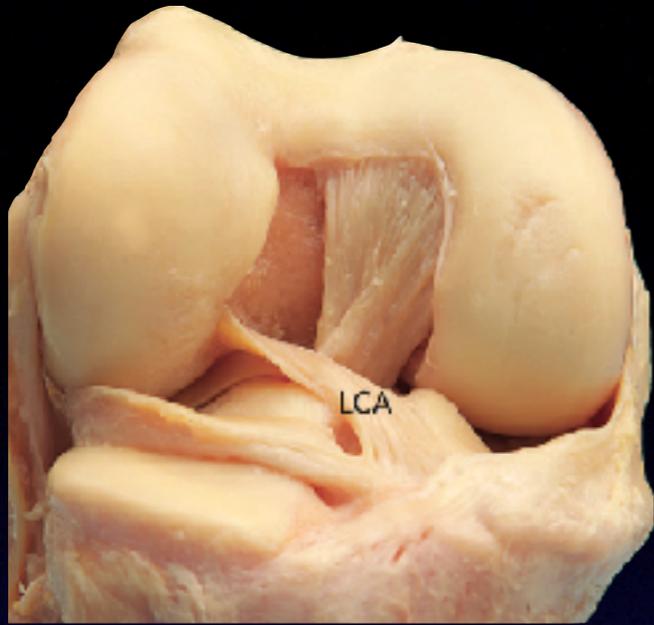


# Ligament croisé

Quelle prise en charge en 2019 ?

Elias Dagher / Julien Roué

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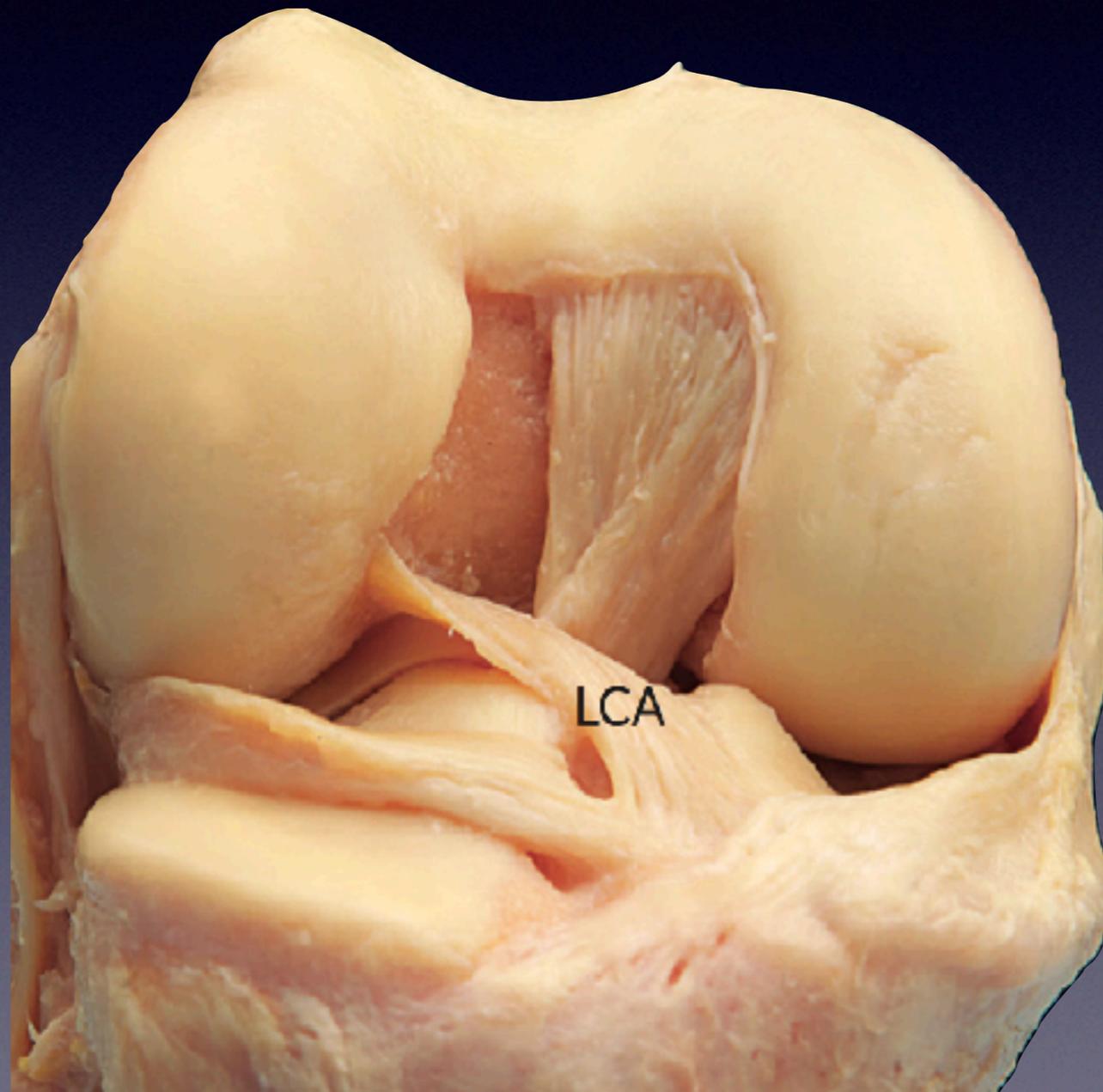


# ANATOMIE



# INSTRUMENTATION CHIRURGICALE

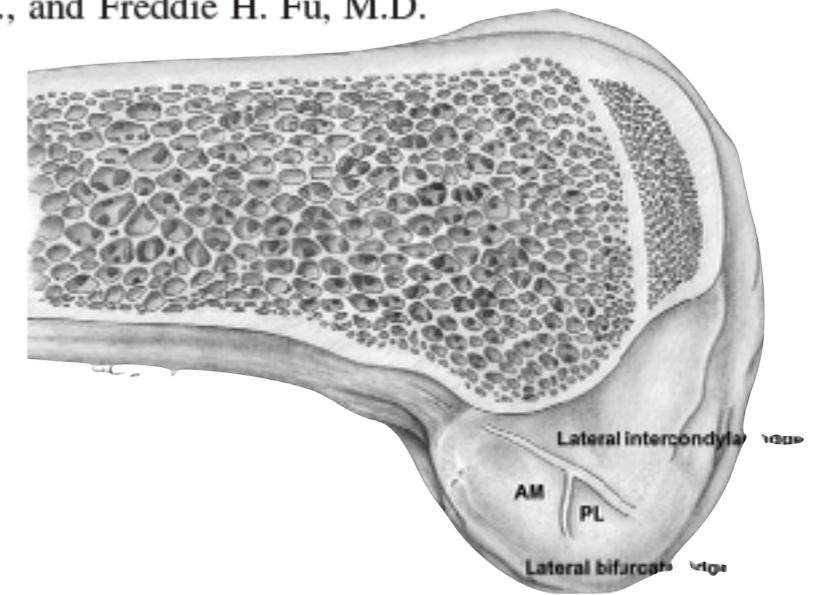
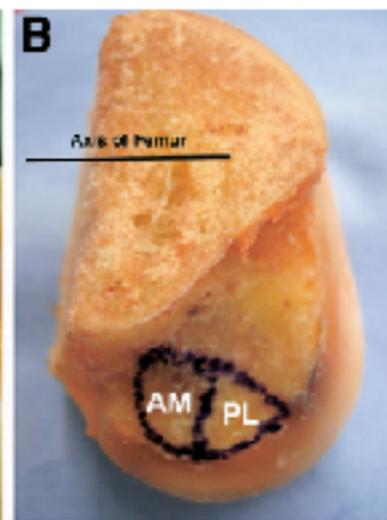
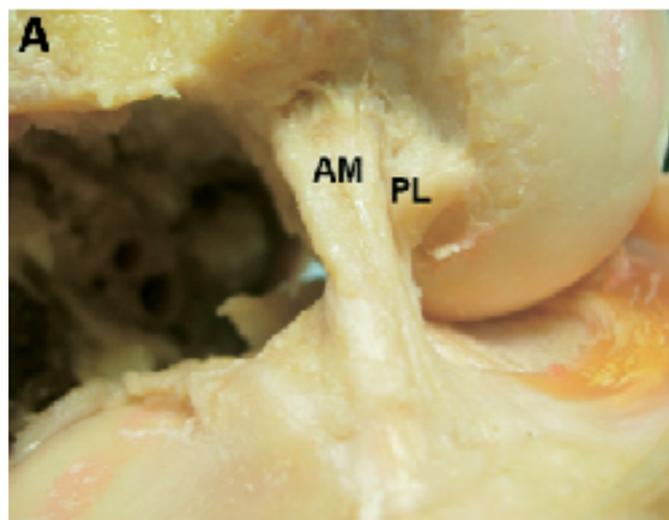
# ANATOMIE



# Anatomie

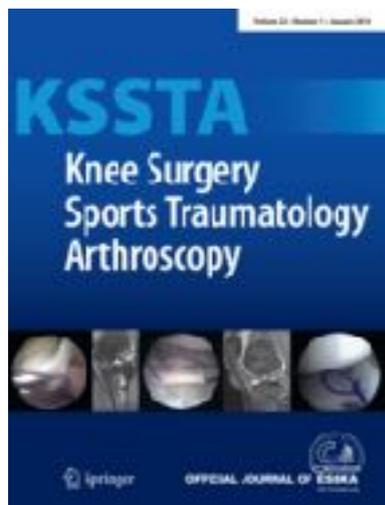
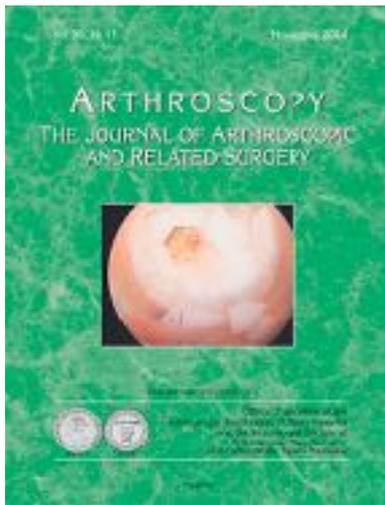
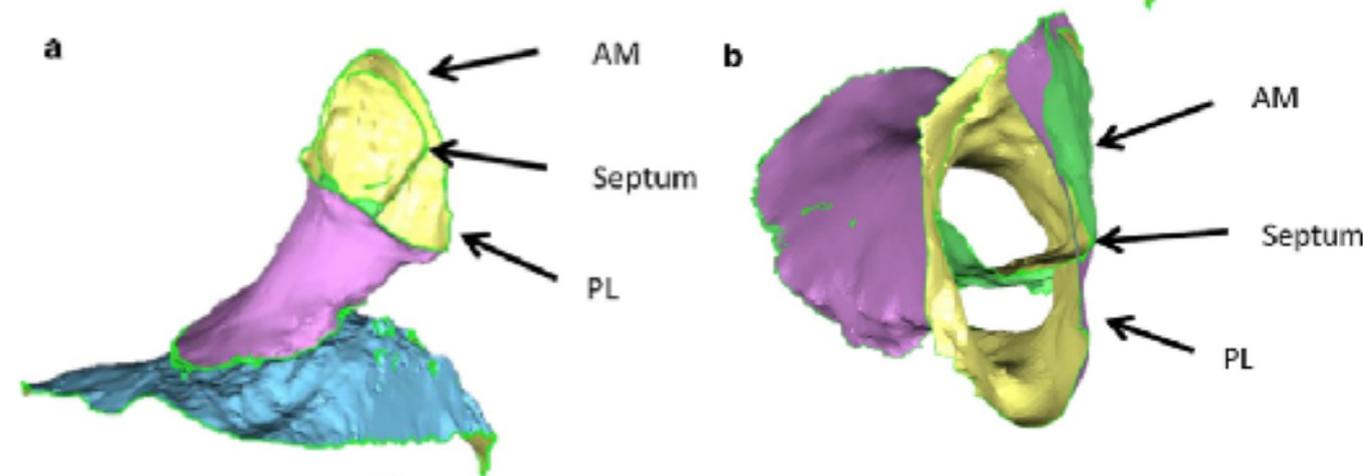
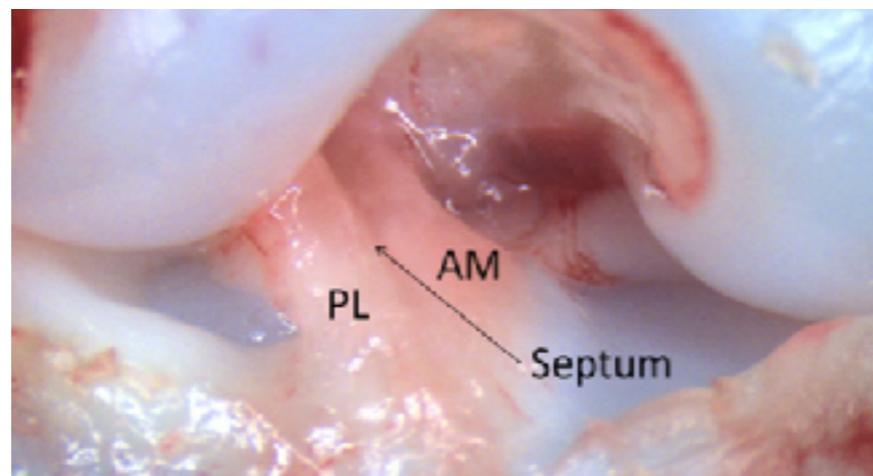
## Osseous Landmarks of the Femoral Attachment of the Anterior Cruciate Ligament: An Anatomic Study

