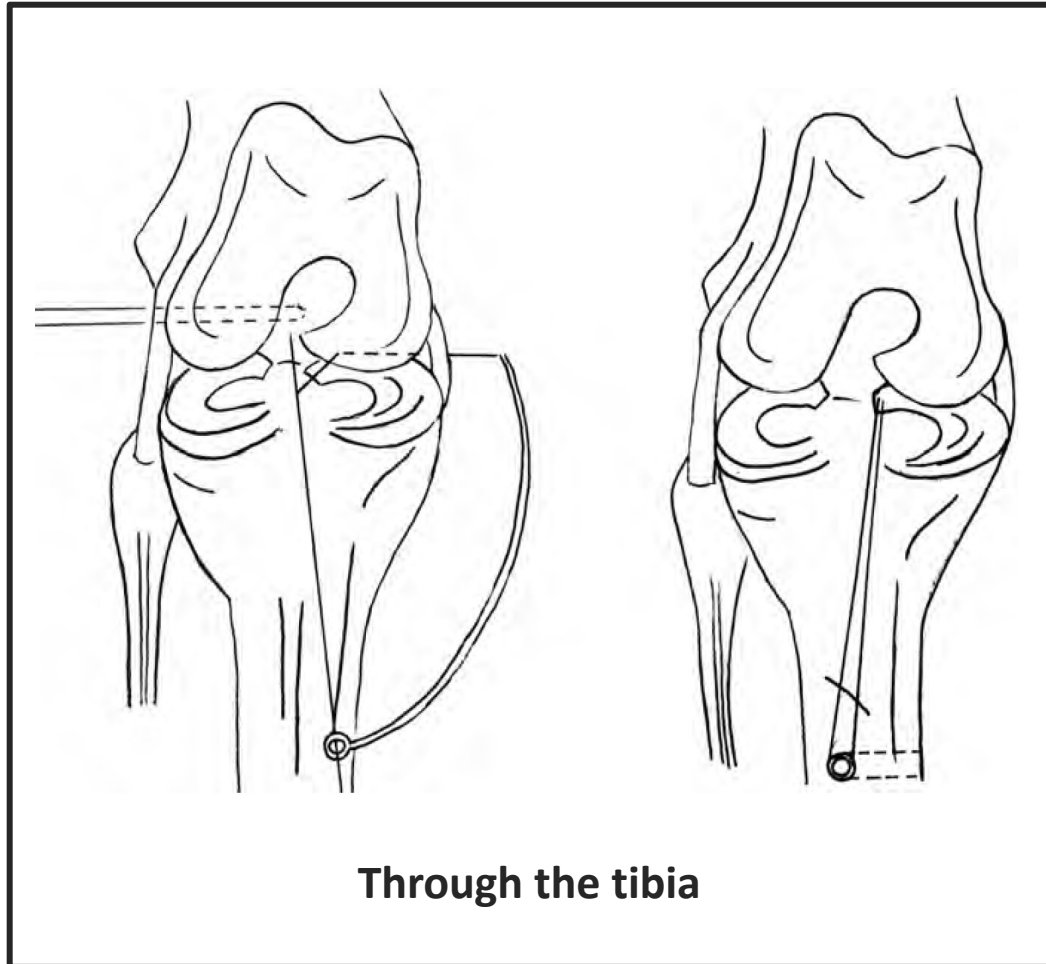


Algorithme





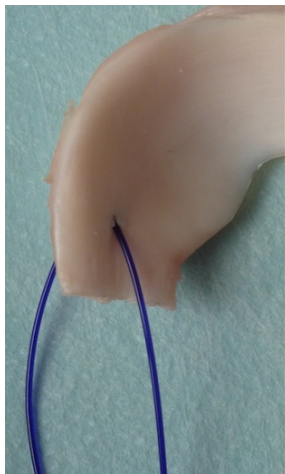
Technique



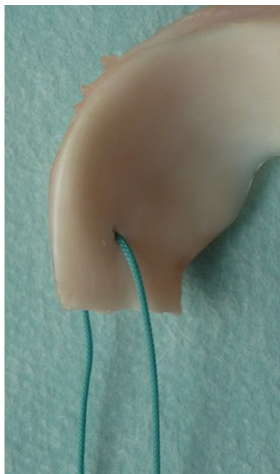
Matthias Feucht et al: 2015

Biomechanical evaluation of different suture materials for arthroscopic transtibial pull-out repair of posterior meniscus root tears

