

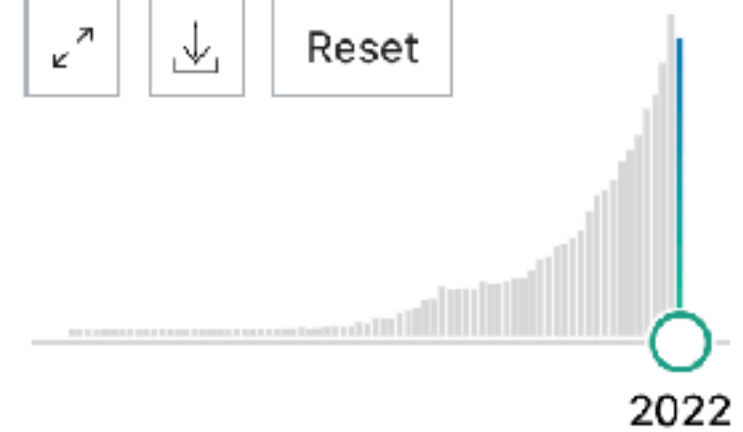


VFBV Jaarcongres
24 mei 2023



Wybren van der Wal
VKB & Biomechanica





1 **Loaded open-kinetic-chain exercises stretch the anterior cruciate ligament more than closed-kinetic-chain exercises: In-vivo assessment of anterior cruciate ligament length change.**

Cite

Wang C, Qiu J, Wang Y, Li C, Kernkamp WA, Xi X, Yu Y, Li P, Tsai TY.

Share

Musculoskelet Sci Pract. 2022 Dec 30:102715. doi: 10.1016/j.msksp.2022.102715. Online ahead of print.

PMID: 36604271

> [Sports Health](#). 2020 Nov/Dec;12(6):587-597. doi: 10.1177/1941738120912846. Epub 2020 May 6.

One in 5 Athletes Sustain Reinjury Upon Return to High-Risk Sports After ACL Reconstruction: A Systematic Review in 1239 Athletes Younger Than 20 Years

[Sue Barber-Westin](#)¹, [Frank R Noyes](#)¹



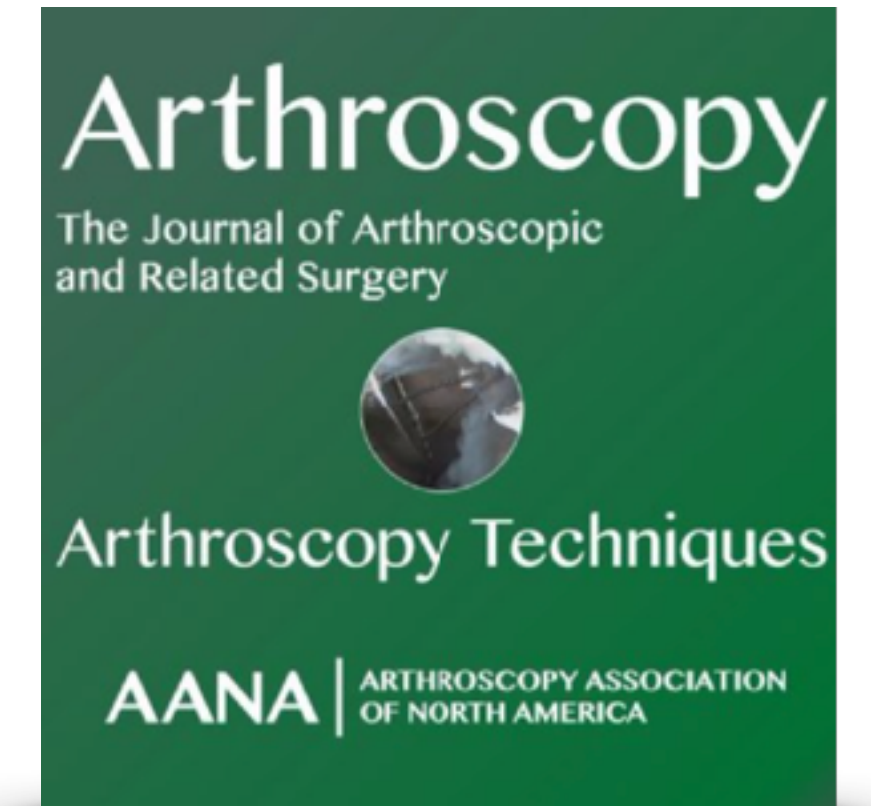


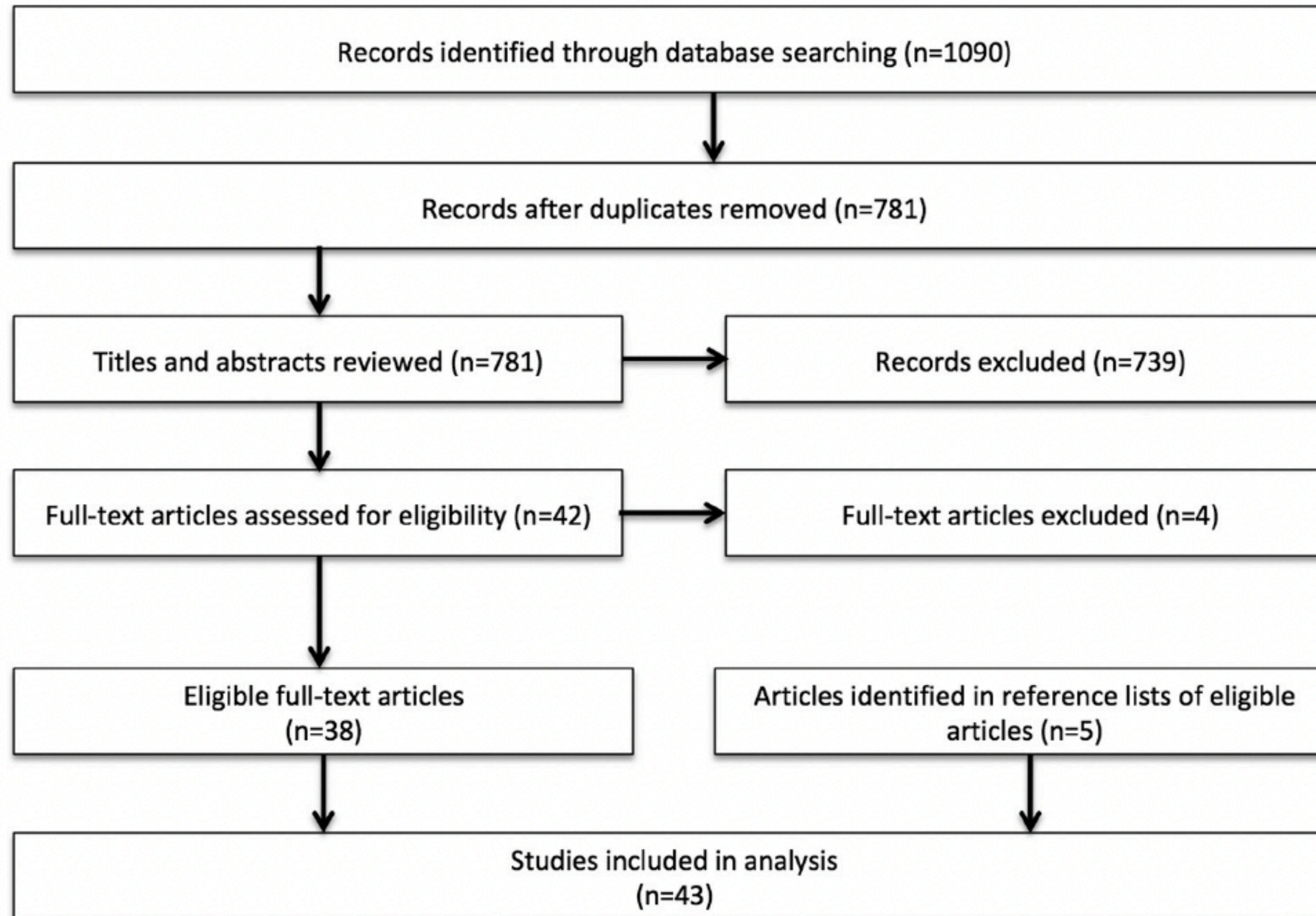
Systematic Review

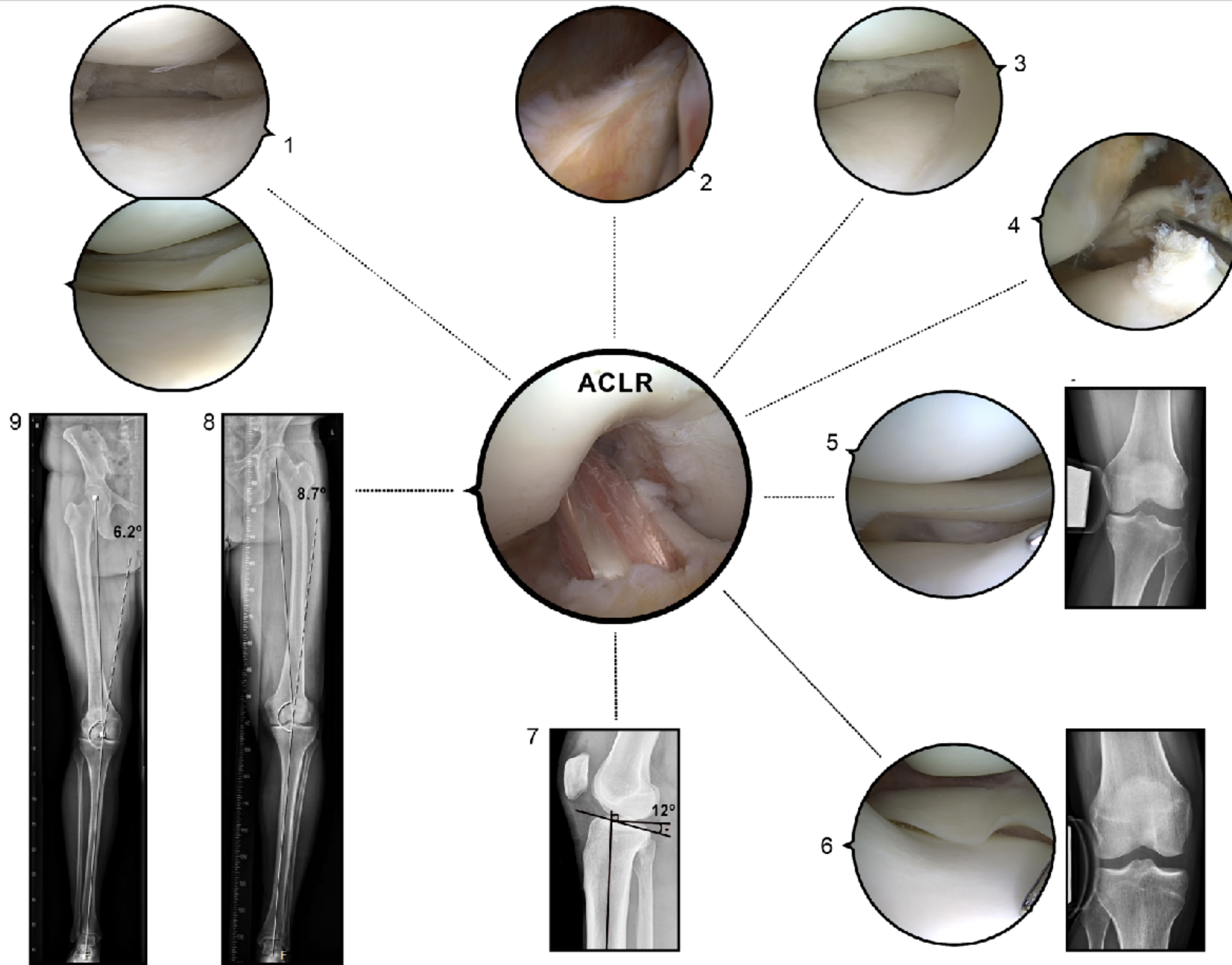
Meniscal Tears, Posterolateral and Posteromedial
Corner Injuries, Increased Coronal Plane, and
Increased Sagittal Plane Tibial Slope All Influence
Anterior Cruciate Ligament–Related Knee
Kinematics and Increase Forces on the Native and
Reconstructed Anterior Cruciate Ligament:
A Systematic Review of Cadaveric Studies

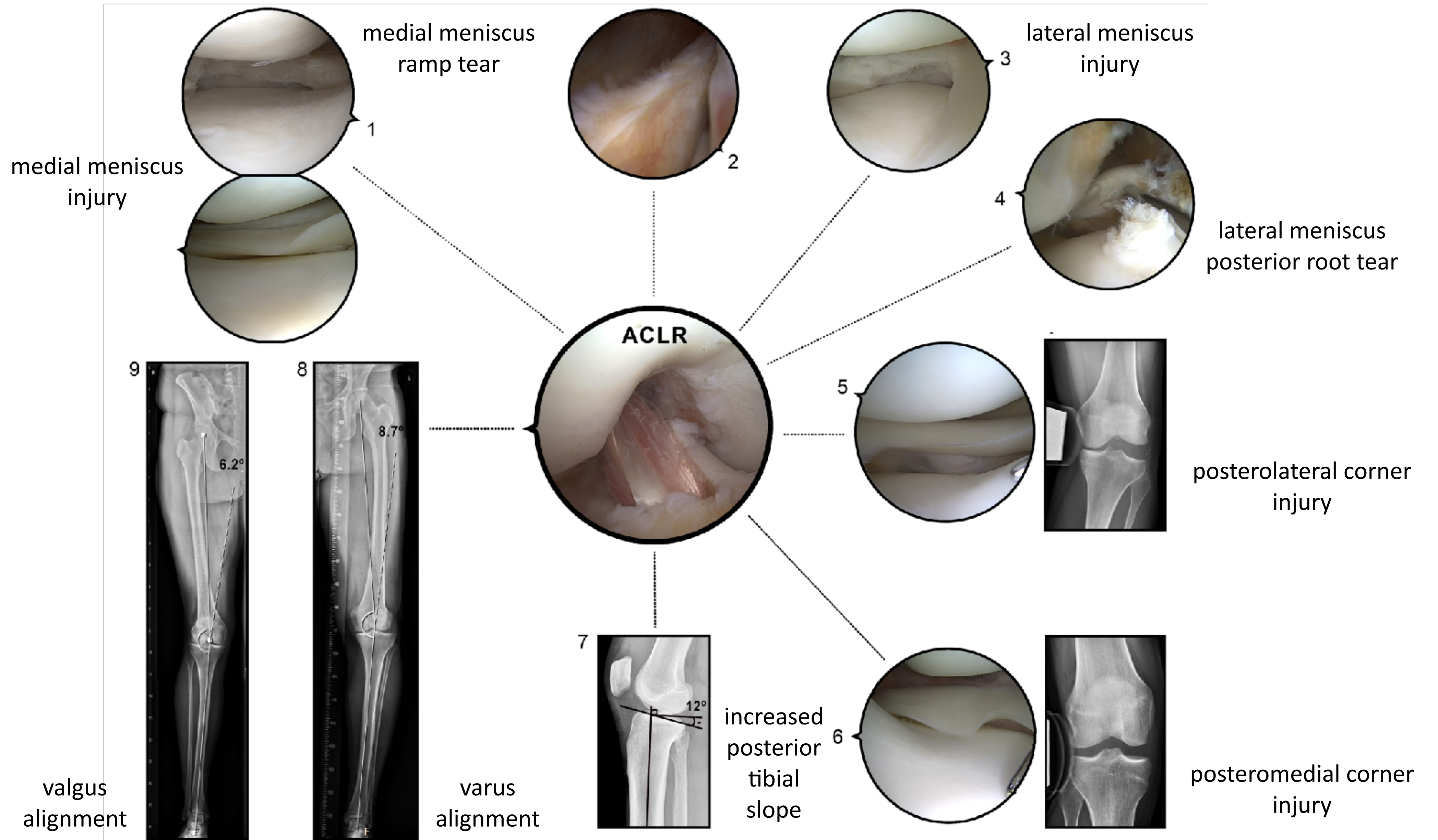
Wybren A. van der Wal, M.D., Diederik T. Meijer, M.D., Ph.D., Roy A. G. Hoogeslag, M.D.,
and Robert F. LaPrade, M.D., Ph.D.