Mario Ferretti, M.D., Max Ekdahl, M.D., Wei Shen, M.D., Ph.D., and Freddie H. Fu, M.D.



## Anatomic anterior cruciate ligament reconstruction: a changing paradigm

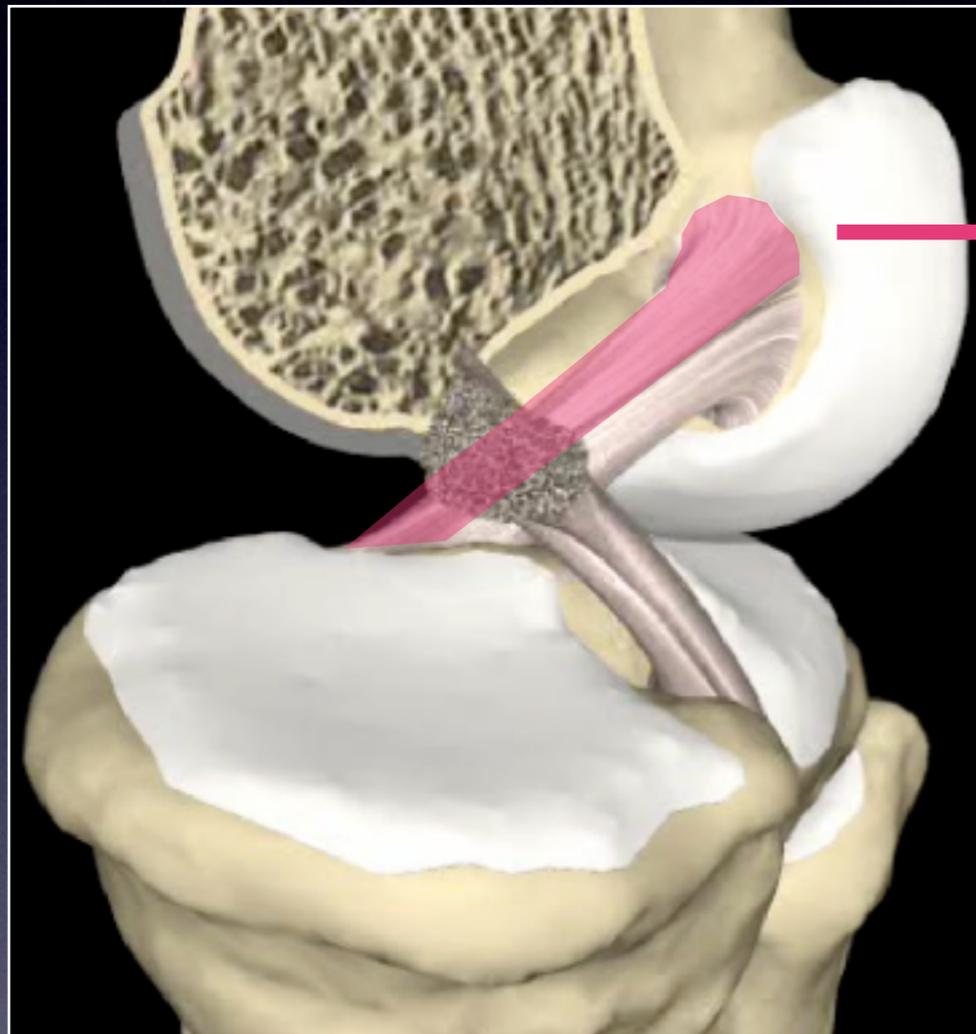
Freddie H. Fu · Carola F. van Eck · Scott Tashman ·