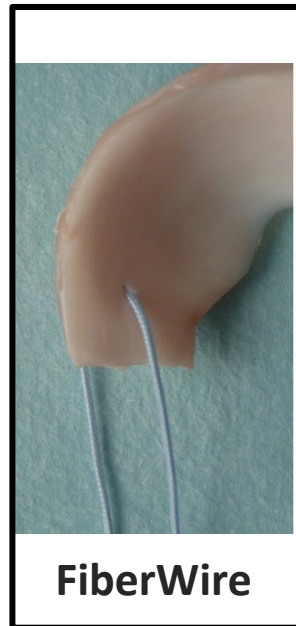
Biomechanical Evaluation of Different Suture Techniques for Arthroscopic Transtibial Pull-out Repair of Posterior Medial Meniscus Root Tears



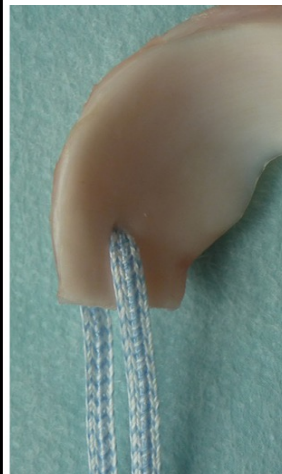
PDS



Ethibond



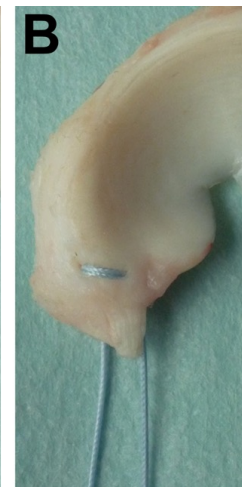
FiberWire



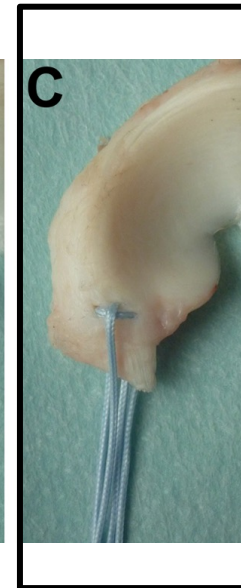