Arthroscopy: The Journal of Arthroscopic and Related Surgery, Vol 38, No 5 (May), 2022: pp 1664-1688



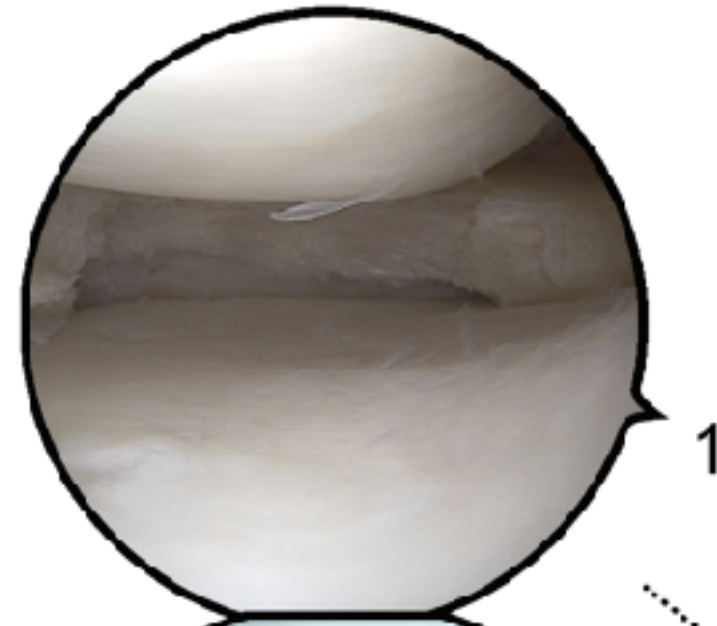




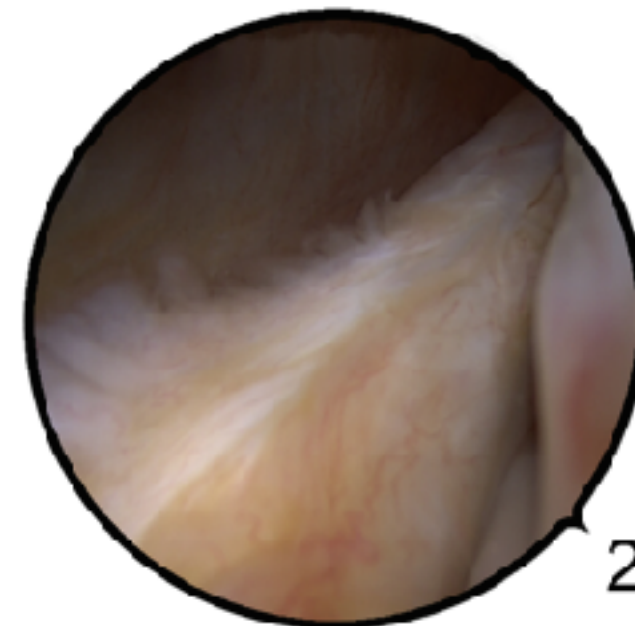
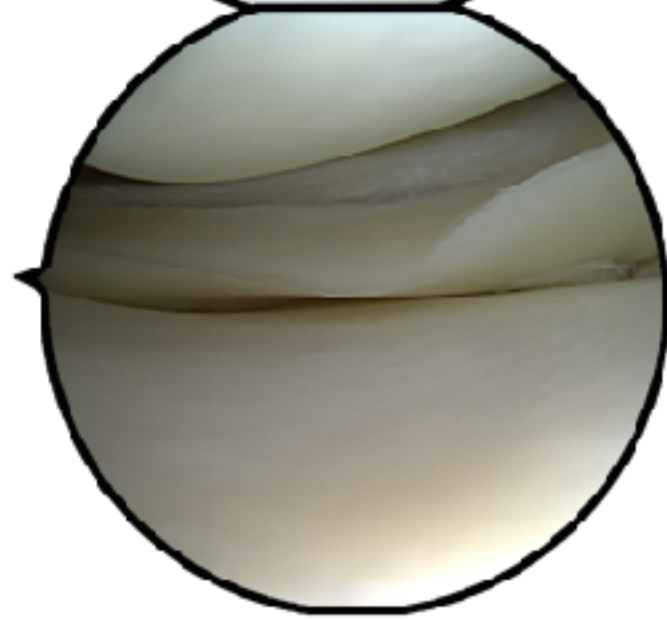




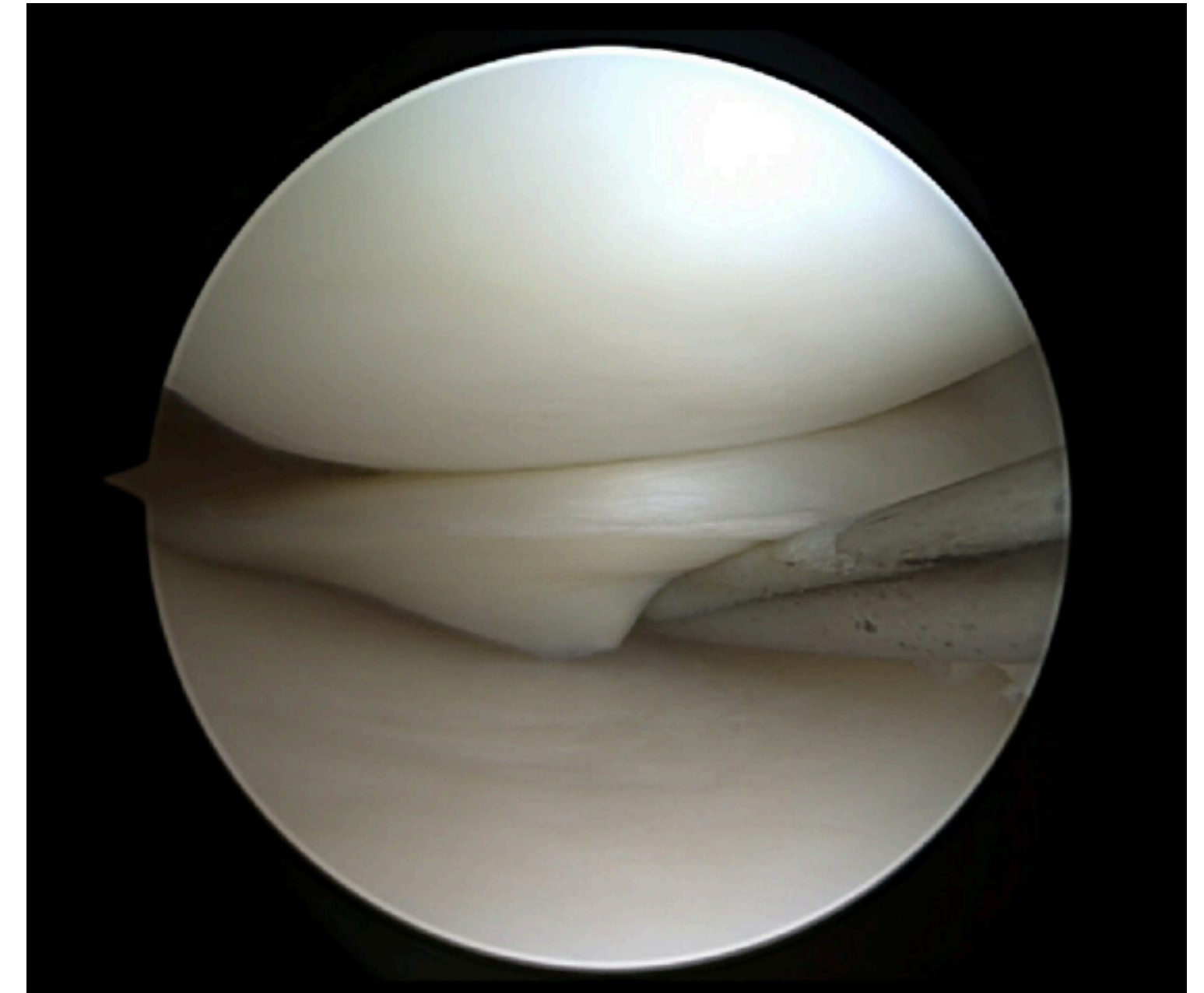
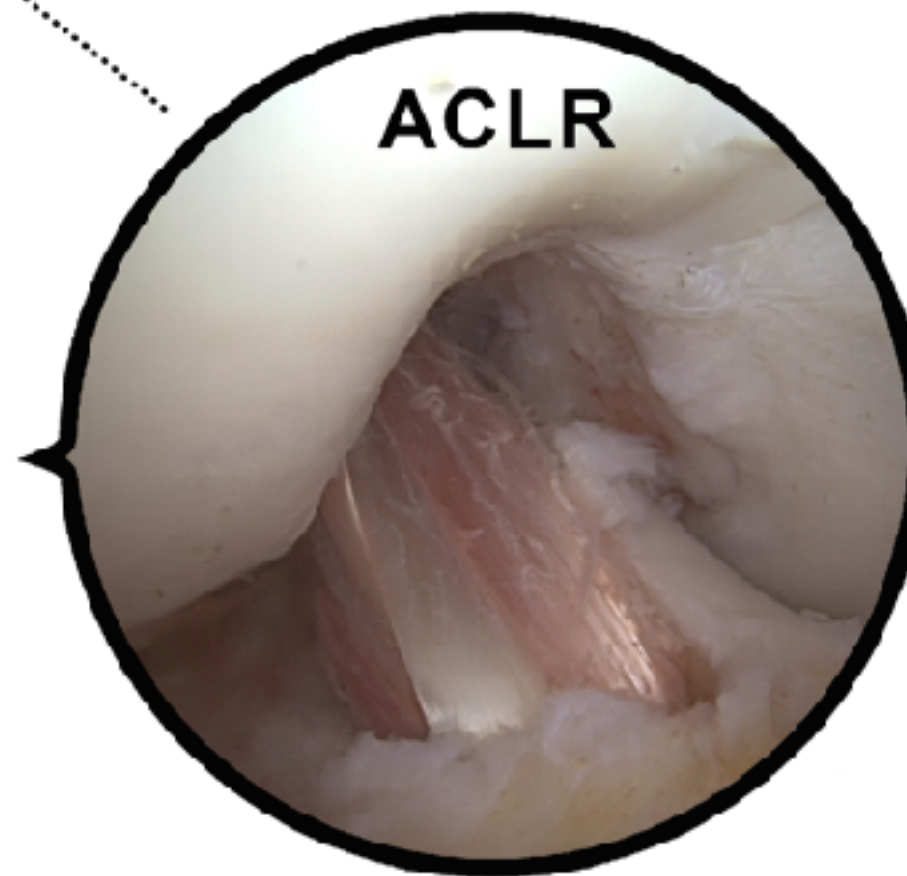
partial medial
meniscectomy