# Anatomie

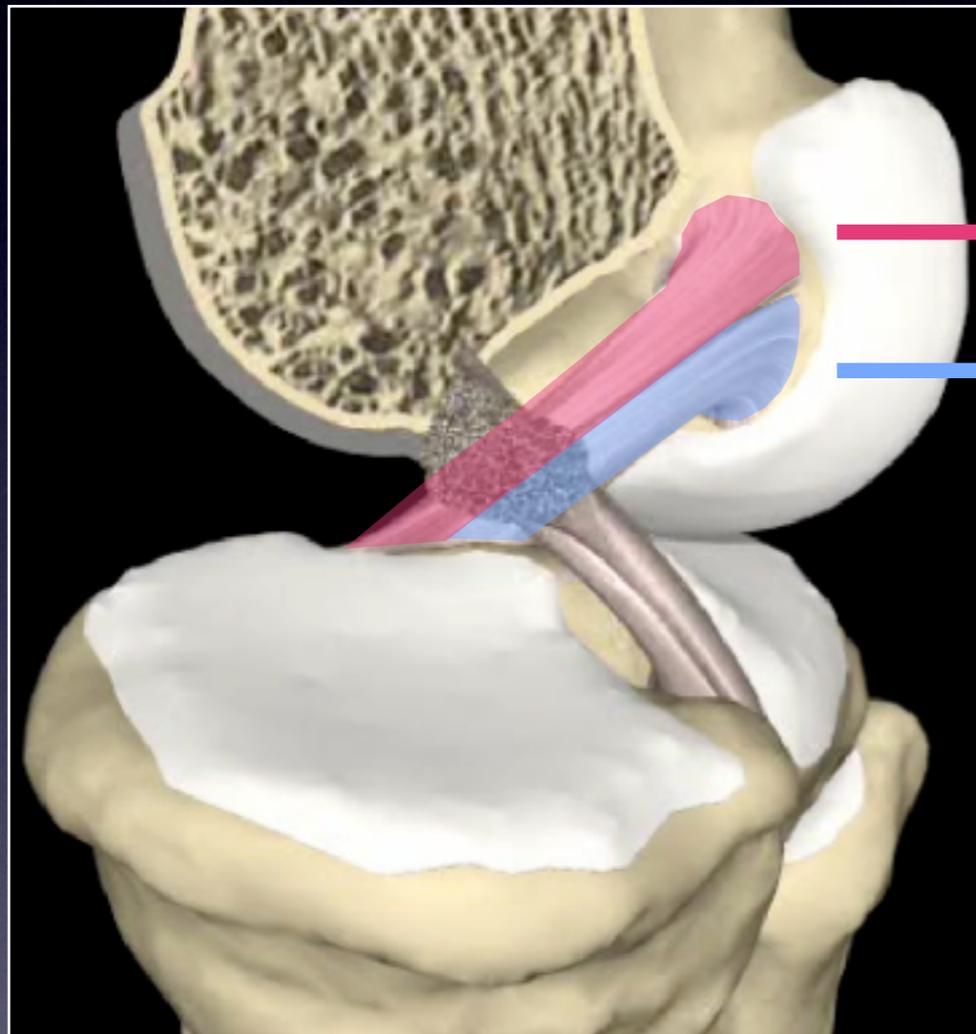


# Anatomie



Stabilité Antérieure

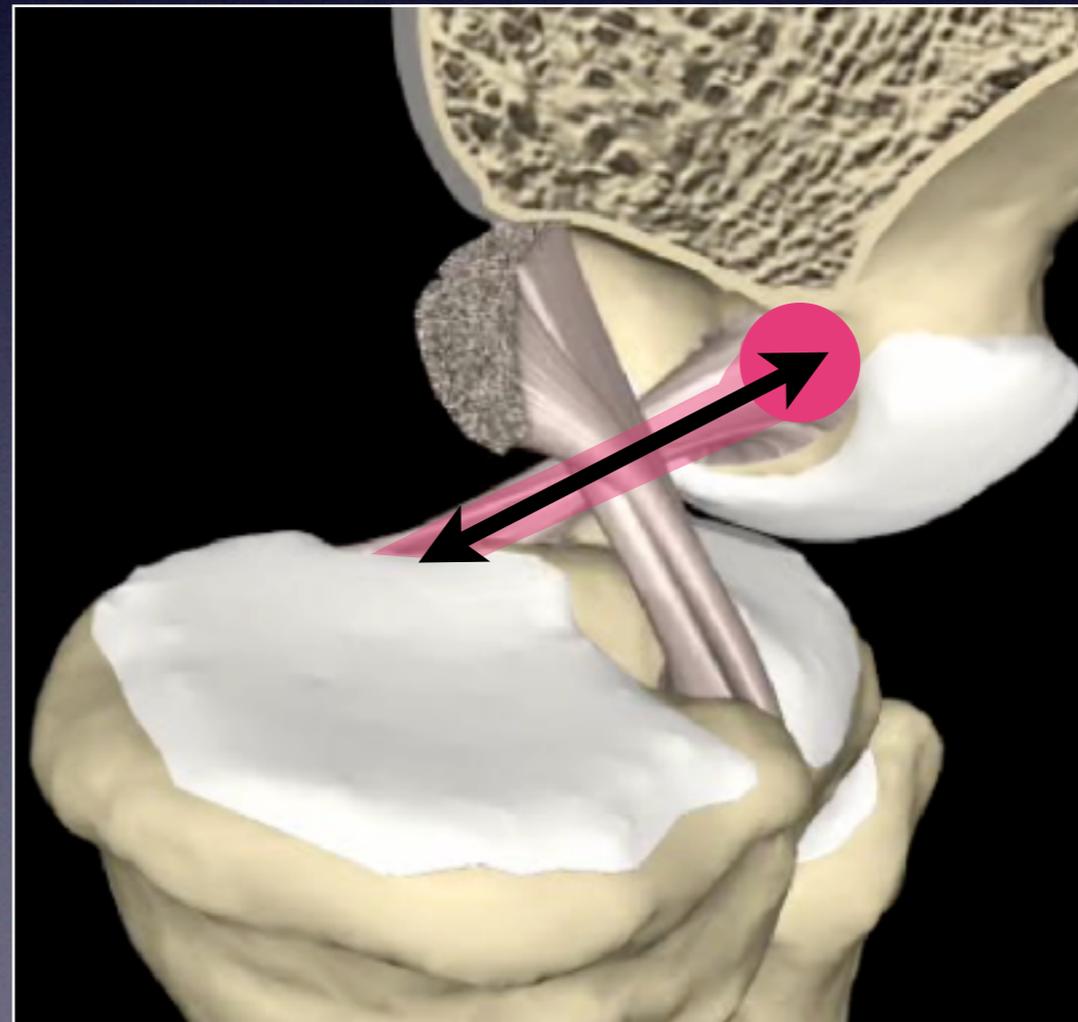
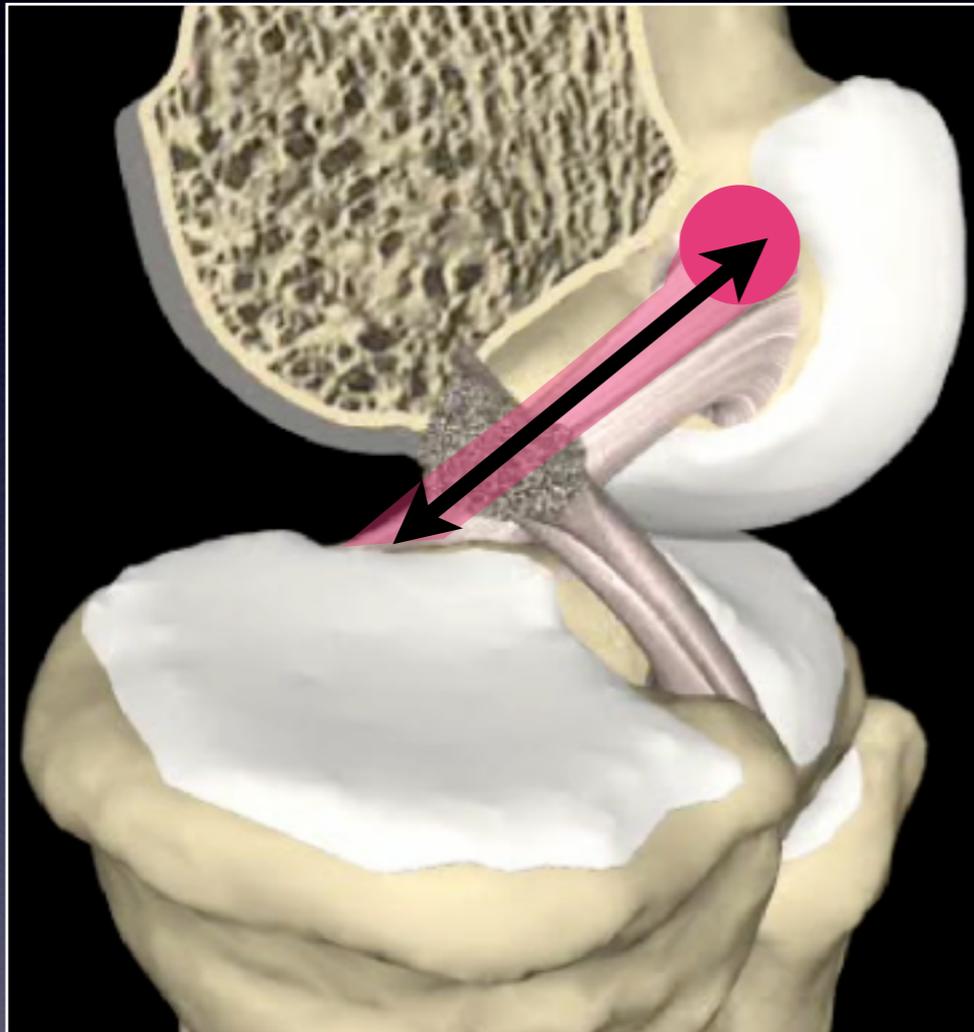
# Anatomie



Stabilité Antérieure  
Stabilité Rotatoire

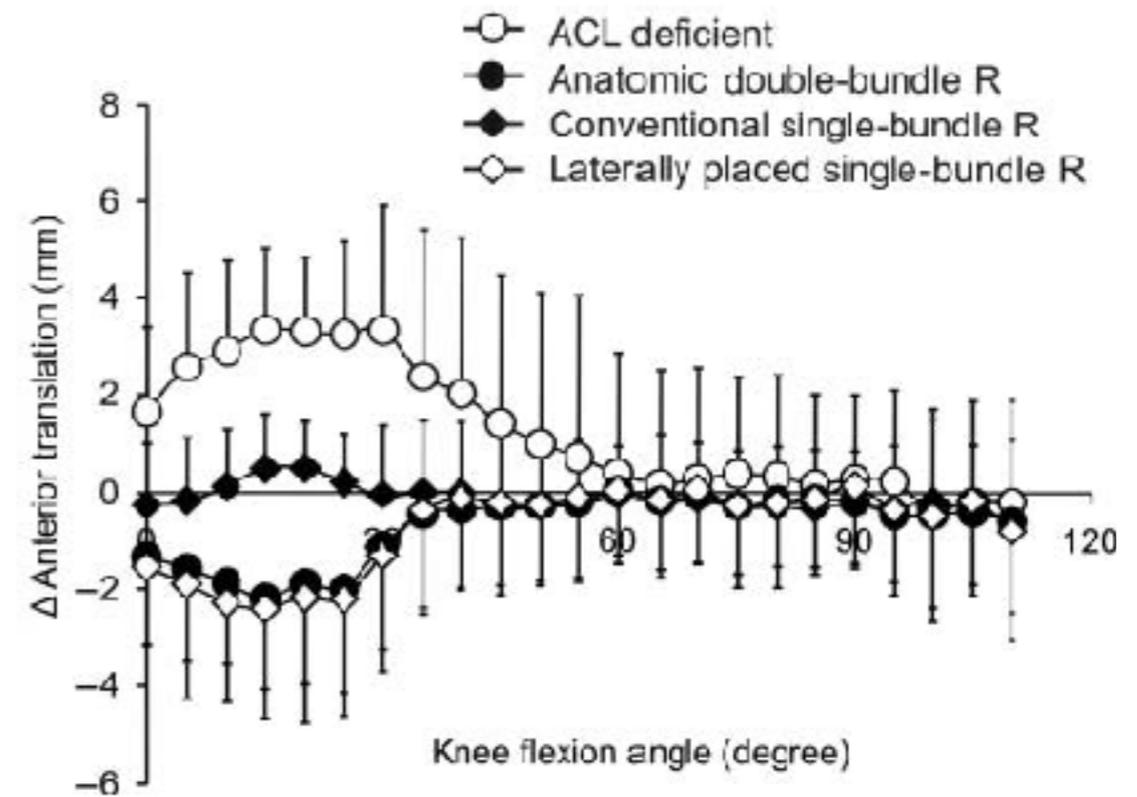
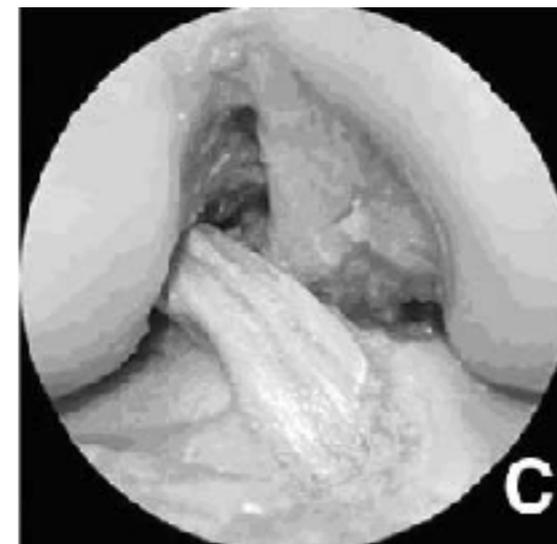
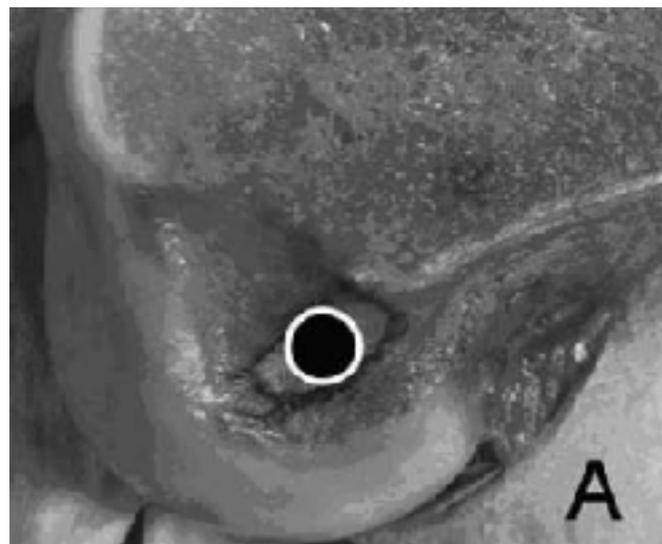
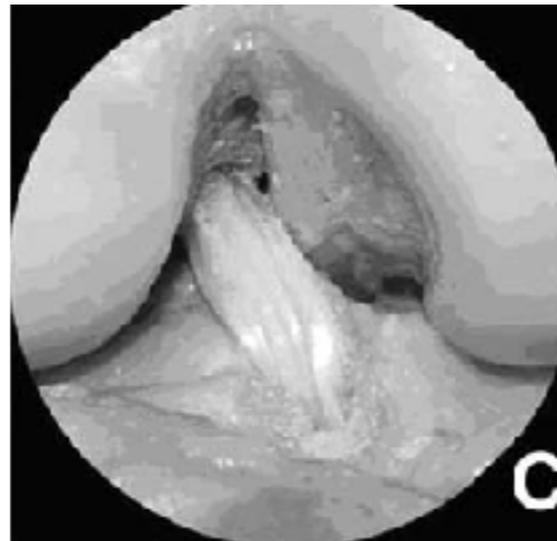
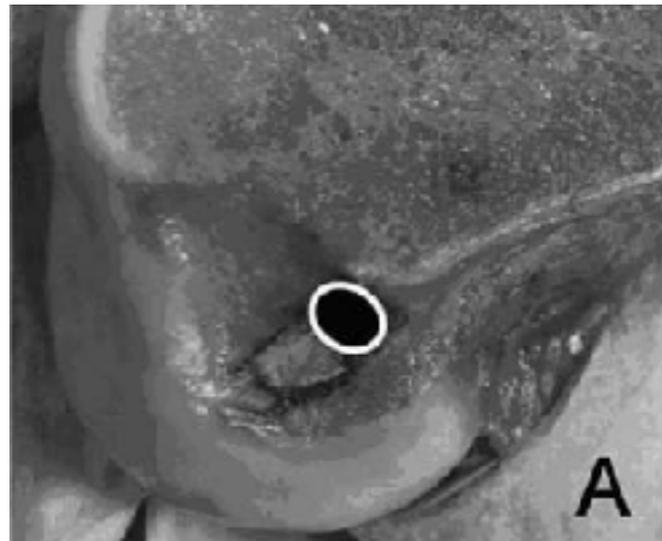
# Anatomie