FiberTape



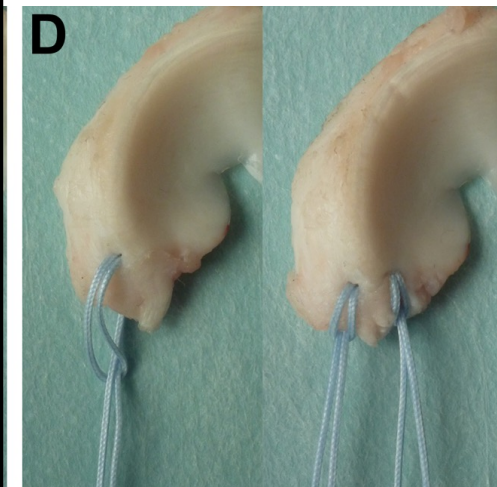
A



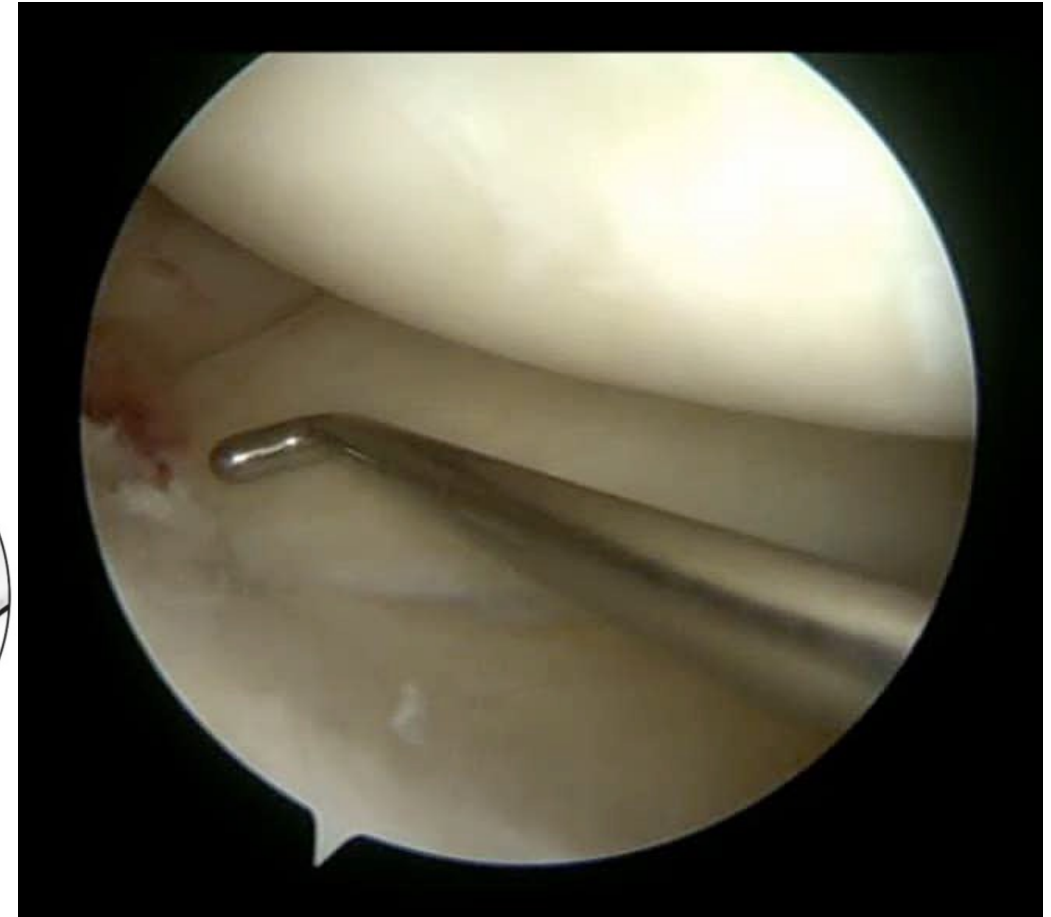
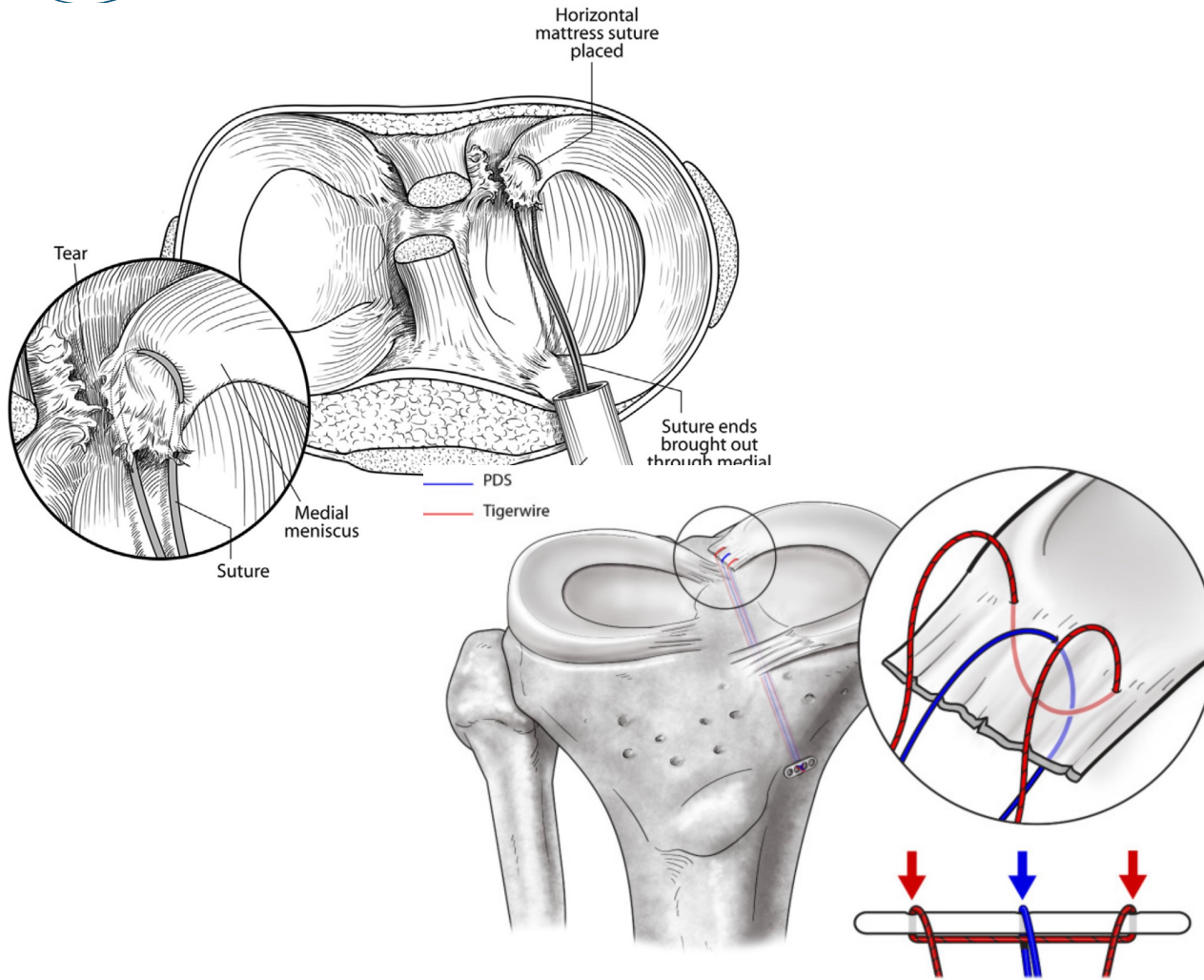
B