vertical tear
posterior horn
medial meniscus

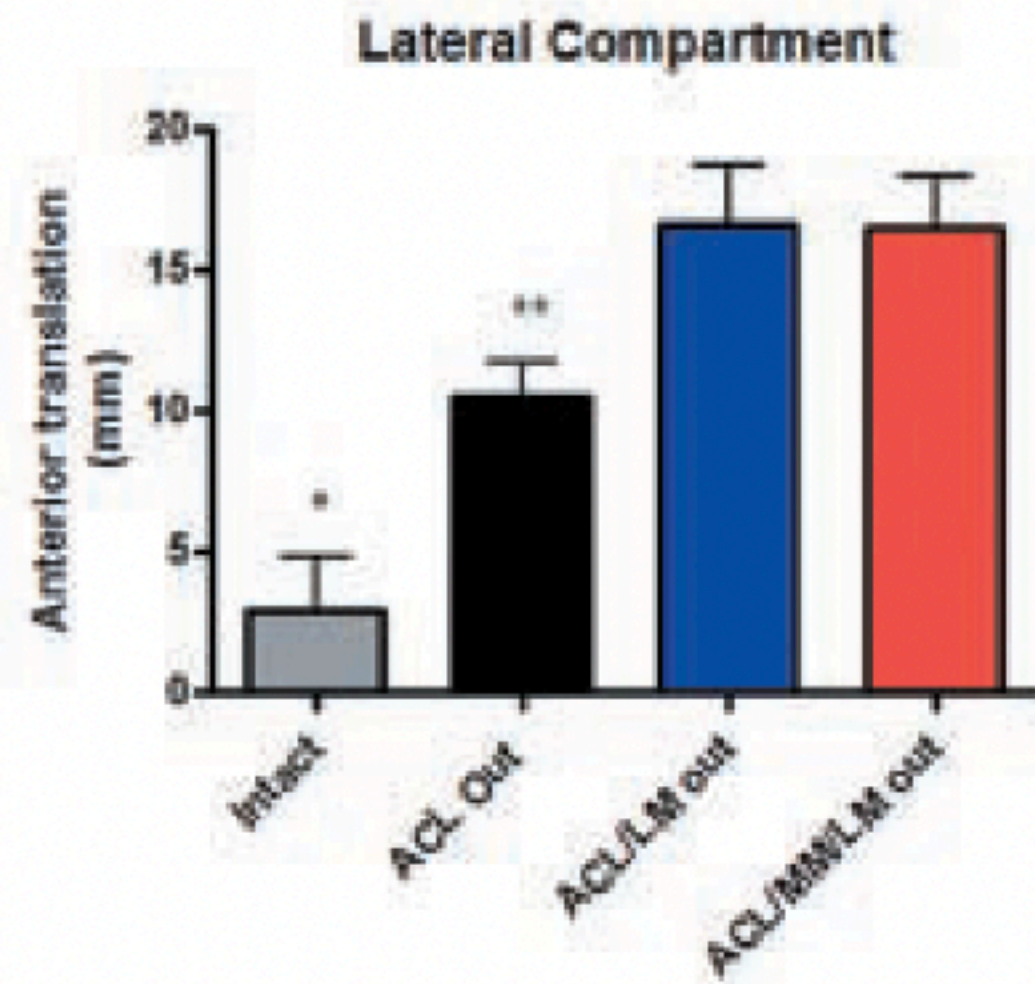


medial meniscus
ramp tear





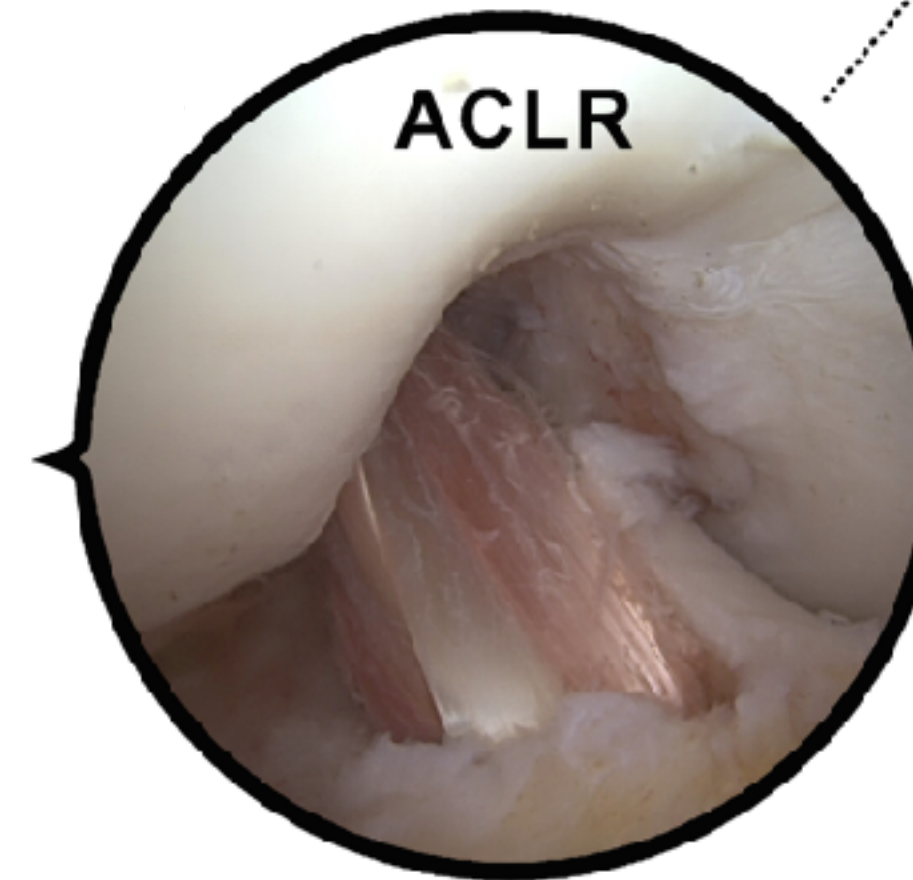
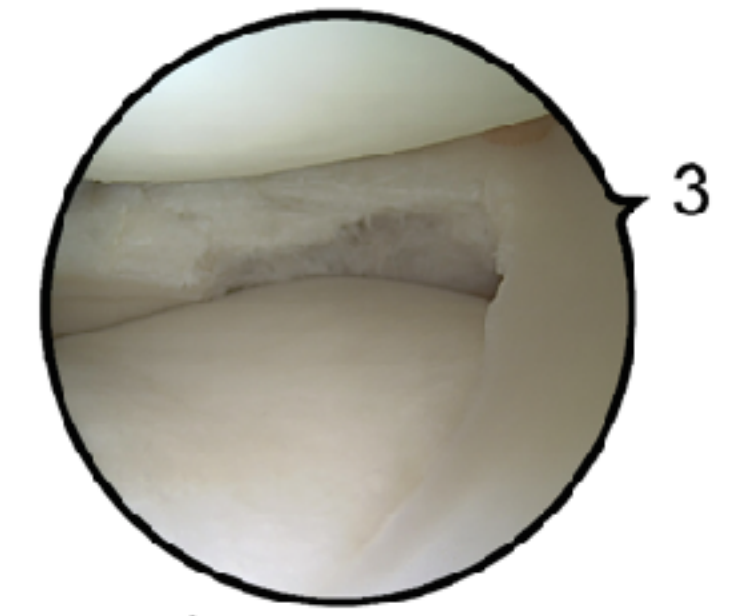
Effect of Lateral Meniscectomy



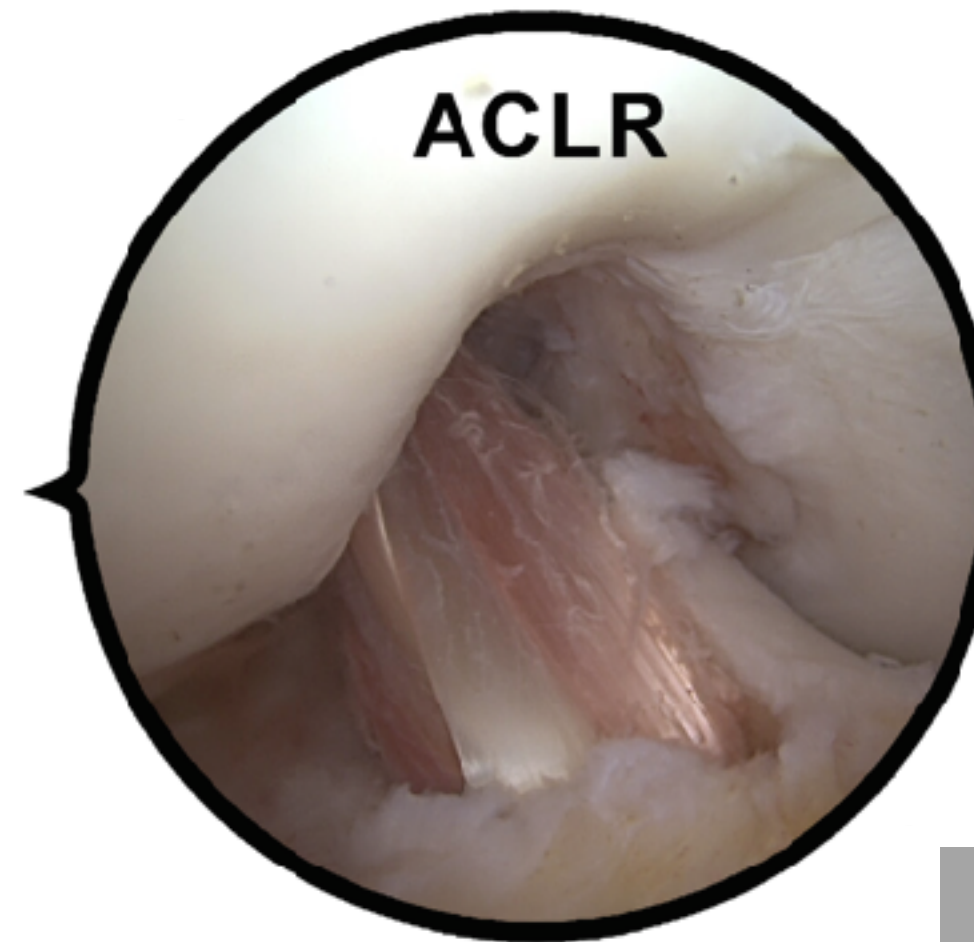
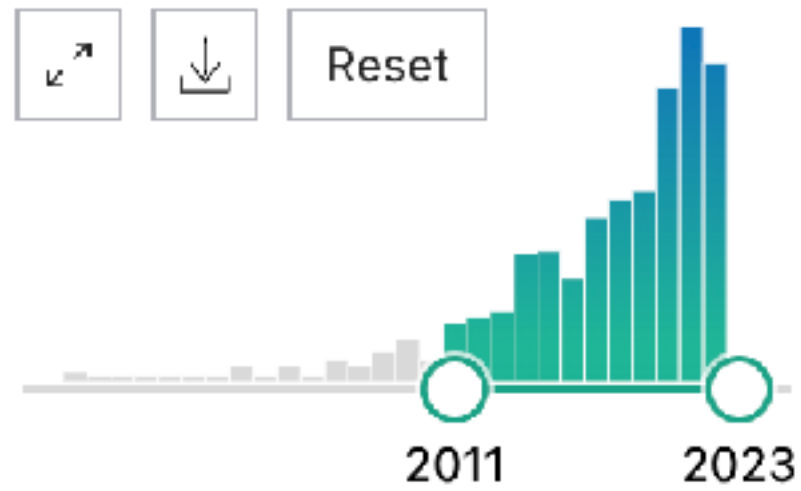
The Effect of Medial Versus Lateral Meniscectomy on the Stability of the Anterior Cruciate Ligament-Deficient Knee

Volker Musahl, Musa Citak, Padhraig F. O'Loughlin, Daniel Choi, Asheesh Bedi and Andrew D. Pearle
Am J Sports Med 2010 38: 1591 originally published online June 8, 2010

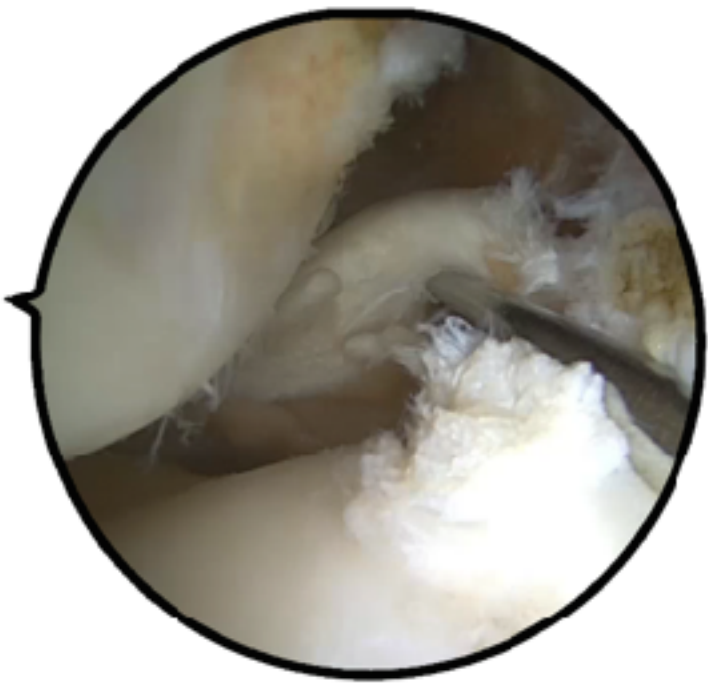
partial lateral
meniscectomy



RESULTS BY YEAR



4



lateral meniscus
posterior root tear

Posterior meniscal root tears: a case report and update of current concepts

W.A. van der Wal^{1,3}

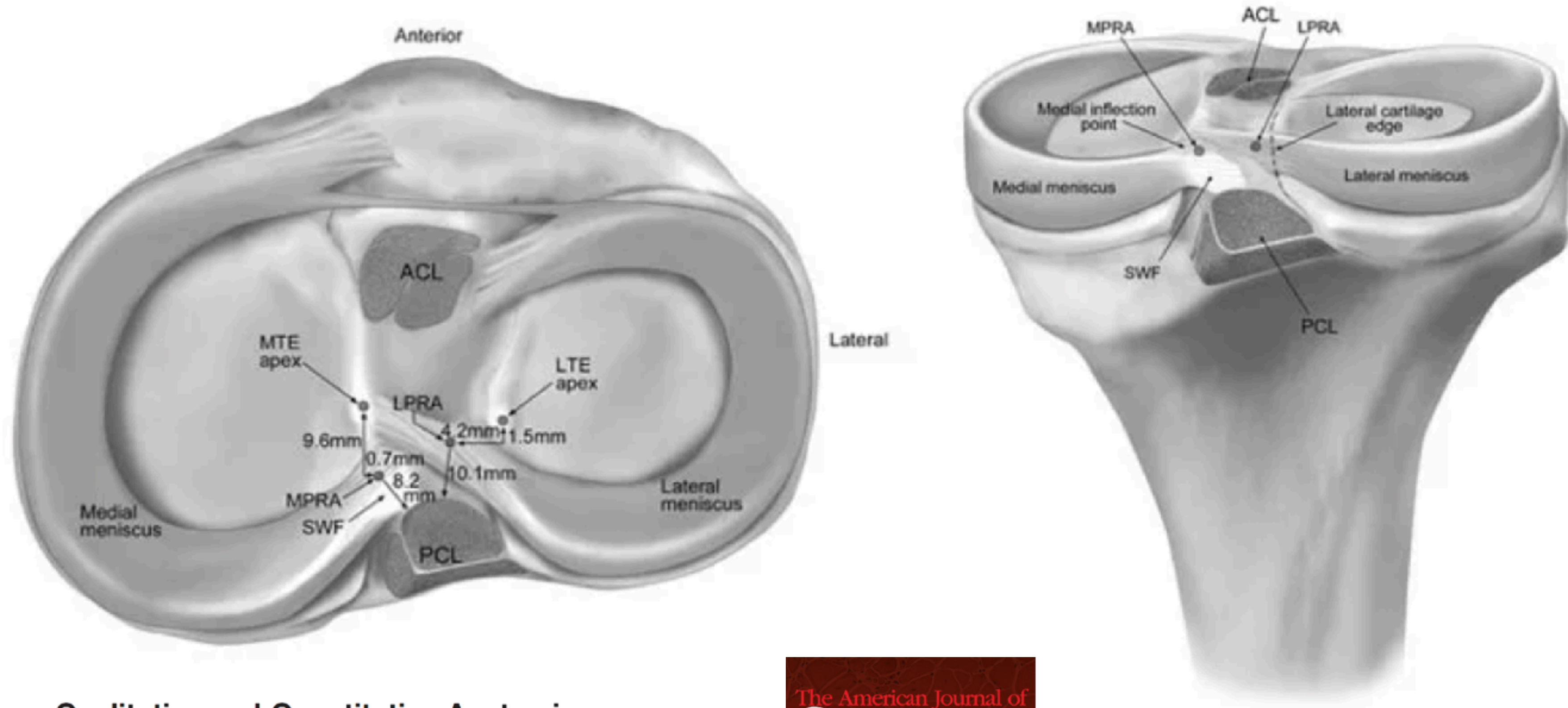
S.J. Maresch^{2,3}

¹Orthopaedic surgeon, Department of Orthopaedic Surgery, ZGV, Ede, The Netherlands