## Tunnel Fémoral ISOMETRIQUE



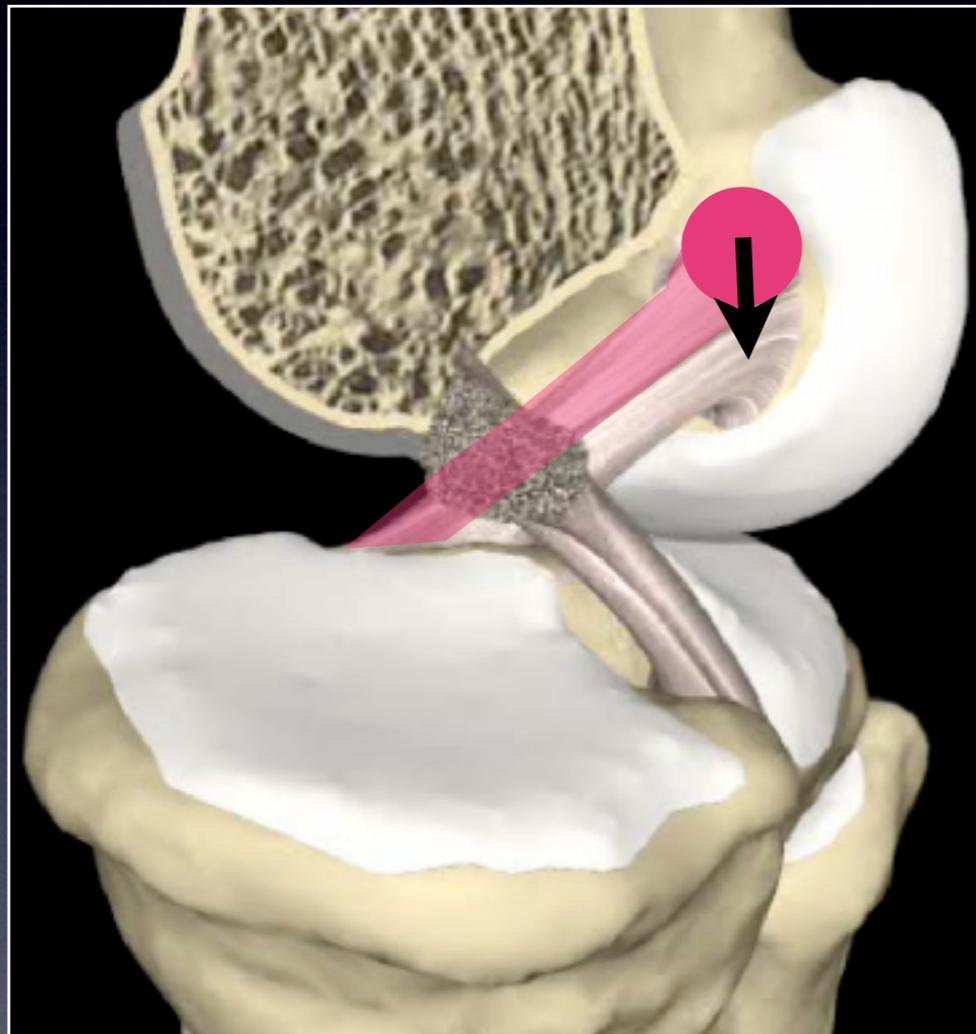
# Biomechanical Comparison of Anatomic Double-Bundle, Anatomic Single-Bundle, and Nonanatomic Single-Bundle Anterior Cruciate Ligament Reconstructions

Eiji Kondo,<sup>\*†</sup> MD, PhD, Azhar M. Merican,<sup>+§</sup> MD, MS(Orth), PhD, Kazunori Yasuda,<sup>†</sup> MD, PhD, and Andrew A. Amis,<sup>\*‡</sup> PhD, DSc(Eng)  
*Investigation performed at Imperial College London, London, United Kingdom*