C

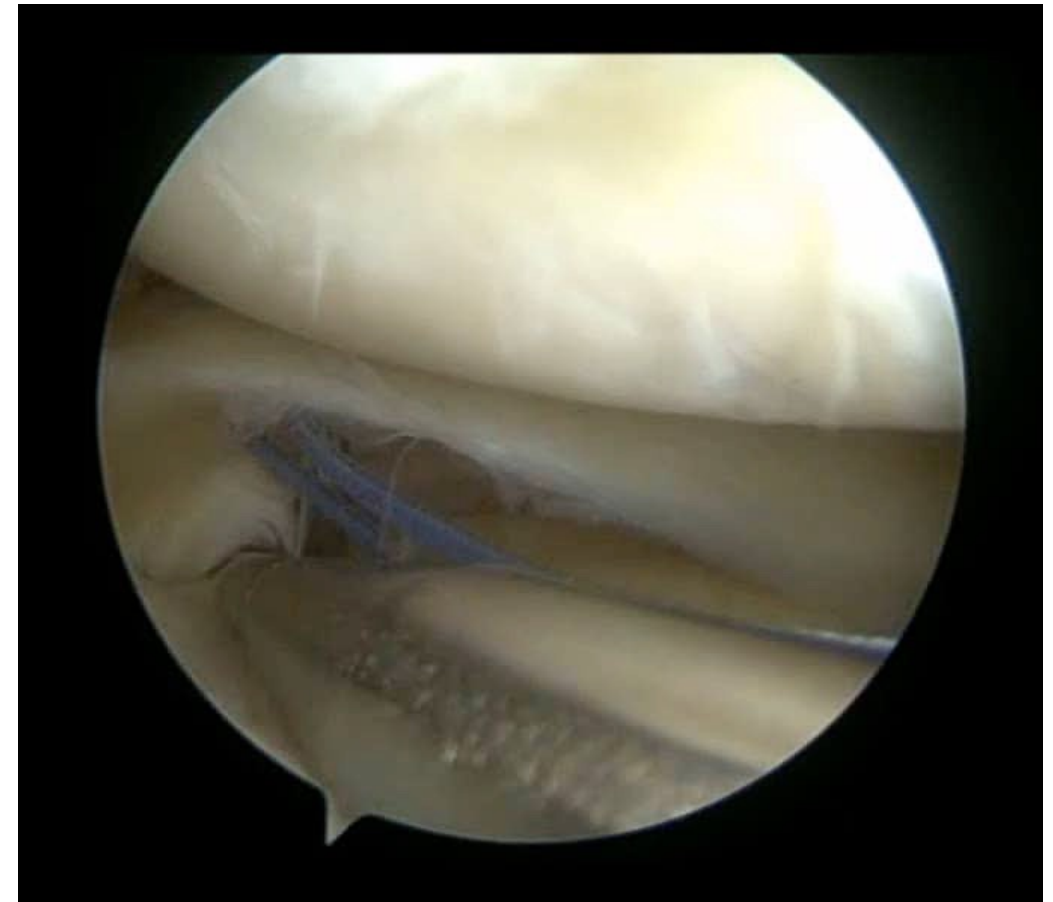
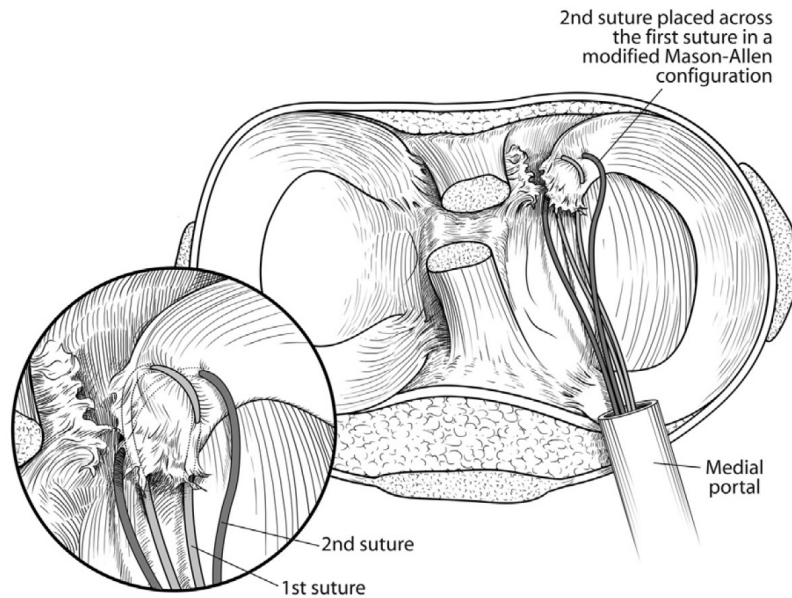