²Radiologist, Department of Radiology, ZGV, Ede, The Netherlands

³Sports Valley High Performance Medical Center, ZGV, Ede, The Netherlands



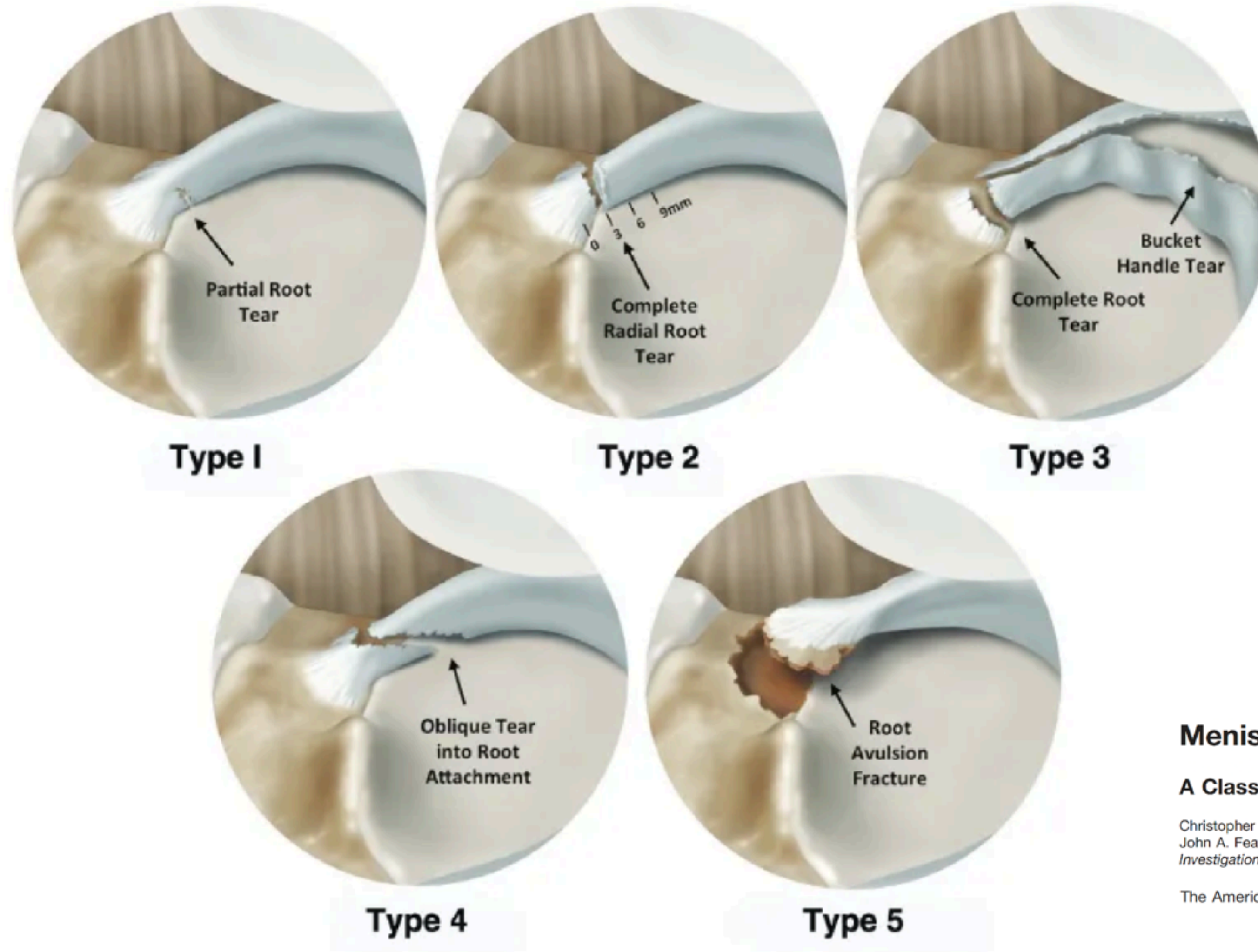


Qualitative and Quantitative Anatomic Analysis of the Posterior Root Attachments of the Medial and Lateral Menisci

Adam M. Johannsen,* BS, David M. Civitarese,* BA, Jeffrey R. Padalecki,* MD, Mary T. Goldsmith,* MSc, Coen A. Wijdicks,* PhD, and Robert F. LaPrade,** MD, PhD
Investigation performed at Steadman Philippon Research Institute, Vail, Colorado

The American Journal of Sports Medicine, Vol. 40, No. 10





Meniscal Root Tears

A Classification System Based on Tear Morphology

Christopher M. LaPrade,^{*} BA, Evan W. James,^{*} BS, Tyler R. Cram,[†] MA, ATC, OTC, John A. Feagin,^{*} MD, Lars Engebretsen,[‡] MD, PhD, and Robert F. LaPrade,^{*†§} MD, PhD
Investigation performed at the Steadman Philippon Research Institute, Vail, Colorado, USA

The American Journal of Sports Medicine, Vol. 43, No. 2

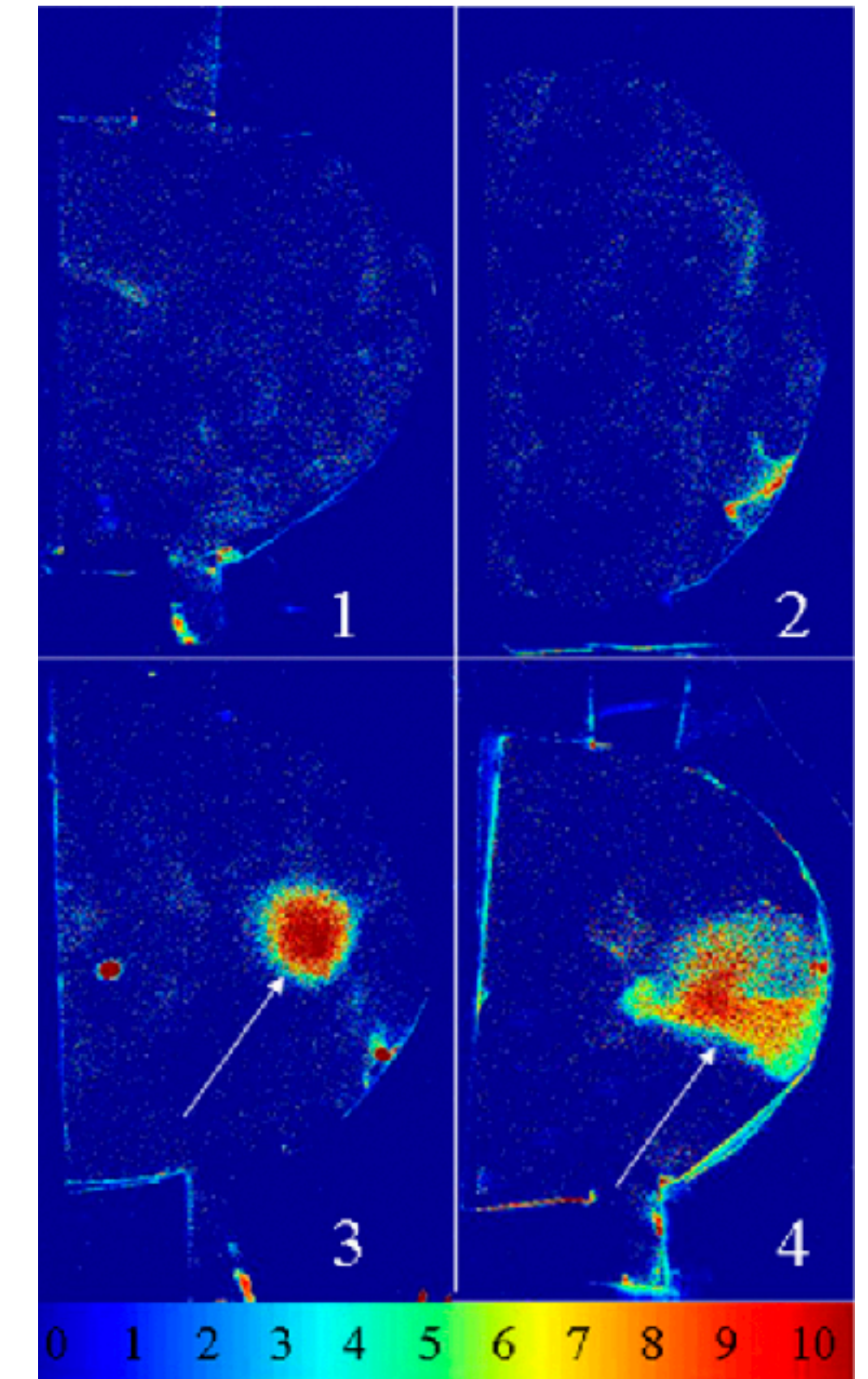


Biomechanical Consequences of a Tear of the Posterior Root of the Medial Meniscus

Similar to Total Meniscectomy

By Robert Allaire, MD, Muturi Muriuki, PhD, Lars Gilbertson, MD, and Christopher D. Harner, MD

Investigation performed at the University of Pittsburgh, Pittsburgh, Pennsylvania



Medial posterior root tear

- Minor trauma
- Isolated
- Risk factors: increased age, high BMI, female sex, varus alignment



Lateral posterior root tear

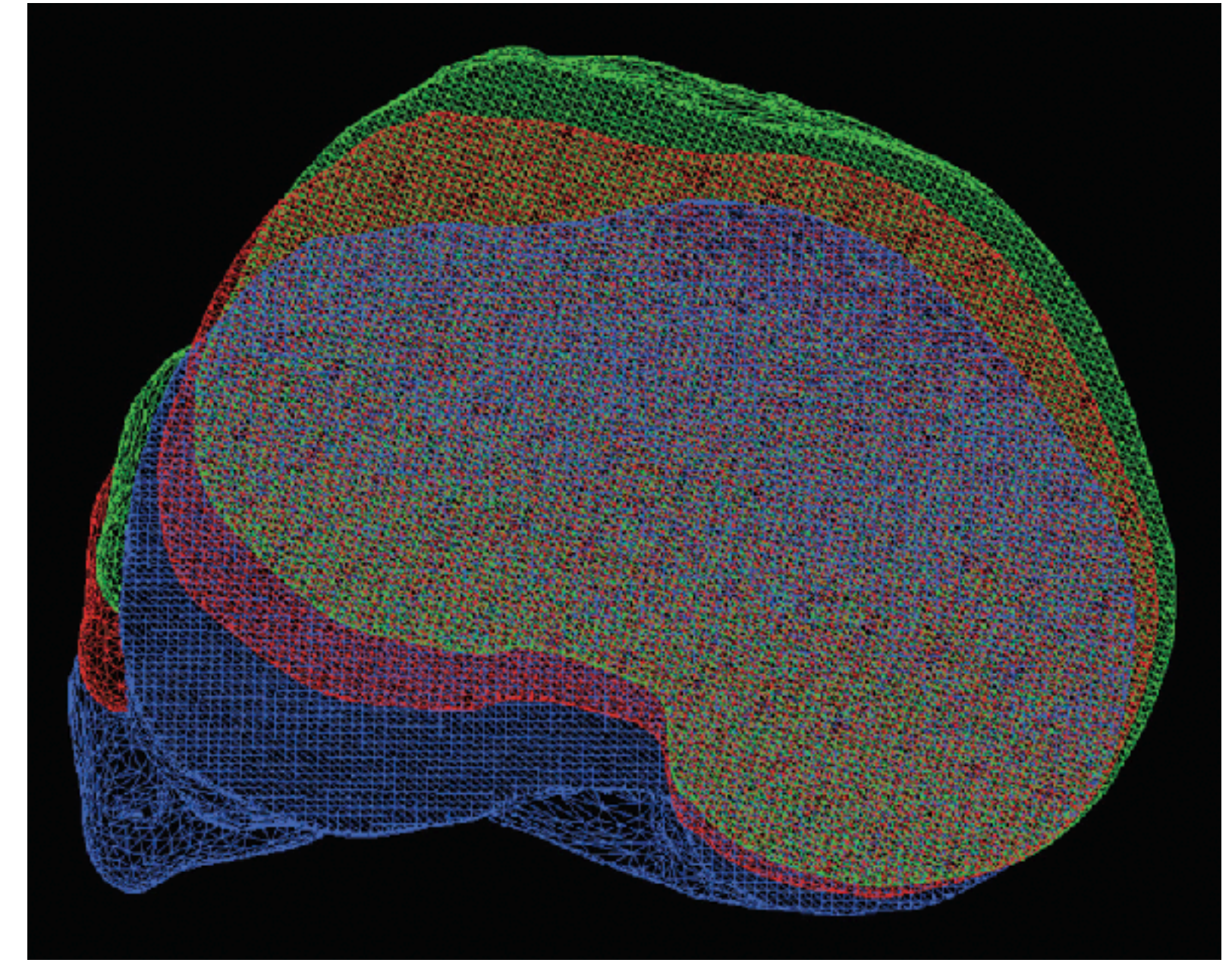
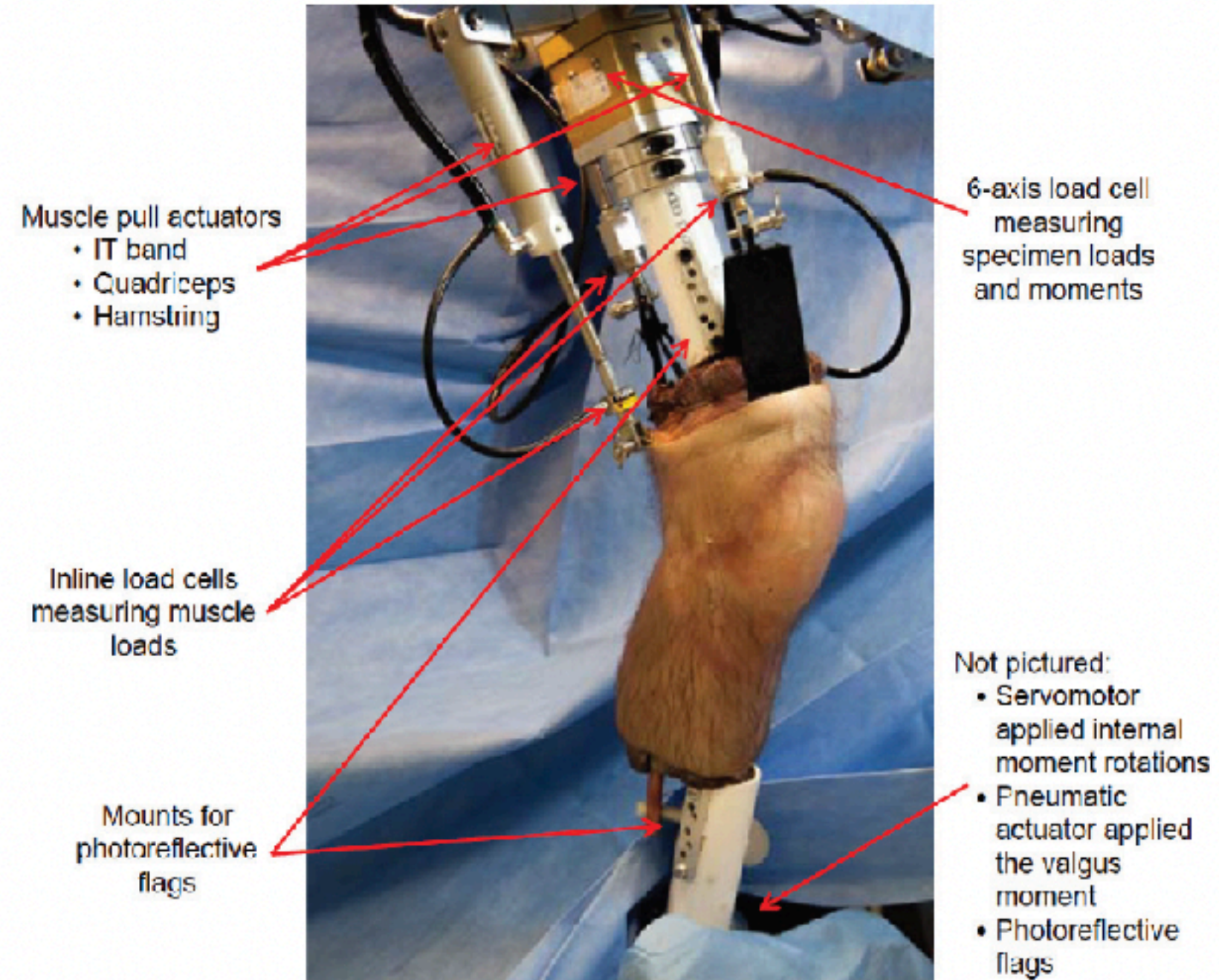
- Athletes
- With ACL-rupture (6,6%)
- Risk factors: contact sports, concomitant medial meniscus tear