**Meilleur contrôle  
 de la stabilité rotatoire**

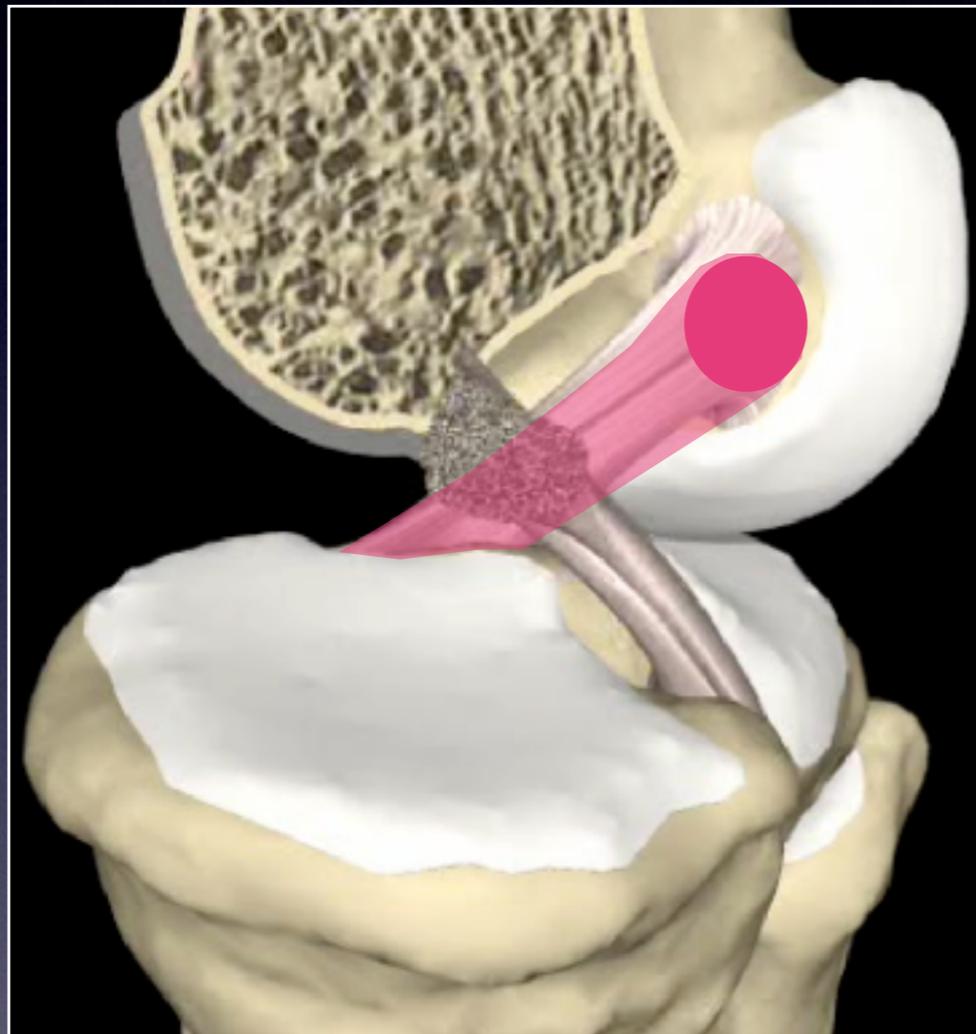
# Anatomie



## Tunnel Fémoral

ISOMETRIQUE

# Anatomie



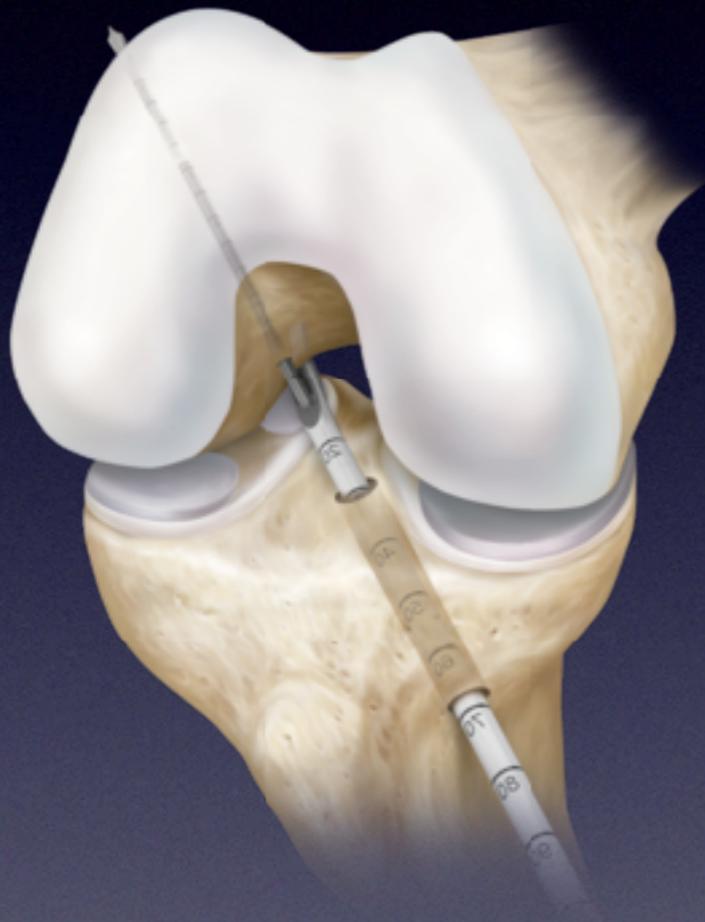
## Tunnel Fémoral

ISOMETRIQUE

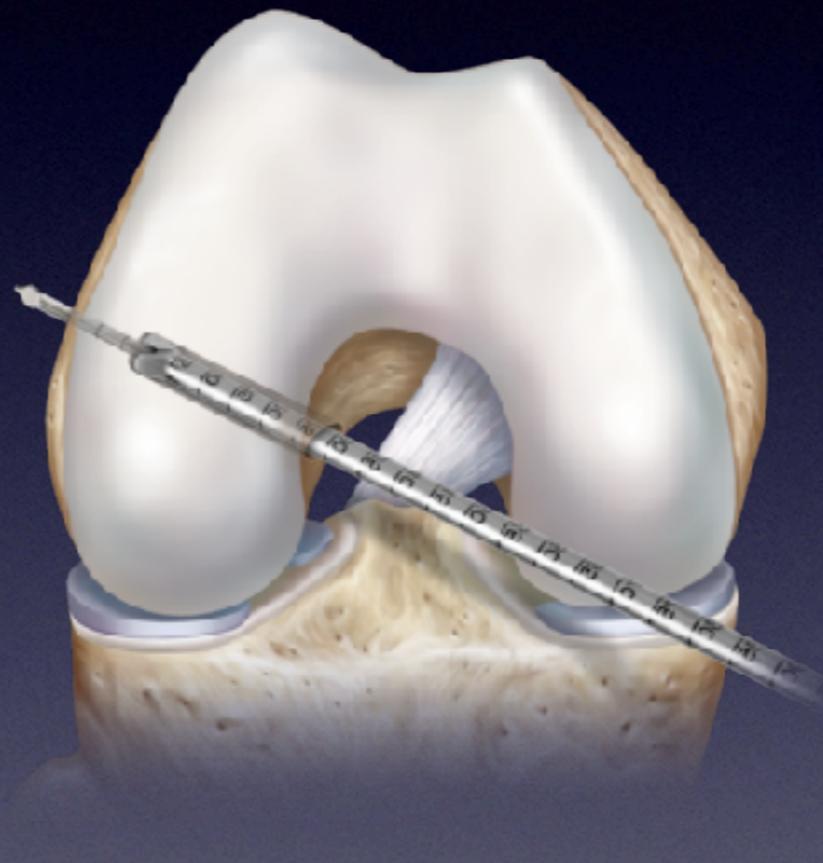
ANATOMIQUE

Améliorer la stabilité rotatoire

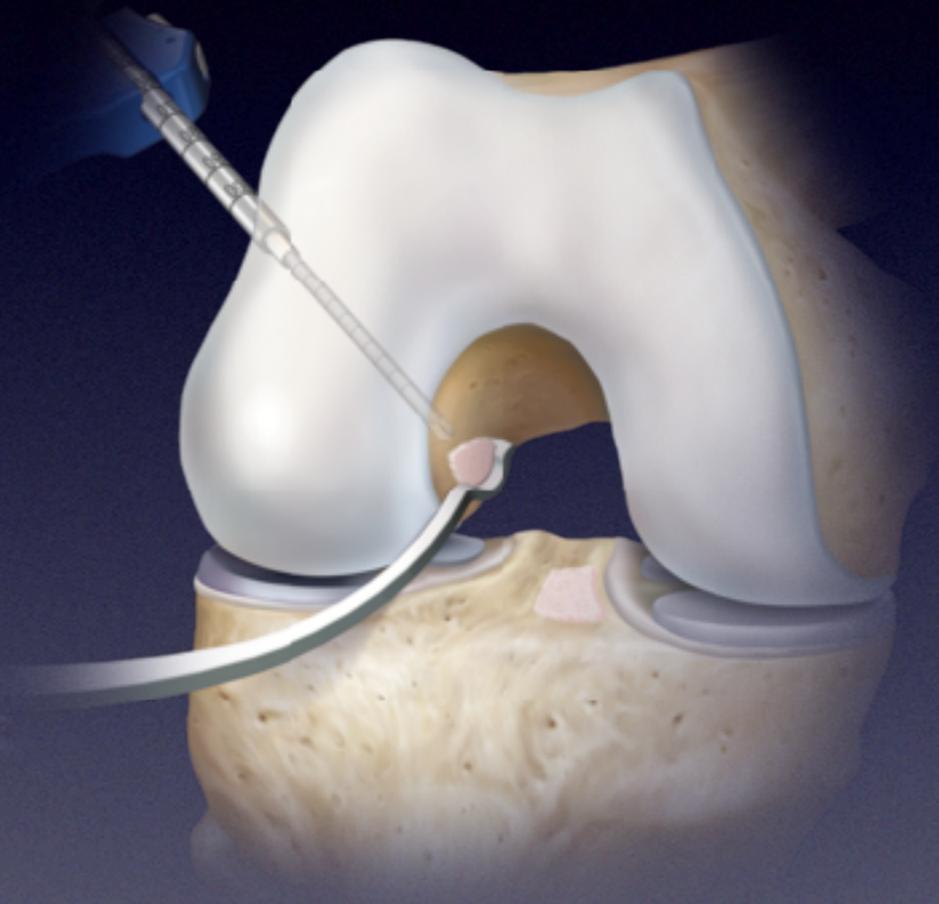
# Technique Anatomique



Trans-Tibial



Antéro-Médial



Dehors en Dedans

Plus agressive

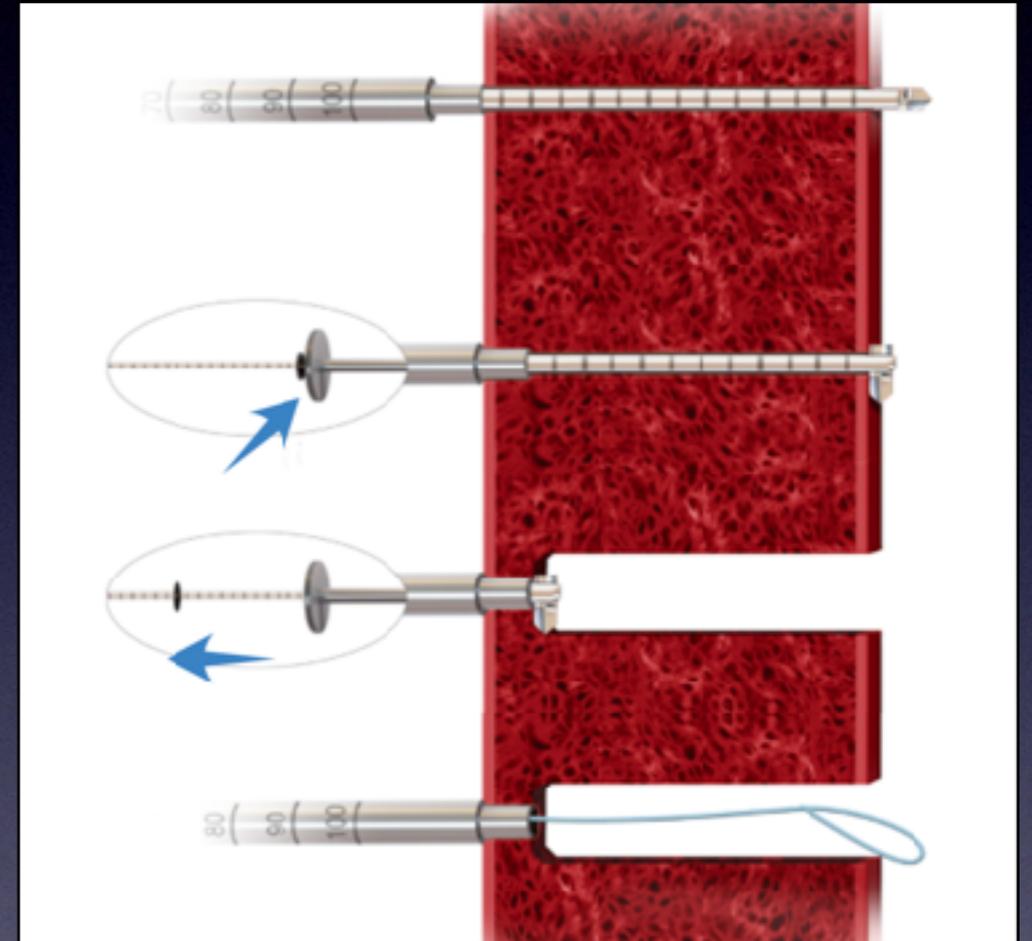
# Nouvelle Instrumentation

## Tunnel Fémoral Anatomique Rétrograde



Tunnel rétrograde

# Nouvelle Instrumentation



Tunnel rétrograde

# Nouvelle Technique

Grefe courte



I seul tendon prélevé

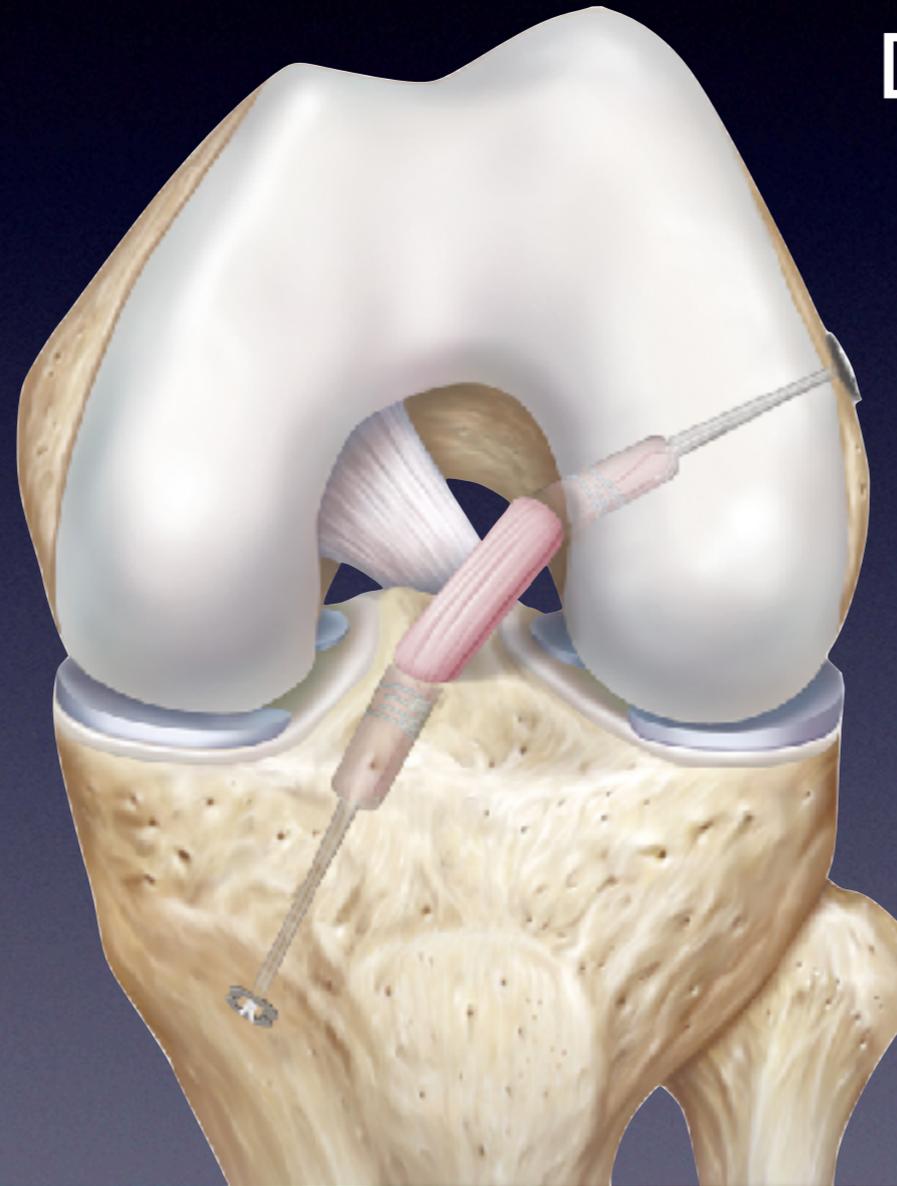


Le Demi Tendineux

Deux tunnels borgnes



Préservation du stock osseux



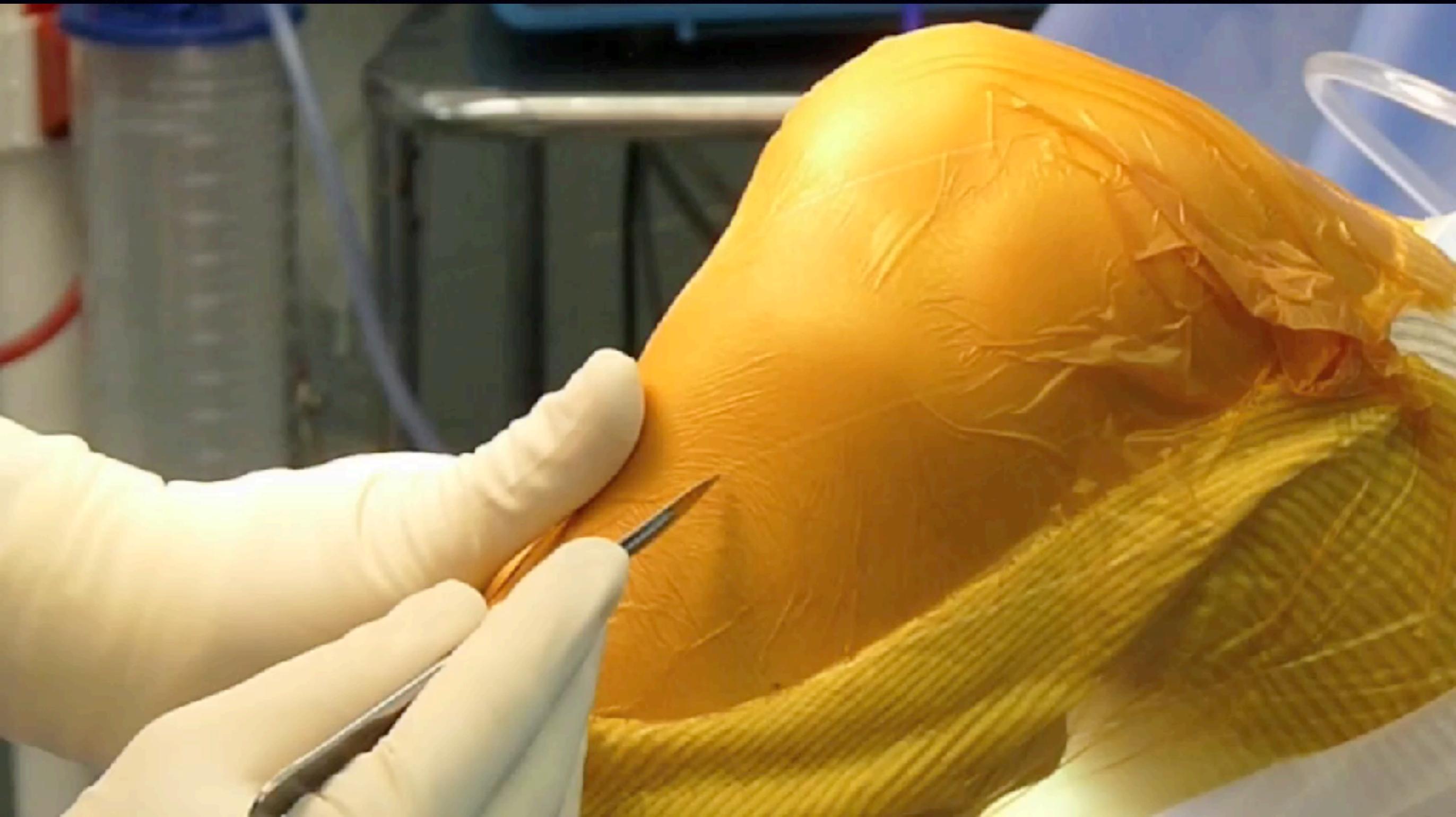
DT4

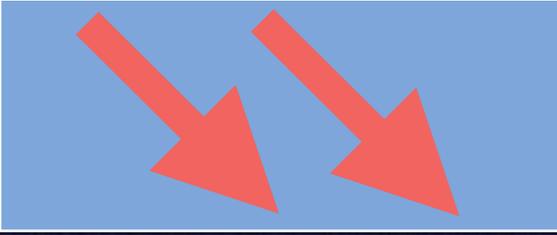
All Inside

# Nouvelle Technique



# Nouvelle Technique



|  |  |   |
|--|--|---|
|  | Agression Minimale des tissus          | Chirurgie simplifiée et rapide          |
|  | Os / Prélèvement                       | 30 min / Ambulatoire                    |
|  | Inflammations<br>Saignement / Douleurs | Temps de garrot<br>Faiblesse musculaire |

LCA classique



**Suites rapides**  
Reprise des activités  
entre 1 semaine et 1 mois

**Rééducation**  
Plus douce  
Moins agressive

# 4 semaines post-op



# Approche

Moins invasive

Plus anatomique