D

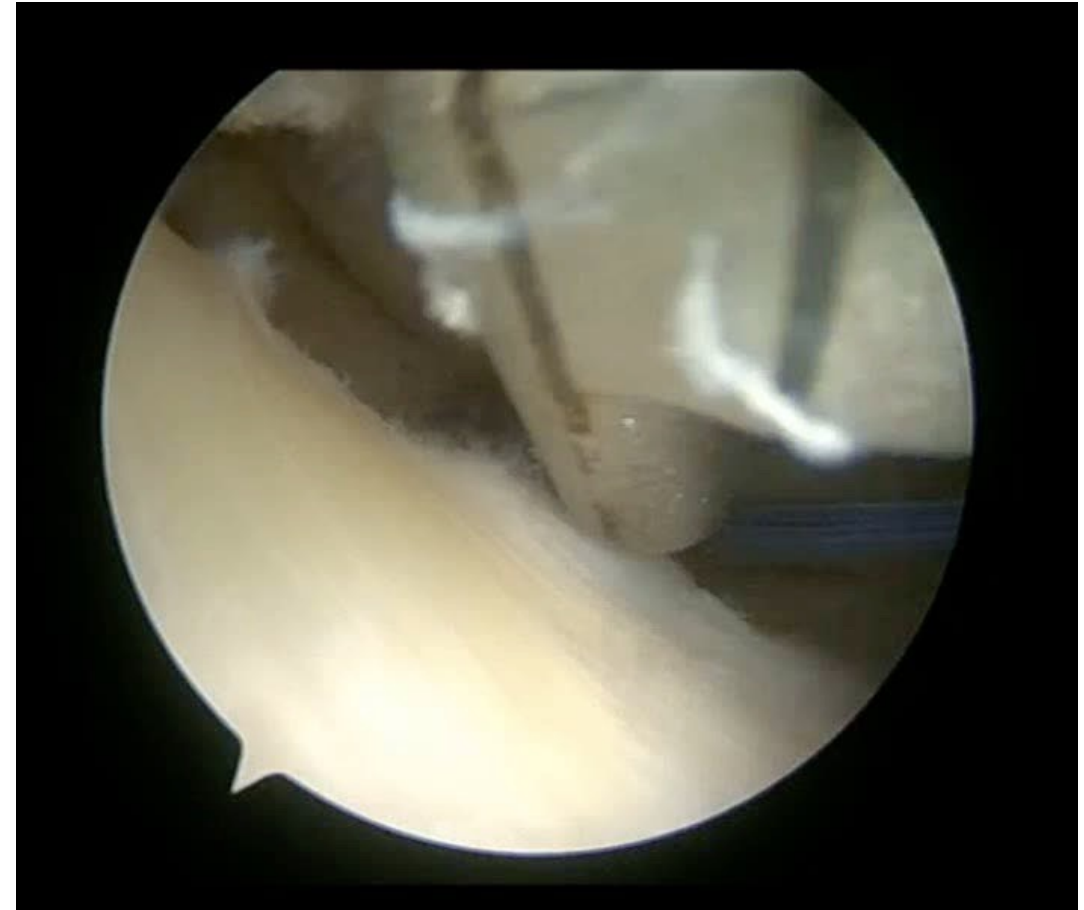
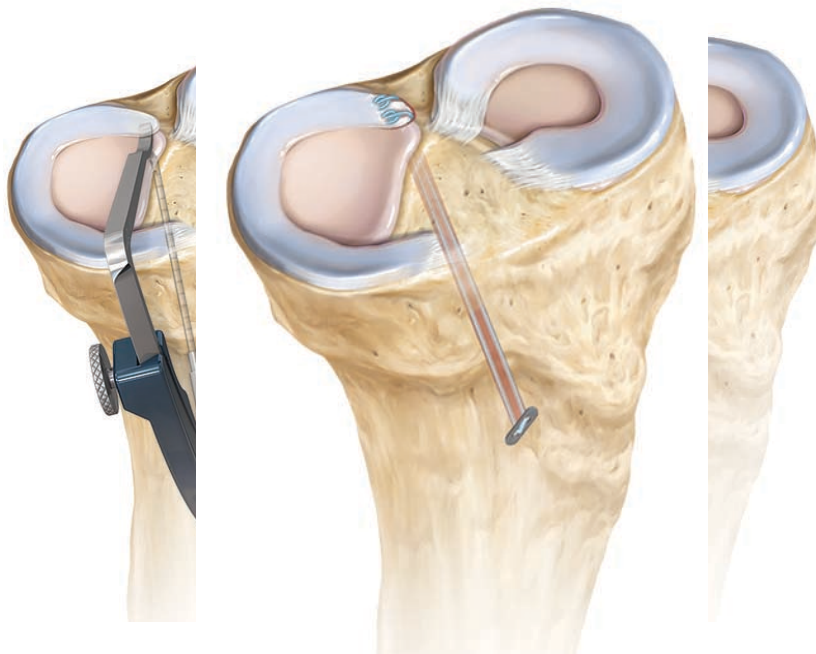