Effect of Lateral Meniscal Root Tear on the Stability of the Anterior Cruciate Ligament-Deficient Knee

Theodore B. Shybut,^{*†} MD, Charles E. Vega,[†] MD, Jebran Haddad,[†] BA, Jerry W. Alexander,[‡] BS, Jonathon E. Gold,[‡] BS, Philip C. Noble,[‡] PhD, and Walter R. Lowe,[§] MD
Investigation performed at The Institute of Orthopedic Research and Education, Houston, Texas, USA

The American Journal of Sports Medicine,

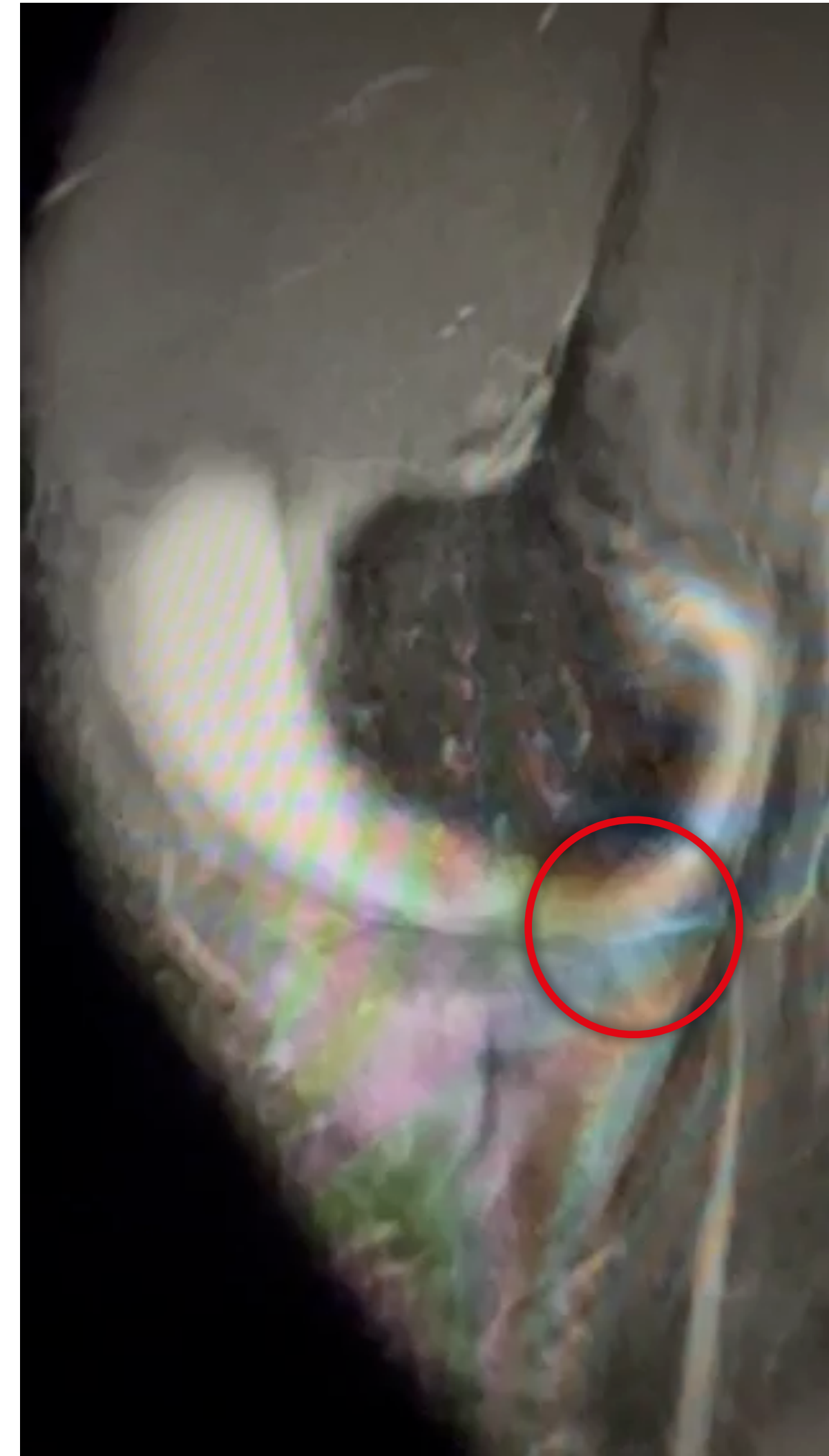






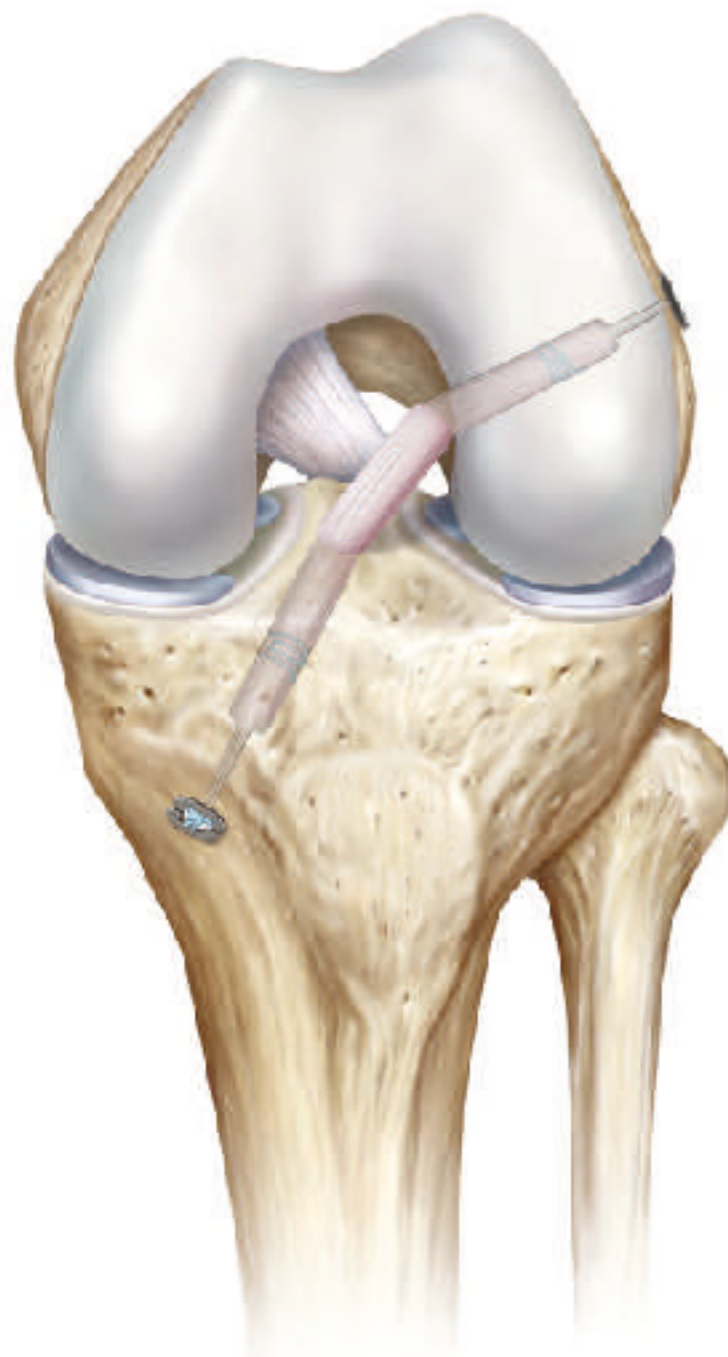


extrusion



ghost sign



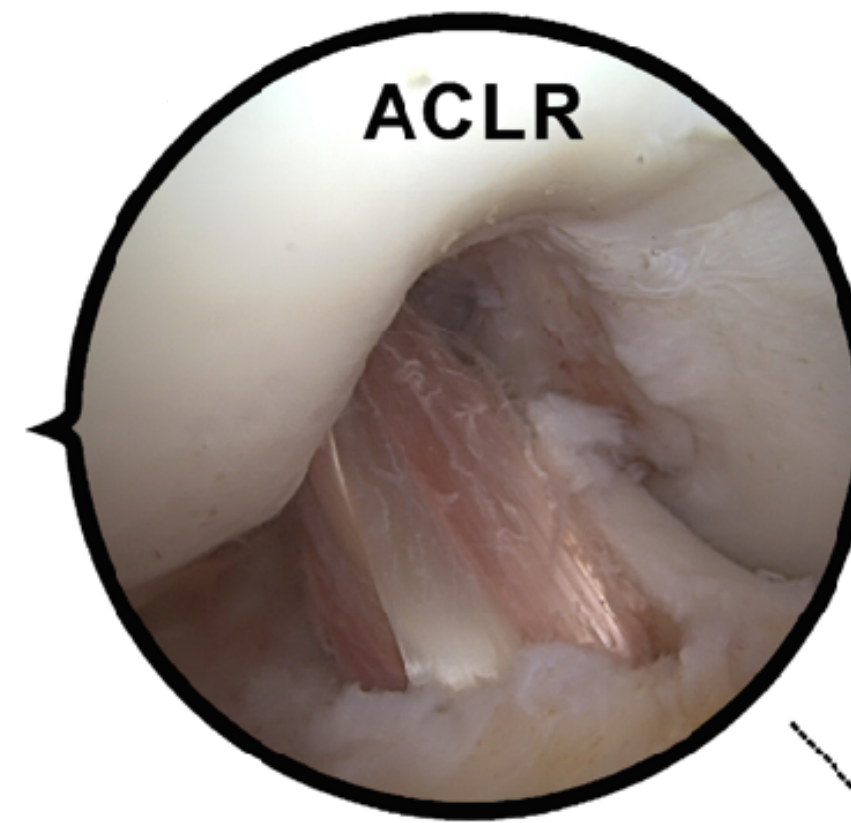
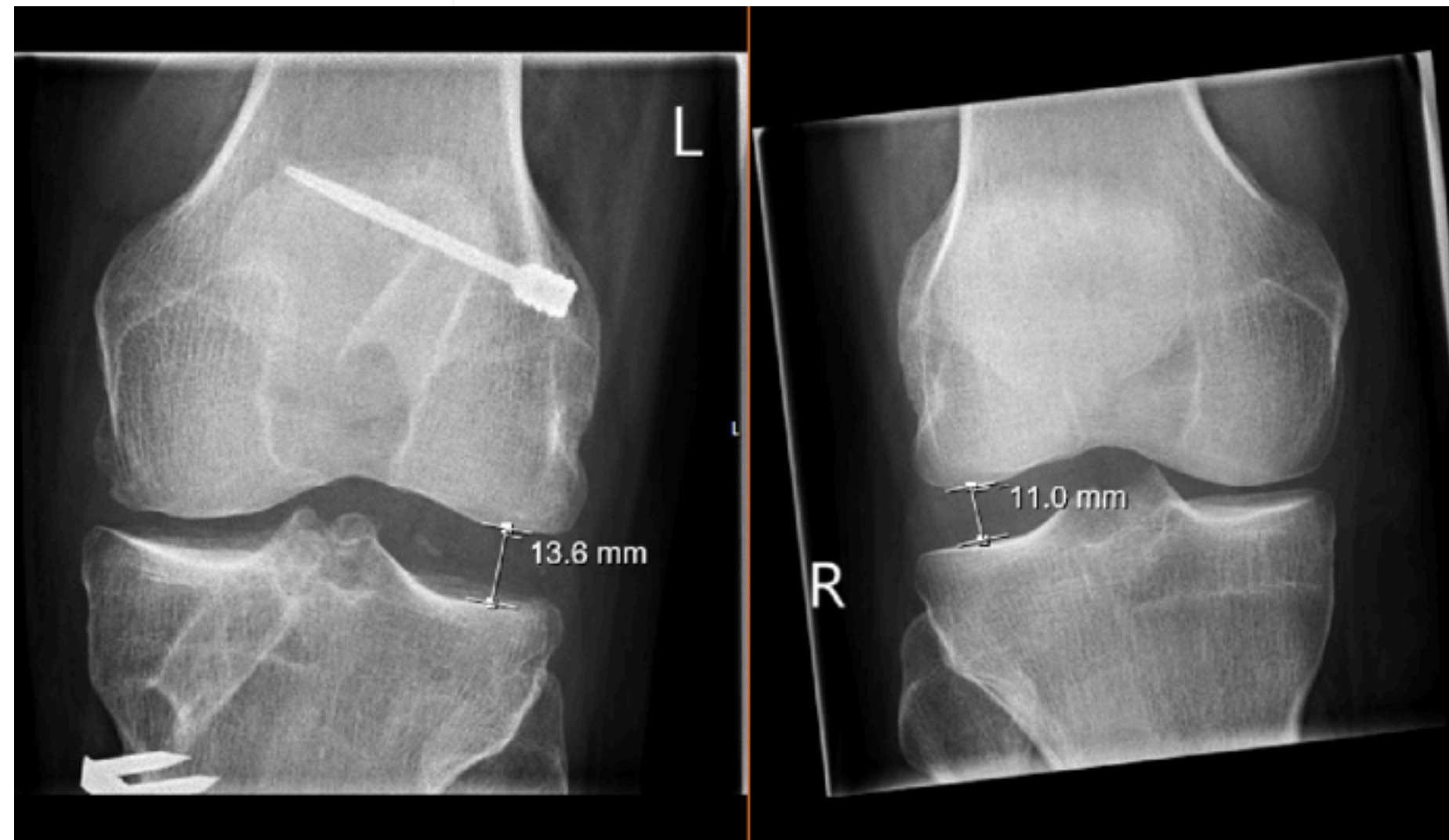