Réduction de la  
morbidité opératoire



Rétablissement  
de l'anatomie

Suites Opératoires

Amélioration des résultats

court terme

long terme



# Indications

Chirurgie moins lourde et plus sûre

Evolution

Limite d'âge

Profil sportif

Au delà de 40 ans

Pivot occasionnel

**Patient 1**

Femme 38 ans  
Ski occasionnel

**Patient 2**

Homme 52 ans  
Très Sportif  
Ski Tennis

# Réparation du LCA

Traitement conservateur

# Réinsertion fémorale du LCA



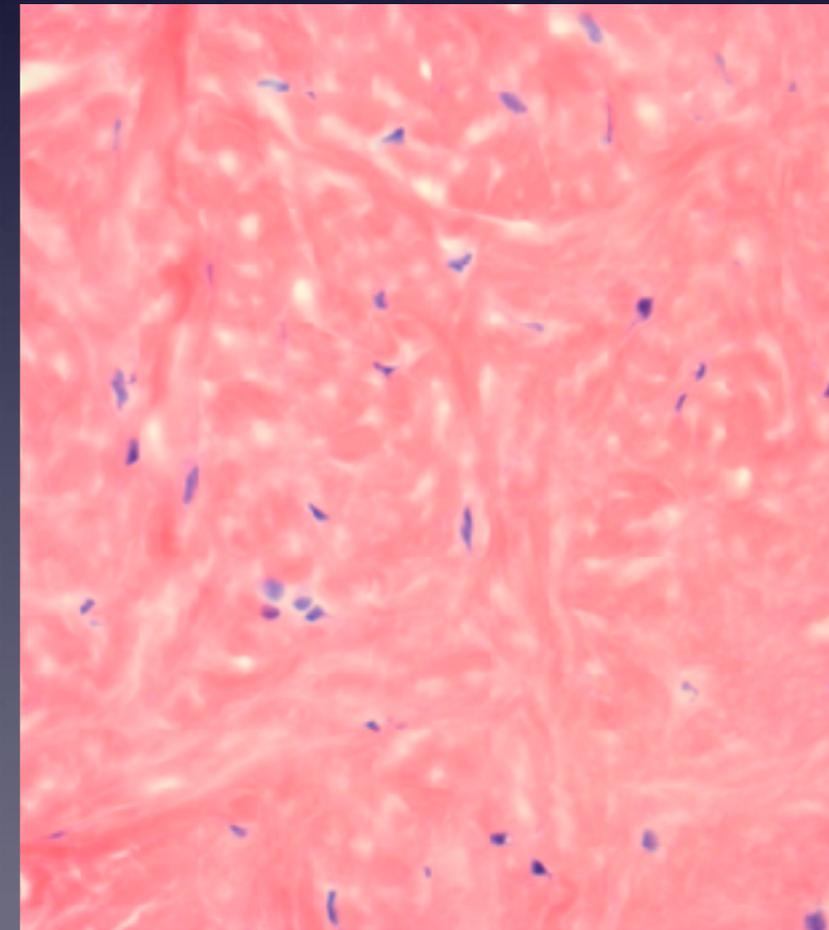
## Intrinsic Healing Response of the Human Anterior Cruciate Ligament: An Histological Study of Reattached ACL Remnants

Duy Tan Nguyen,<sup>1</sup> Tamara H. Ramwadhoebe,<sup>2</sup> Cor P. van der Hart,<sup>3</sup> Leendert Blankevoort,<sup>1</sup> Paul Peter Tak,<sup>2</sup> Cornelis Niek van Dijk<sup>1</sup>

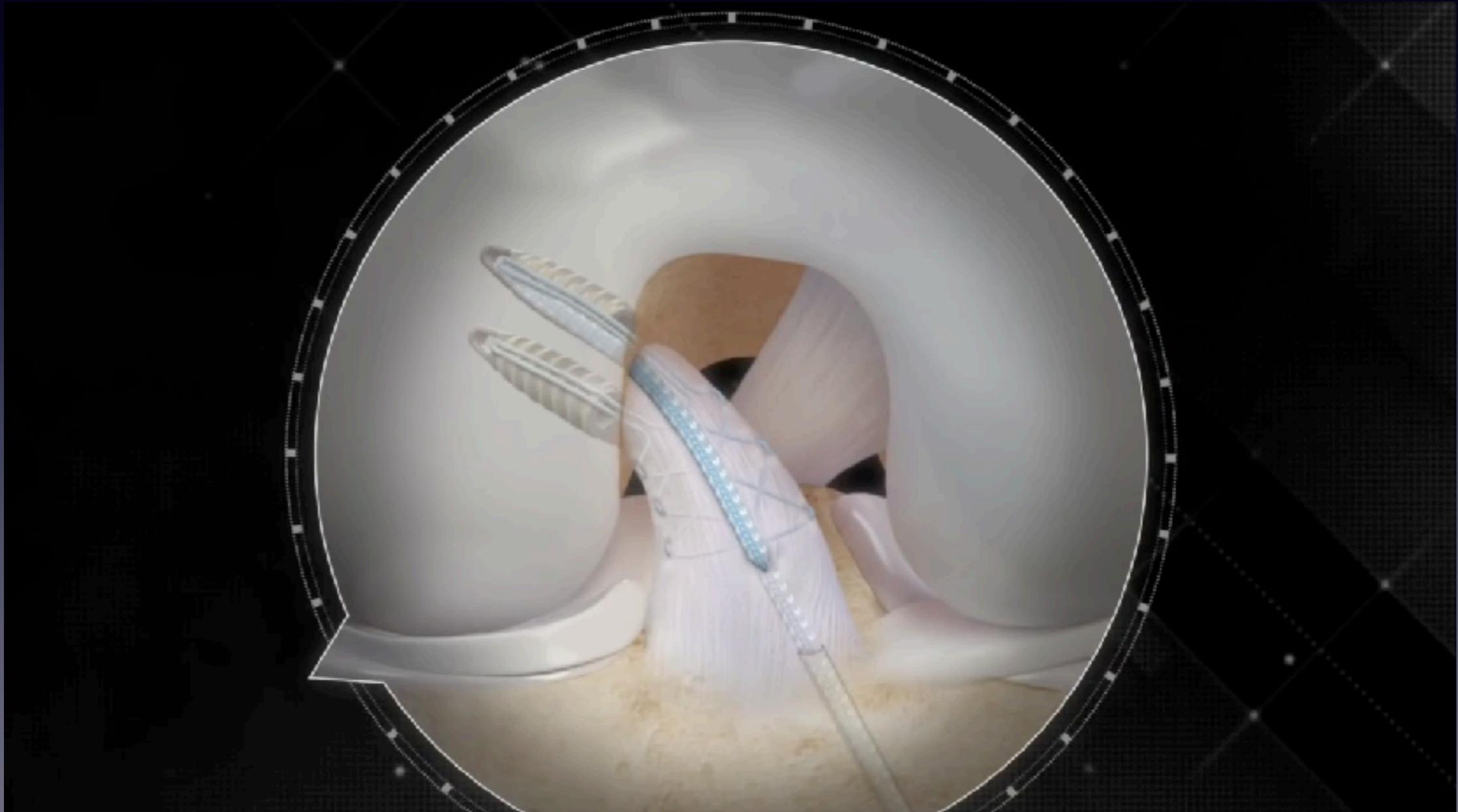
LCA proximal  
Capacités de cicatrisation  
Similaires au LLI

Se rapprocher  
au mieux de l'anatomie

Technique  
séduisante ,conservatrice,  
reproductible



# Réinsertion fémorale du LCA



# Réinsertion fémorale du LCA

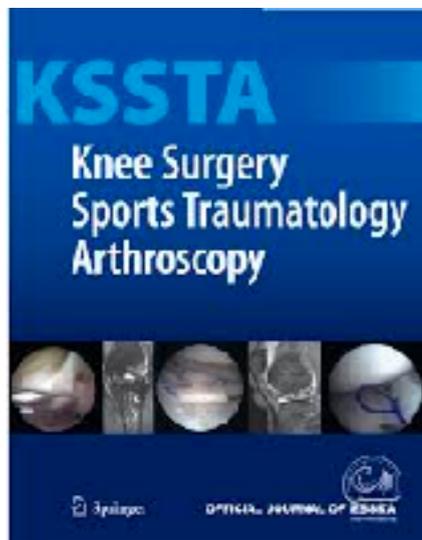


**ACL Repair With Suture Ligament Augmentation Is Associated With a High Failure Rate Among Adolescent Patients**

***Cagliari AG, Carry PM, Parikh HB, Traver JL, Albright JC***  
***Mars 2019***

- Résultats:
  - 48,8% de récurrence pour les réinsertions chez l'adolescent à 3 ans de recul (vs 4,7% dans les reconstructions)