Modified Mason-Allen

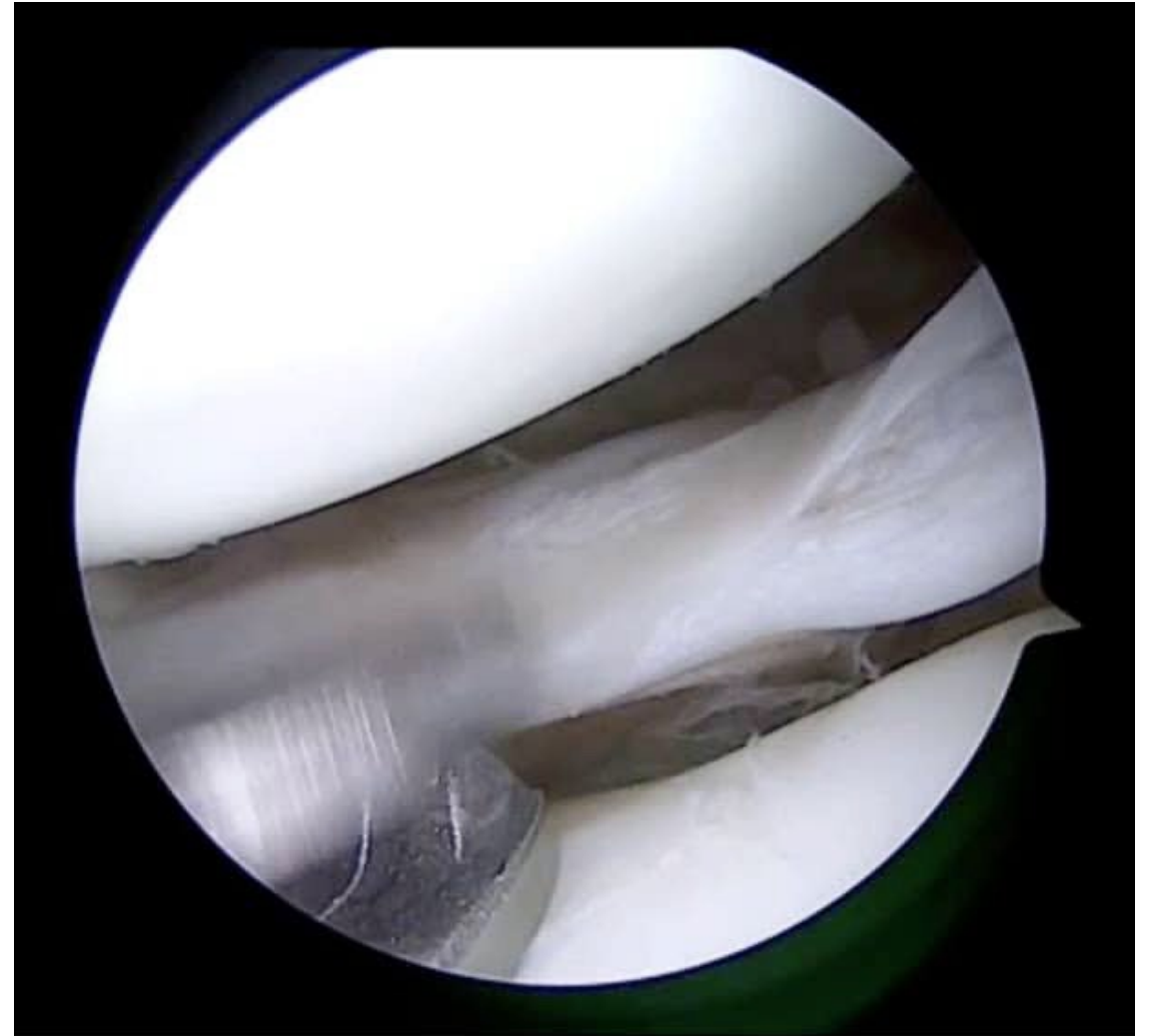
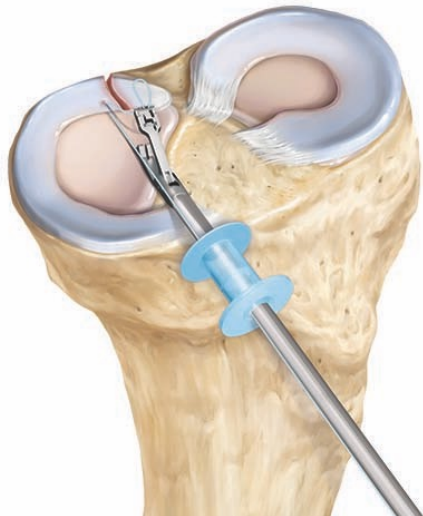
Modified Mason-Allen