**Biomechanical Evaluation of the
Transtibial Pull-Out Technique for
Posterior Medial Meniscal Root Repairs
Using 1 and 2 Transtibial Bone Tunnels**

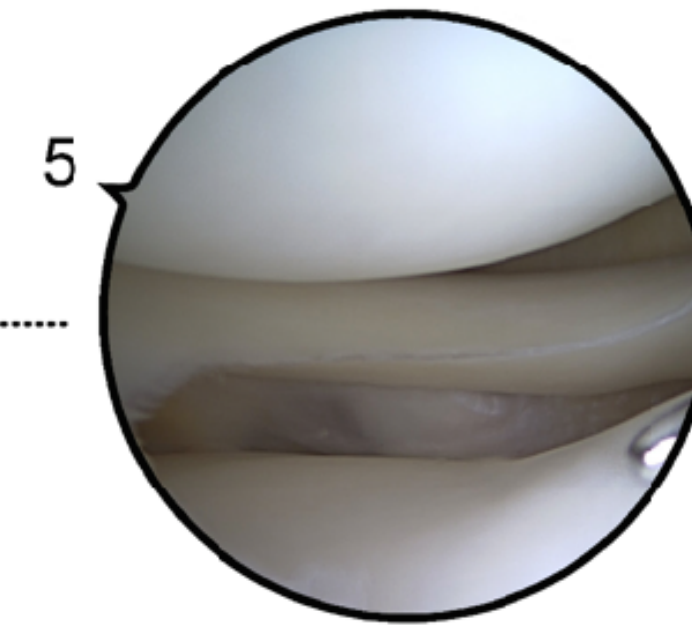
Christopher M. LaPrade,* BA, Matthew D. LaPrade,* Travis Lee Turnbull,* PhD,
Coan A. Wijdicks,* PhD, and Robert F. LaPrade,** MD, PhD
Investigation performed at the Department of BioMedical Engineering,
Steadman Philippon Research Institute, Vail, Colorado, USA







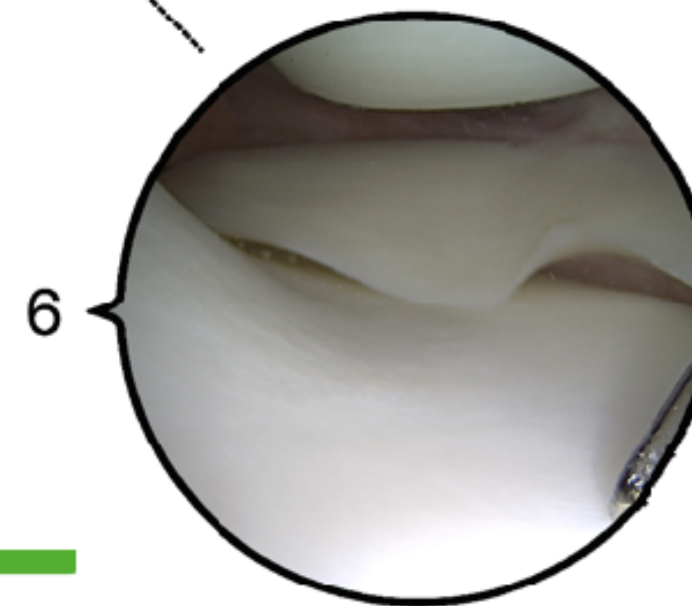
drive through sign
lateral compartment



varus stress
X-ray



drive through sign
medial compartment



valgus stress
X-ray



High prevalence of increased posterior tibial slope in ACL revision surgery demands a patient-specific approach

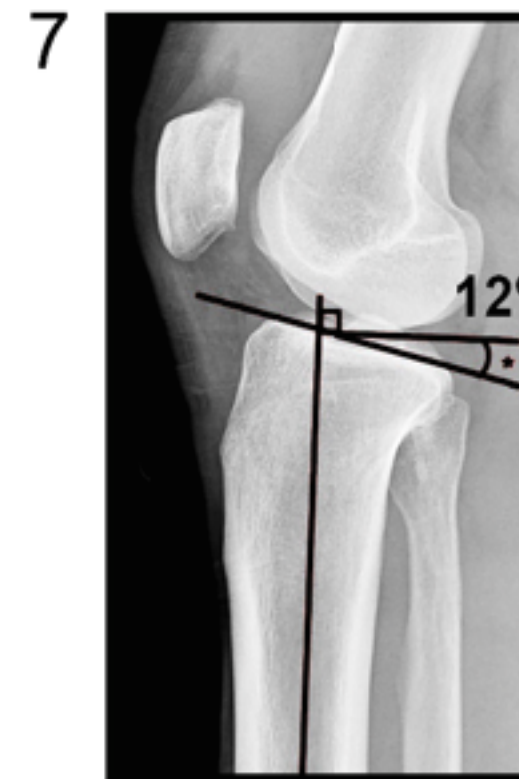
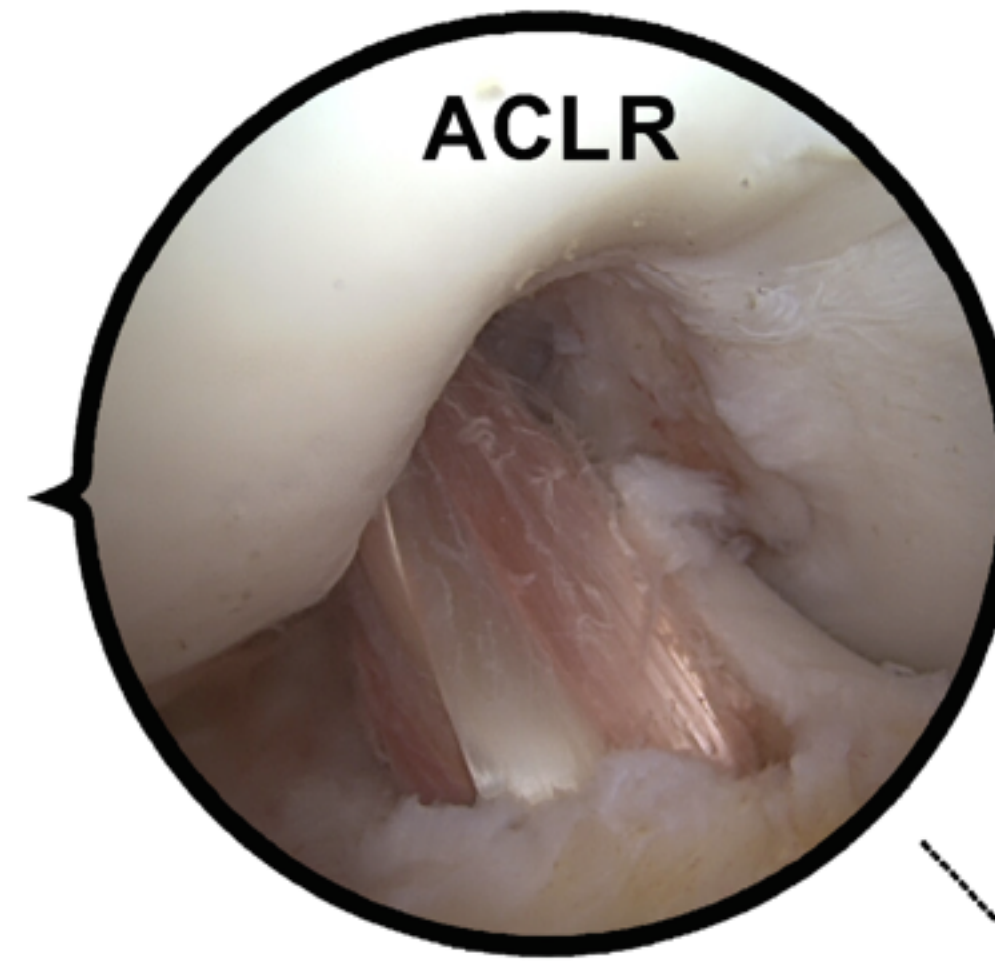
Wouter Beel¹ · Philipp Schuster^{1,2} · Stefan Michalski¹ · Philipp Mayer¹ · Michael Schlumberger^{1,3} · Lotta Hielscher^{1,4,5} · Jörg Richter¹