# Réinsertion fémorale du LCA



**Arthroscopic Primary Repair of Proximal ACL Tears: Outcomes of the first 56 consecutive patients and the role of additional internal bracing**

***Jonkergouw A, Di Felice GS***

***Janvier 2019***

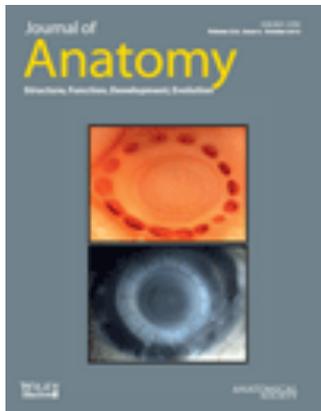
- Bon résultats selon les auteurs
- 14% d'échec à 3,2 ans de recul

# Réinsertion fémorale du LCA

- Indication reste très rare
- Moins invasif
- Technique qui donne de moins bons résultats que la ligamentoplastie

# Le Ligament Antéro- Latéral

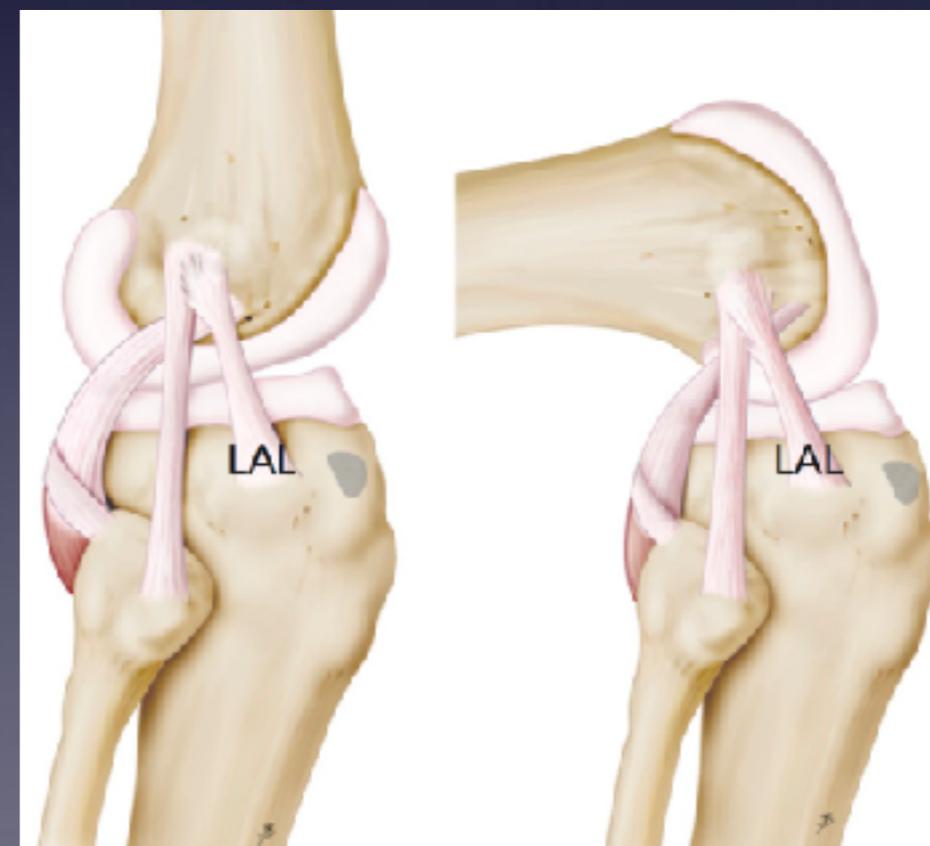
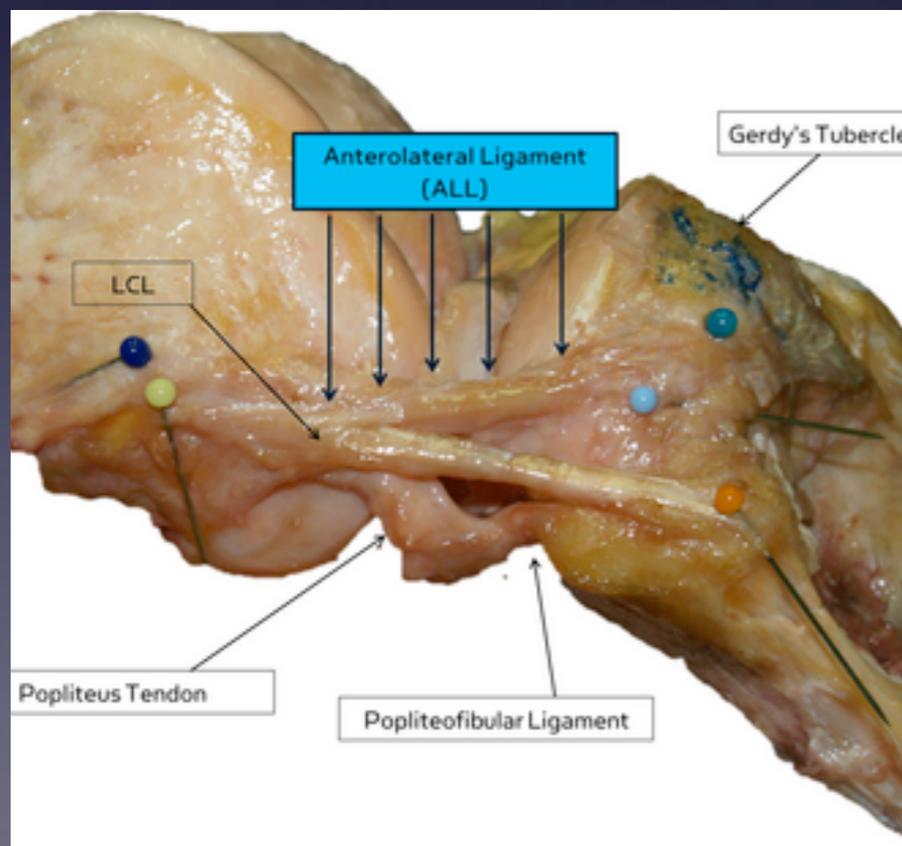
# Le Ligament Antéro-Latéral



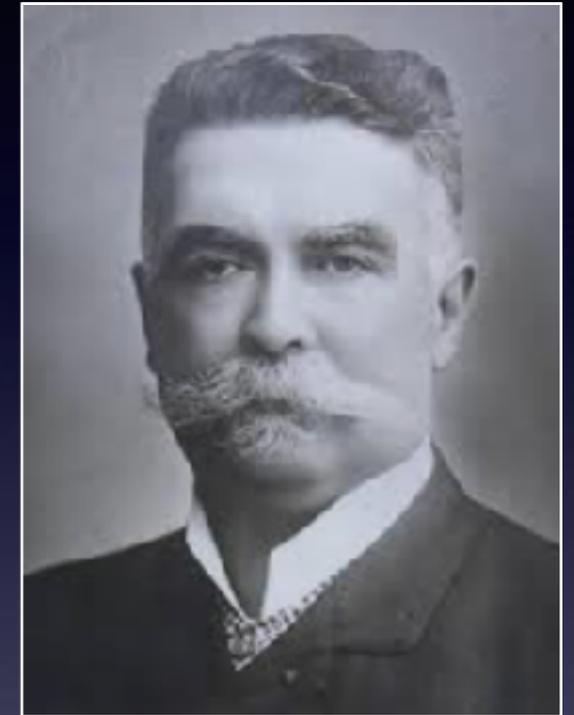
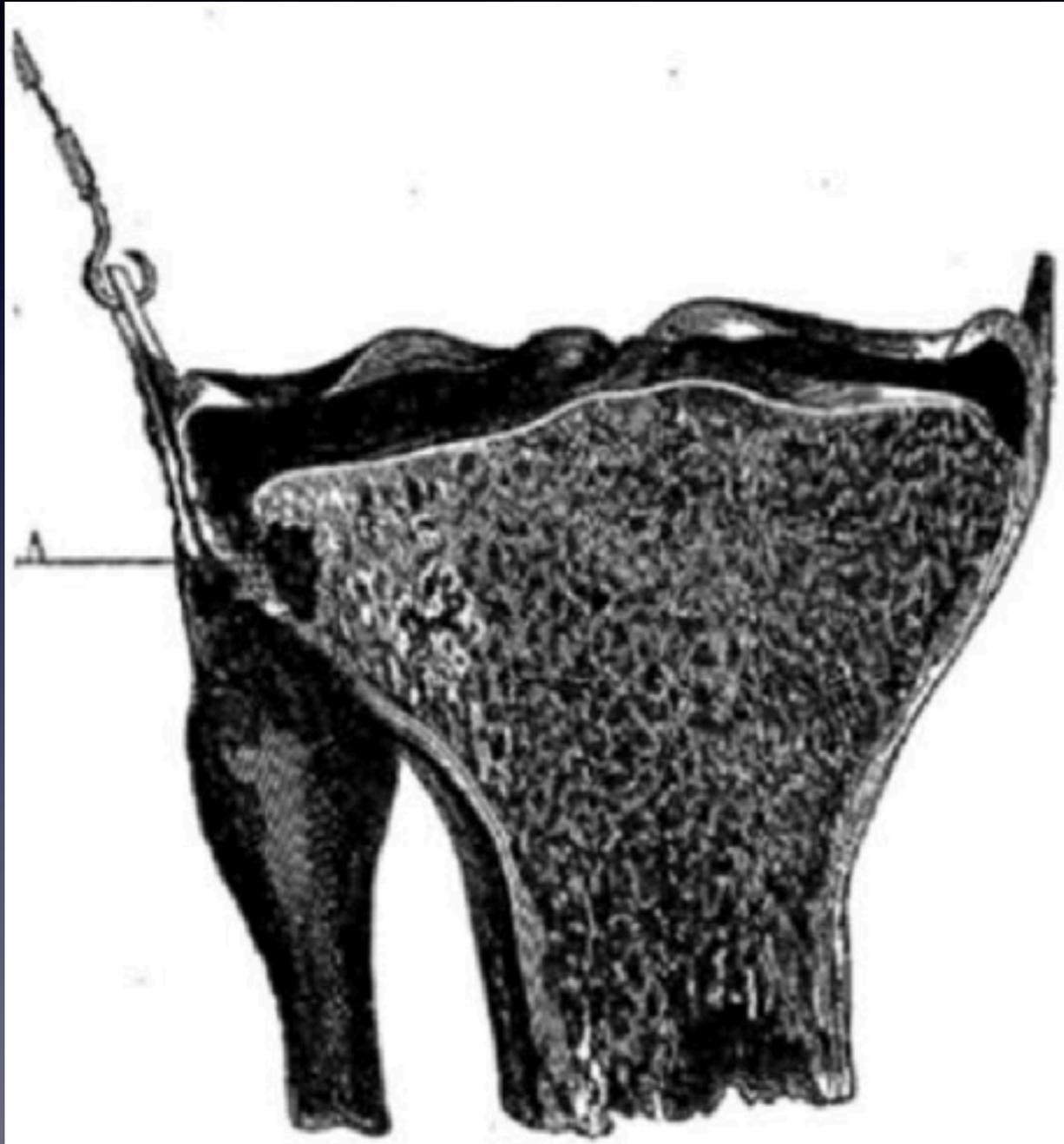
## Anatomy of the anterolateral ligament of the knee