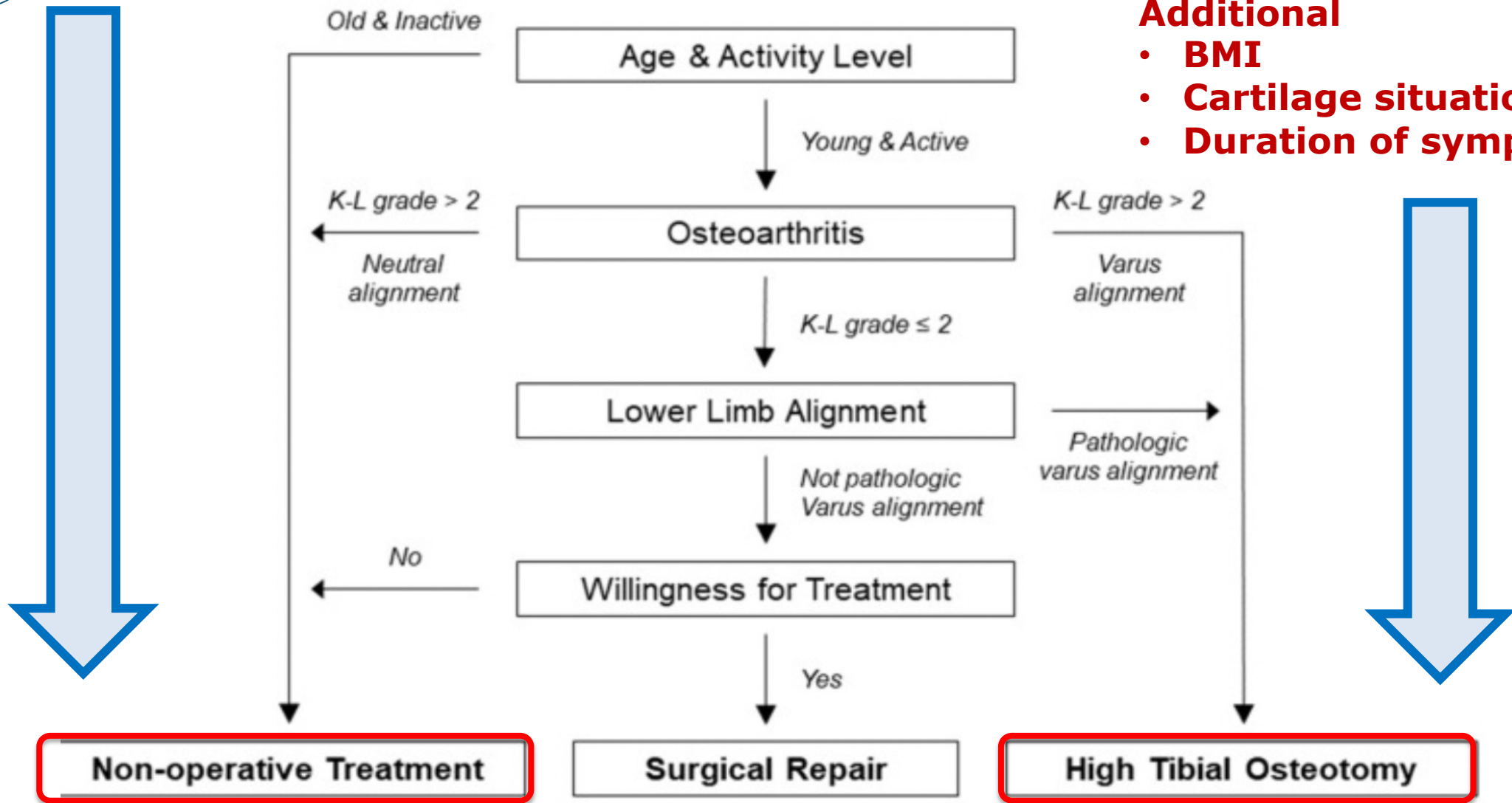
Modified Mason-Allen



Modified Mason-Allen



Conclusion - Algorithm



Additional

- **BMI**
- **Cartilage situation**
- **Duration of symptoms**



10th

**Advanced Course
on
Knee Surgery**