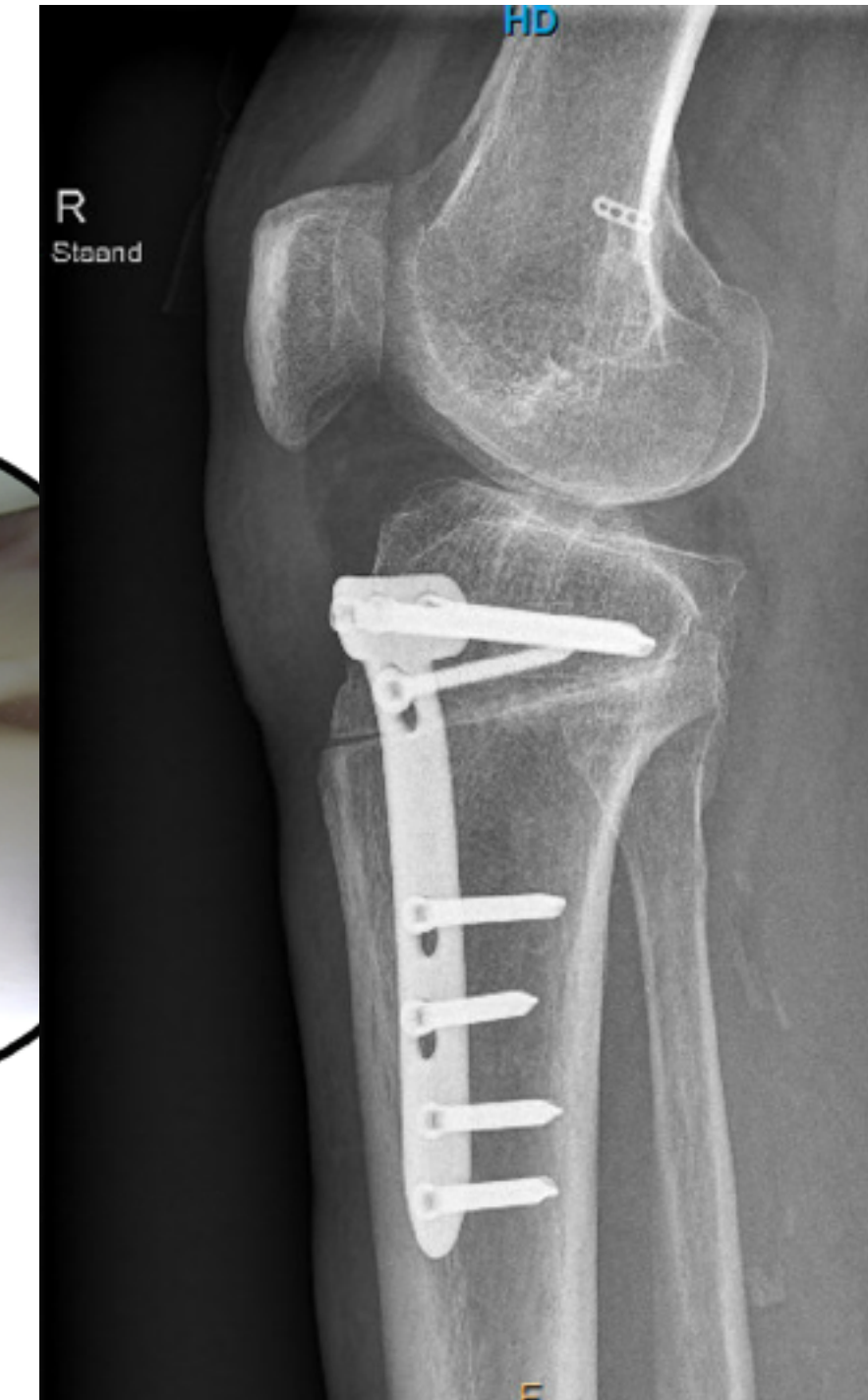
valgus alignment

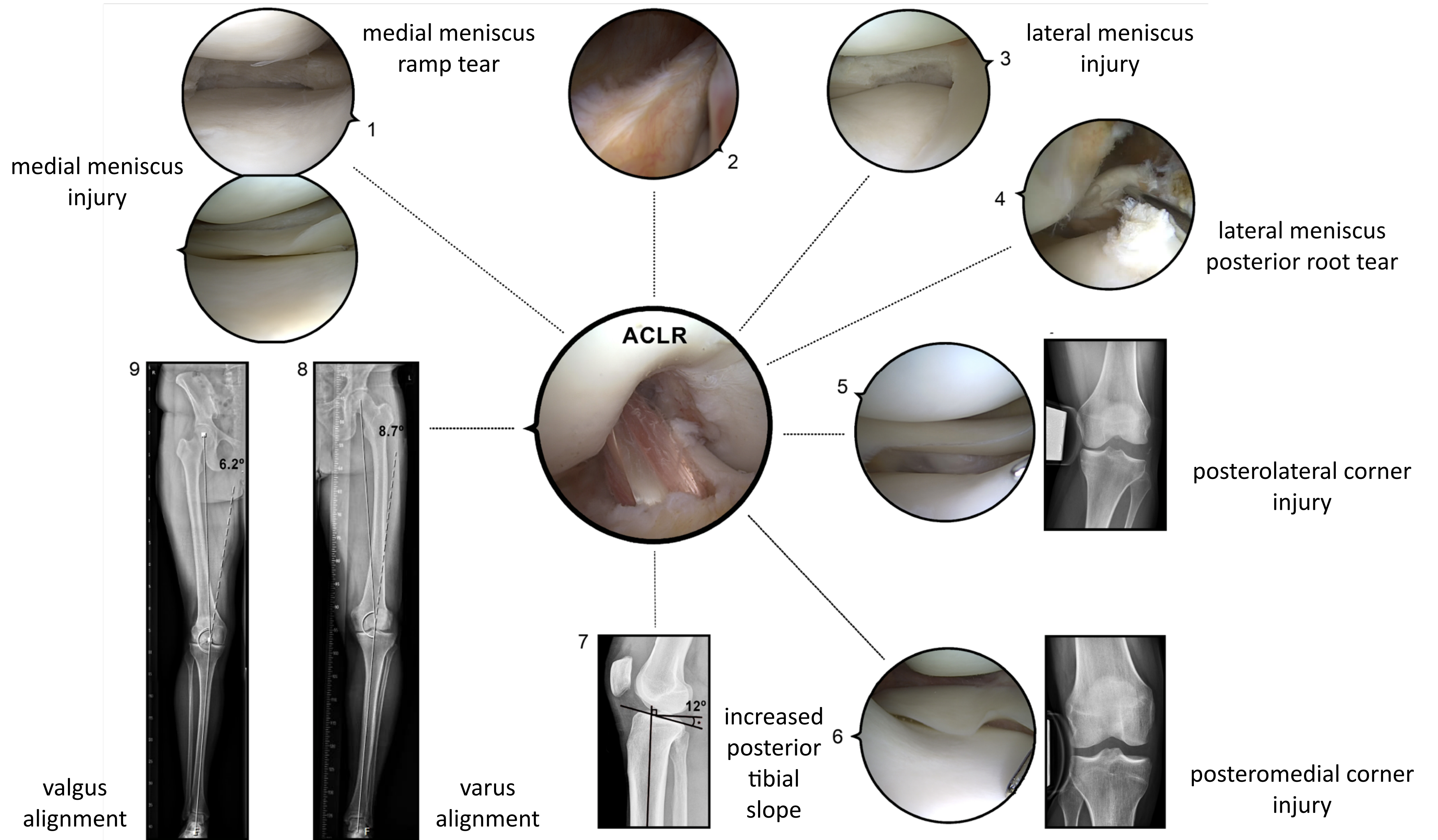


varus alignment



increased tibial posterior slope

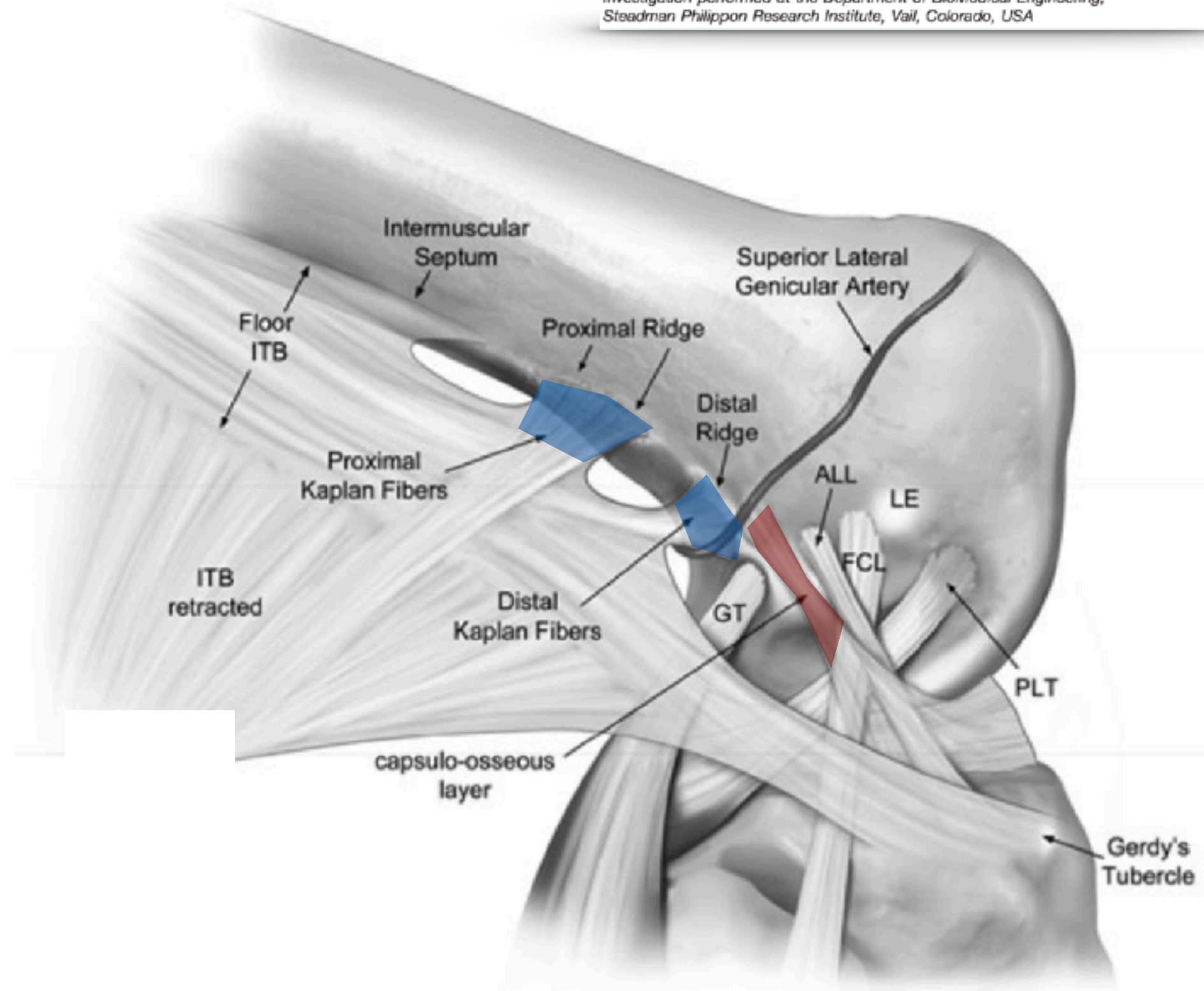




A Comprehensive Reanalysis of the Distal Iliotibial Band

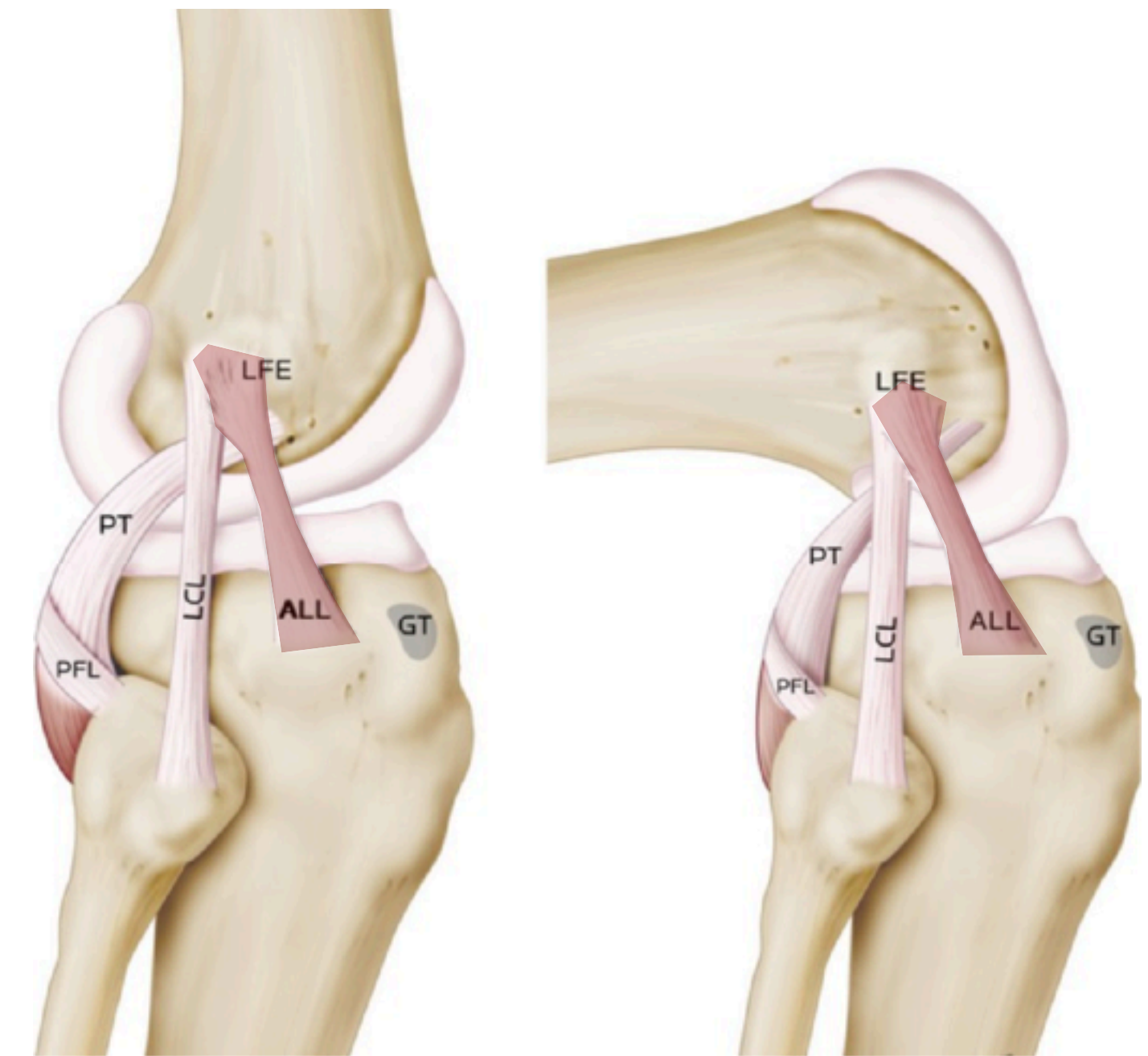
Quantitative Anatomy, Radiographic Markers, and Biomechanical Properties

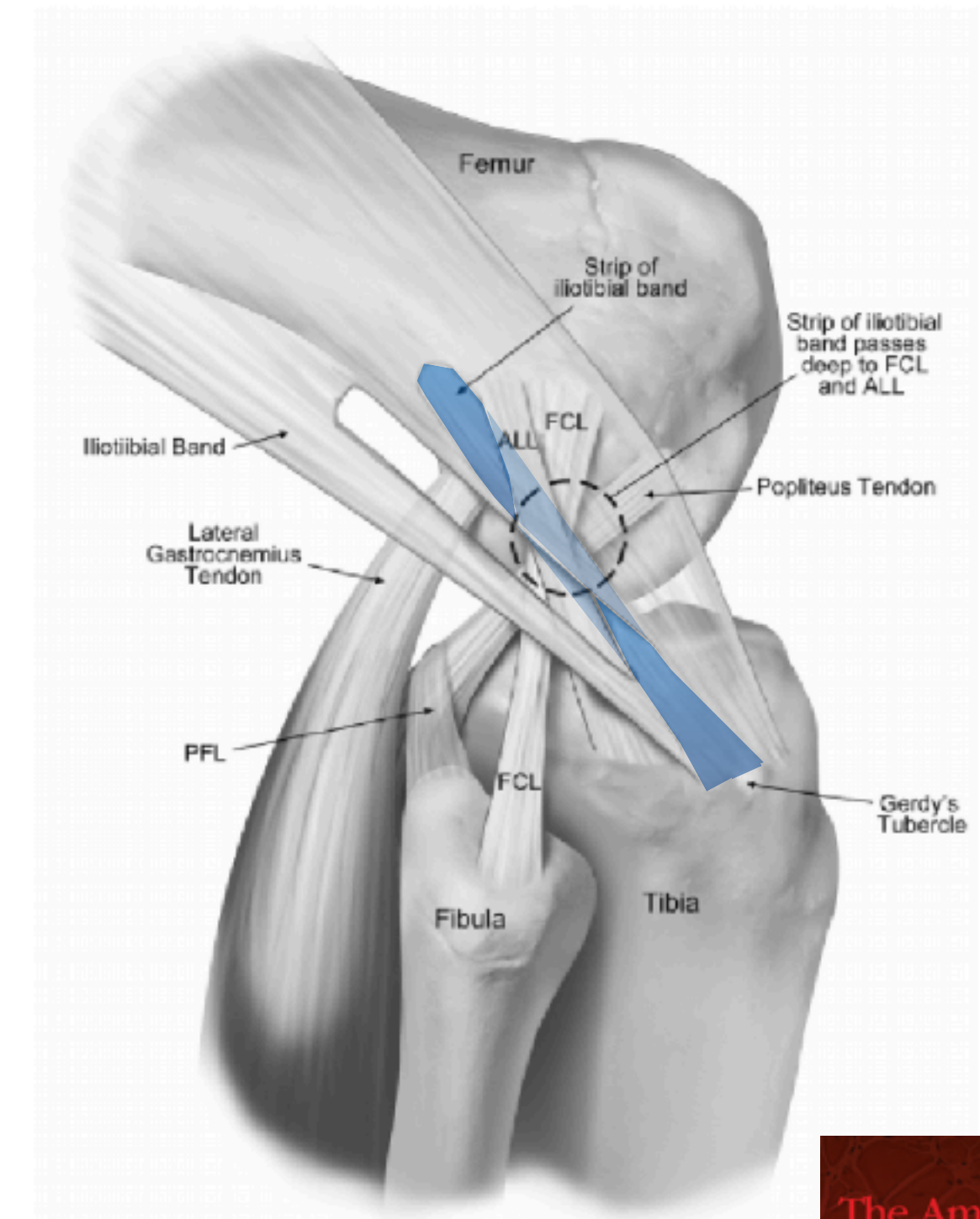
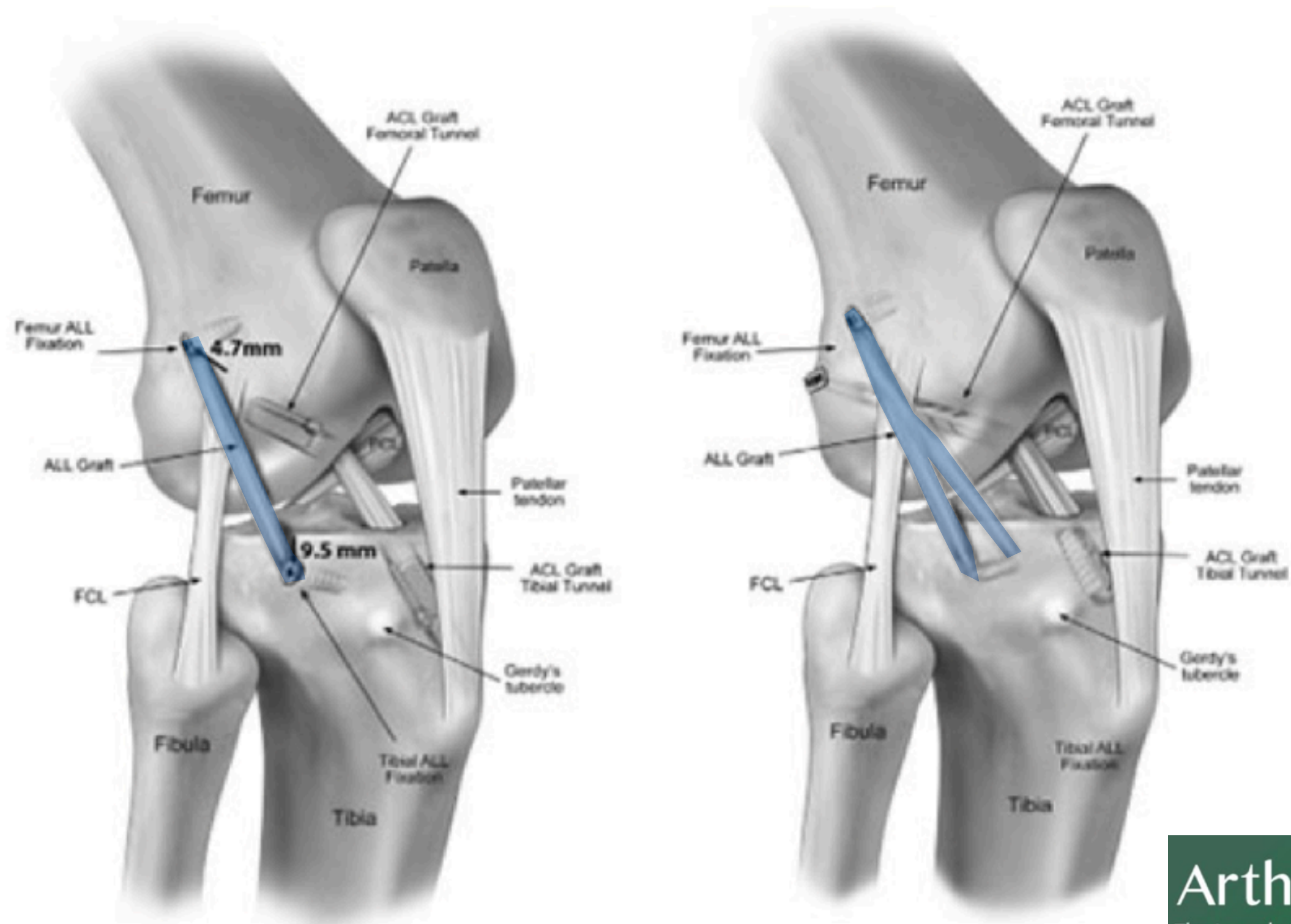
Jonathan A. Godin,^{*†} MD, MBA, Jorge Chahla,[†] MD, PhD, Gilbert Moatshe,^{††§} MD, Bradley M. Kruckeberg,^{*} BA, Kyle J. Muckenheim,^{*} BA, Alexander R. Vap,^{**†} MD, Andrew G. Geeslin,^{**†} MD, and Robert F. LaPrade,^{**||} MD, PhD
Investigation performed at the Department of BioMedical Engineering, Steadman Philippon Research Institute, Vail, Colorado, USA



Anatomy of the anterolateral ligament of the knee

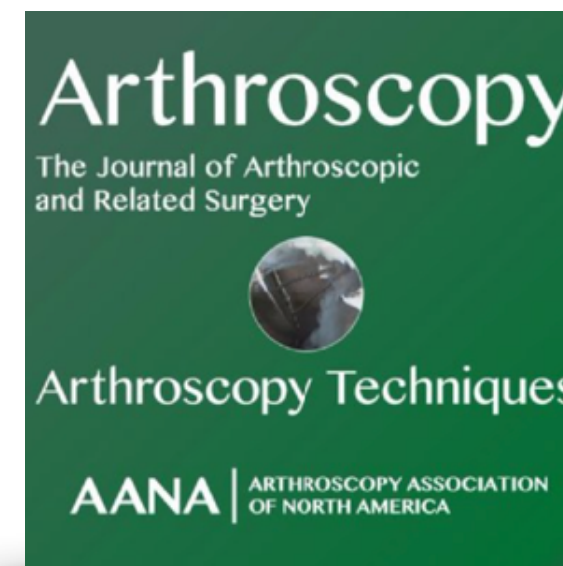
Steven Claes,¹ Evie Vereecke,² Michael Maes,¹ Jan Victor,³ Peter Verdonk⁴ and Johan Bellemans¹





Anterolateral Ligament Reconstruction Techniques, Biomechanics, and Clinical Outcomes: A Systematic Review

Nicholas N. DePhillipo, M.S., A.T.C., O.T.C., Mark E. Cinque, M.S., B.S., Jorge Chahla, M.D., Ph.D., Andrew G. Geeslin, M.D., and Robert F. LaPrade, M.D., Ph.D.



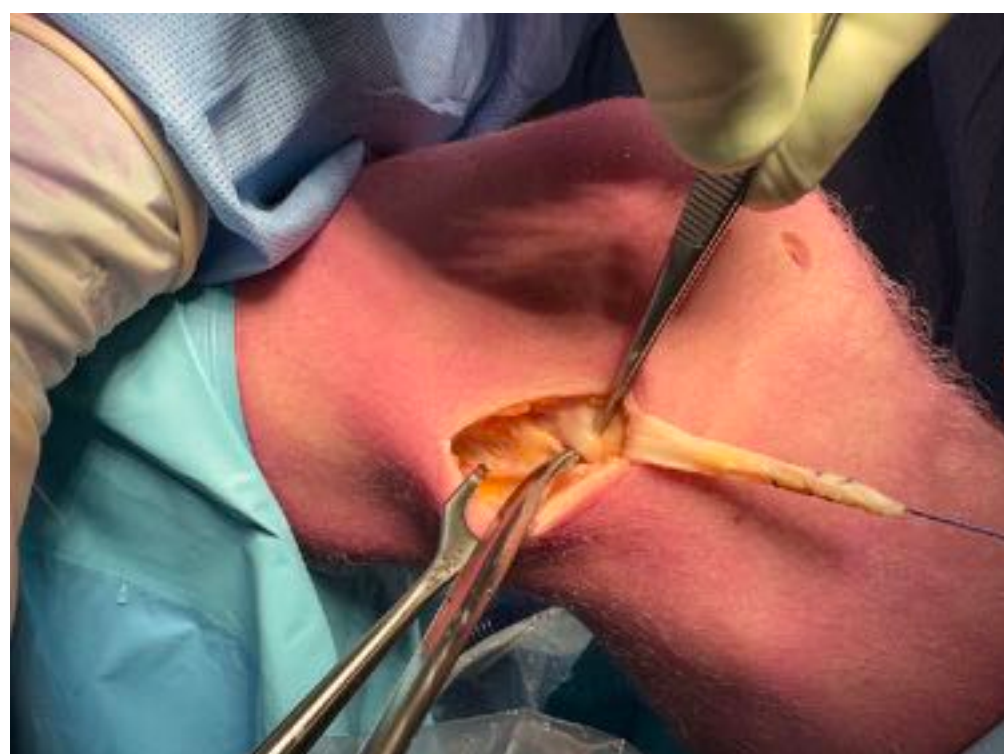
Anterolateral Knee Extra-articular Stabilizers

A Robotic Sectioning Study of the Anterolateral Ligament and Distal Iliotibial Band Kaplan Fibers

Andrew G. Geeslin,¹ MD, Jorge Chahla,² MD, PhD, Gilbert Moatshe,^{1,3} MD, Kyle J. Muckenhirn,⁴ BA, Bradley M. Kruckeberg,⁵ BA, Alex W. Brady,⁶ MSc, Ashley Coggins,⁷ BS, Grant J. Doman,⁸ MSc, Alan M. Getgood,⁹ MD, Jonathan A. Godin,¹⁰ MD, MBA, and Robert F. LaPrade,¹¹ MD, PhD
Investigation performed at Steadman Philippon Research Institute, Vail, Colorado, USA



Modified Lemaire



Systematic Review

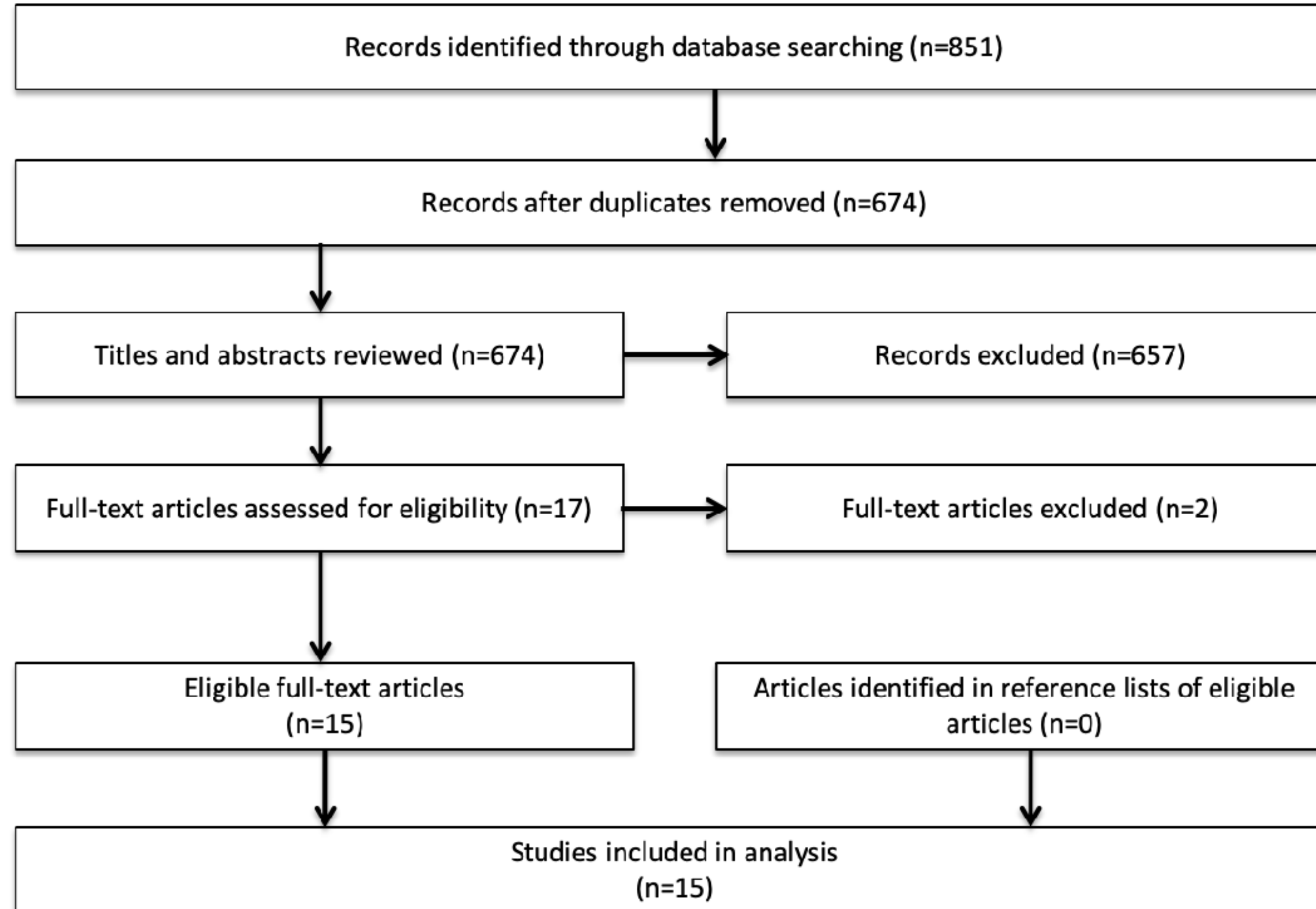
The Iliotibial Band is the Main Secondary Stabilizer for Anterolateral Rotatory Instability and both a Lemaire and Anterolateral Ligament Reconstruction can Restore Native Knee Kinematics in the ACL Reconstructed Knee.

A Systematic Review of
Biomechanical Cadavaric Studies.

Arthroscopy, in Press Journal Pre-Proof, Published online: May 17, 2023

Wybren A. van der Wal, M.D., Diederik T. Meijer, M.D., Ph.D., Roy Hoogeslag,
M.D.,PhD.,
and Robert F. LaPrade M.D.,PhD.





The majority of sectioning studies found that the **ITB acts as a secondary stabilizer to the ACL** and helps to resist both internal rotation and internal rotation during the pivot shift. Most sectioning studies reported **no secondary stabilizing effect of the ALL** in resisting internal rotation and internal rotation during the pivot shift.

—> Synergistic effect ALL to ITB?



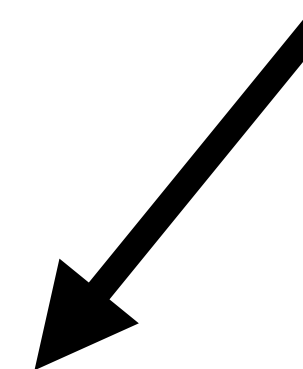
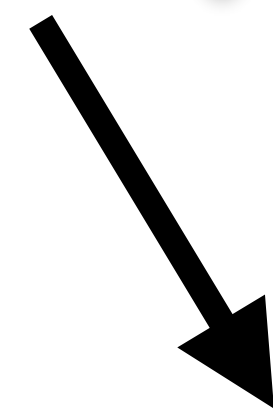
in the majority of studies a **modified Lemaire** lateral extra-articular tenodesis **and an ALL-reconstruction** could **significantly reduce** the **residual anterolateral rotatory instability** in isolated ACL reconstructed knees and were able to restore internal rotation laxity / internal rotation laxity during the pivot shift.



Lateral extra-articular
tenodesis

ALL-reconstruction





Anterolateral corner reconstruction





Long-term Graft Rupture Rates After Combined ACL and Anterolateral Ligament Reconstruction Versus Isolated ACL Reconstruction

A Matched-Pair Analysis From the SANTI Study Group

Bertrand Sonnery-Cottet,^{*†} MD , Ibrahim Haidar,^{*†} MD, Johnny Rayes,^{*†} Thomas Fradin,^{*†} MD, Cedric Ngbilo,^{*†} MD, Thais Dutra Vieira,^{*†||} MD , Benjamin Freychet,^{*†} MD, Herve Ouanezar,[†] MD , and Adnan Saithna,[§] MD 
Investigation performed at the Centre Orthopedique Santy, Lyon, France

Lateral Extra-articular Tenodesis Reduces Failure of Hamstring Tendon Autograft Anterior Cruciate Ligament Reconstruction

2-Year Outcomes From the STABILITY Study Randomized Clinical Trial

Alan M.J. Getgood,^{*} MD, FRCS(Tr&Orth), Dianne M. Bryant, MSc, PhD, Robert Litchfield, MD, FRCSC, Mark Heard, MD, FRCSC, Robert G. McCormack, MD, FRCSC, Alex Rezansoff, MD, FRCSC, Devin Peterson, MD, FRCSC, Davide Bardana, MD, FRCSC, Peter B. MacDonald, MD, FRCSC, Peter C.M. Verdonk, MD, PhD, Tim Spalding, FRCS, and the STABILITY Study Group
Investigation performed at The Fowler Kennedy Sport Medicine Clinic, Western University, London, Ontario, Canada