Steven Claes<sup>1,\*</sup>, Evie Vereecke<sup>2</sup>, Michael Maes<sup>1</sup>, Jan Victor<sup>3</sup>, Peter Verdonk<sup>4</sup> and Johan Bellemans<sup>1</sup>

Issue \_\_\_\_\_



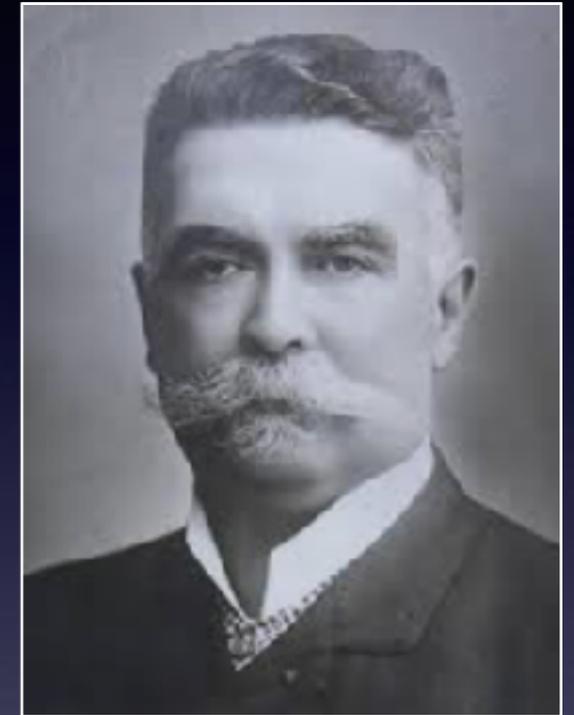
# Le Ligament Antéro-Latéral



Segond 1879

Bande fibreuse résistante  
mise sous tension extreme  
lors de la rotation interne du genou

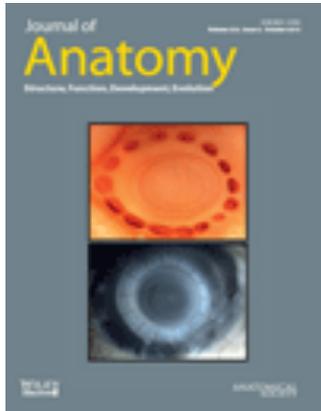
# Le Ligament Antéro-Latéral



Segond 1879

Bande fibreuse résistante  
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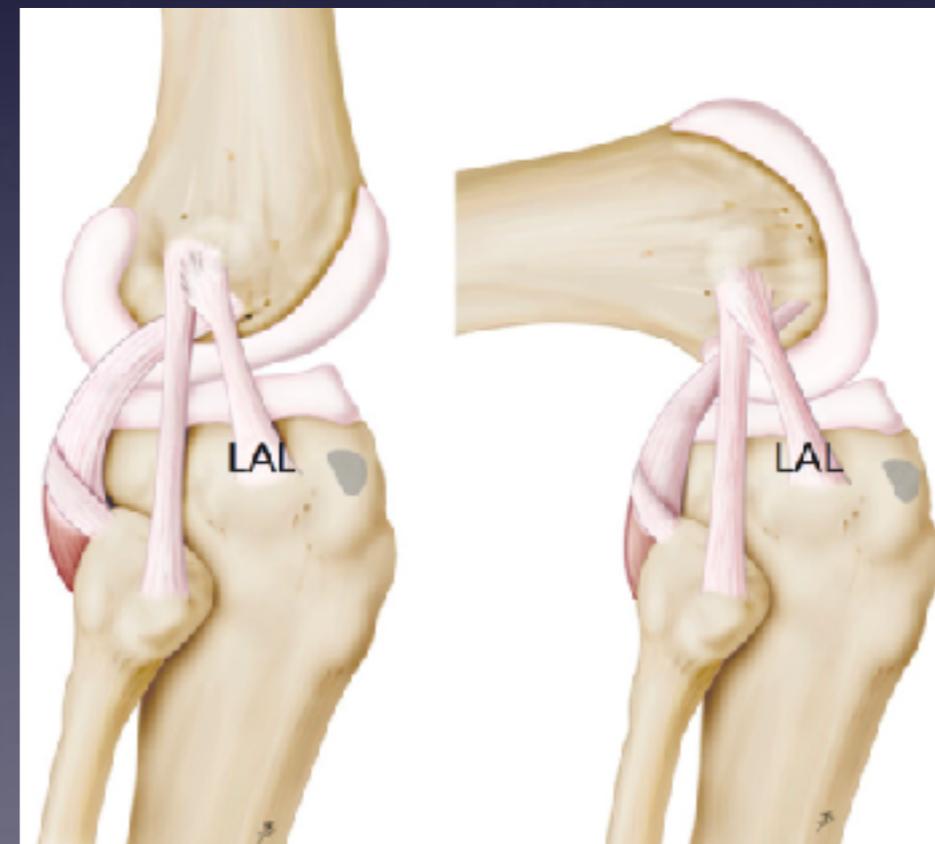
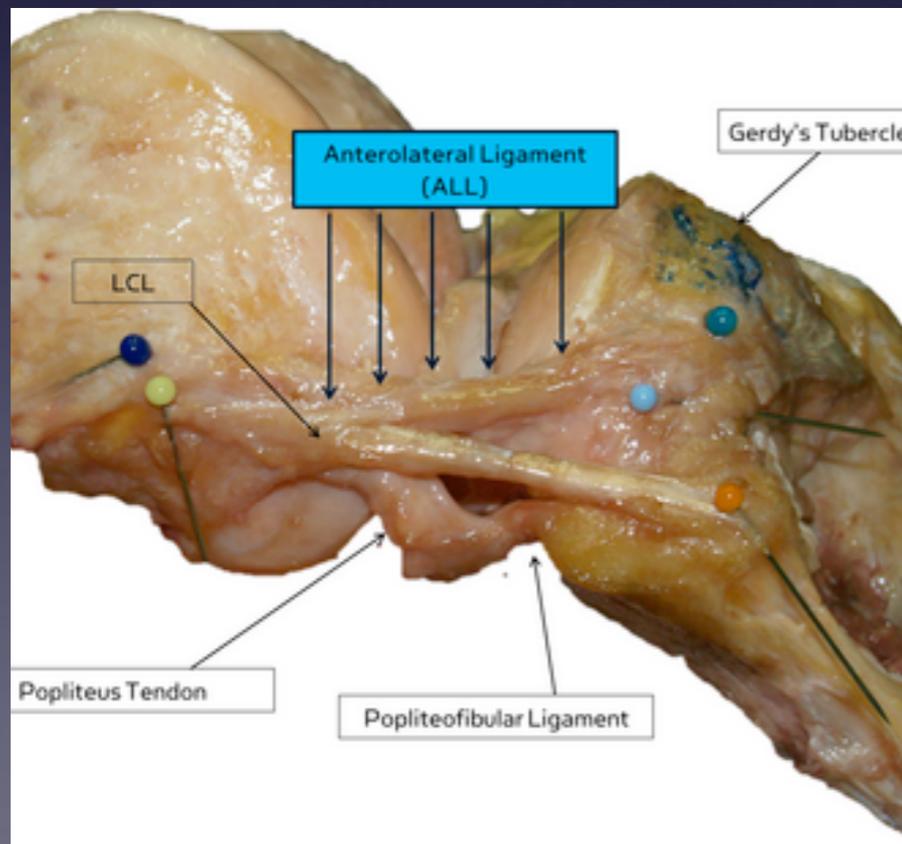
# Le Ligament Antéro-Latéral



## Anatomy of the anterolateral ligament of the knee

Steven Claes<sup>1,\*</sup>, Evie Vereecke<sup>2</sup>, Michael Maes<sup>1</sup>, Jan Victor<sup>3</sup>, Peter Verdonk<sup>4</sup> and Johan Bellemans<sup>1</sup>

Issue \_\_\_\_\_



# Le Ligament Antéro-Latéral



## Anatomy of the anterolateral ligament of the knee

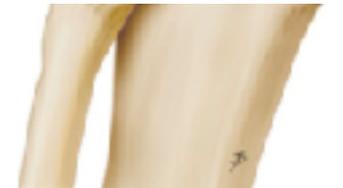
Steven Claes<sup>1,\*</sup>, Evie Vereecke<sup>2</sup>, Michael Issue \_\_\_\_\_

## Résultats par année

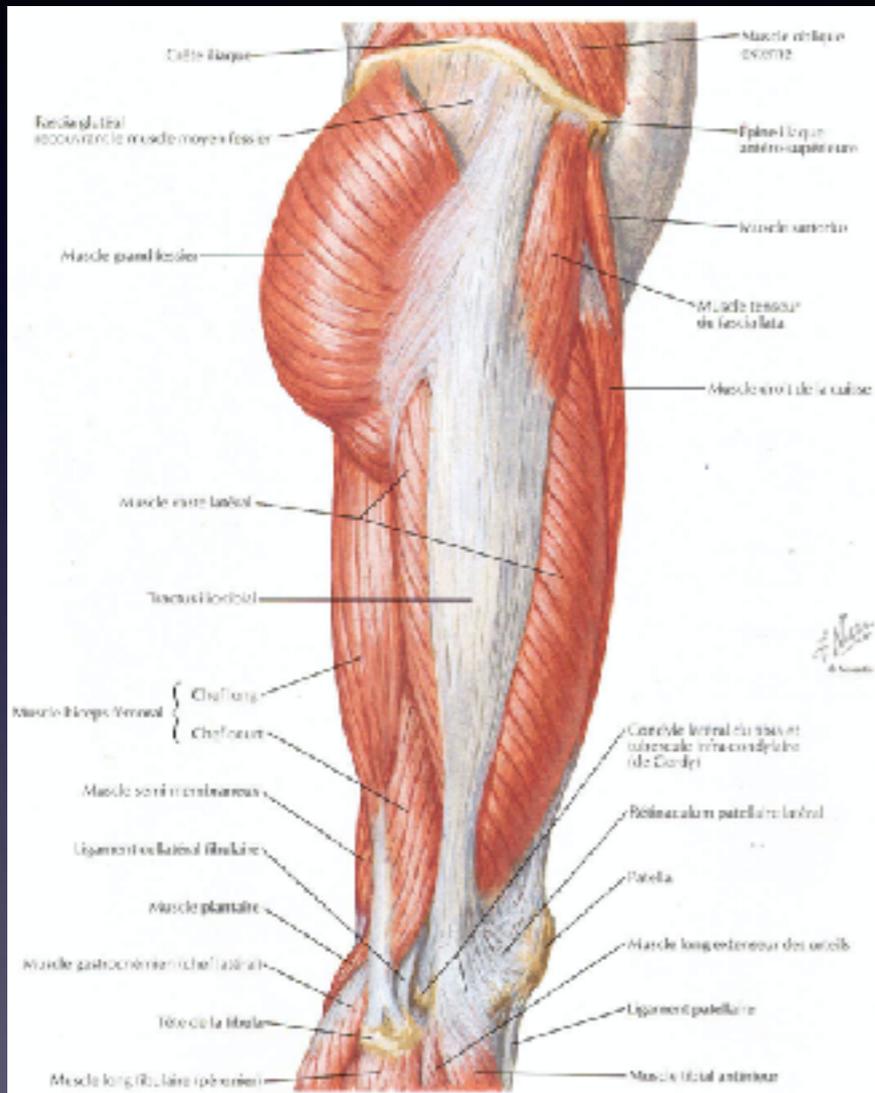


Popliteus Tendon

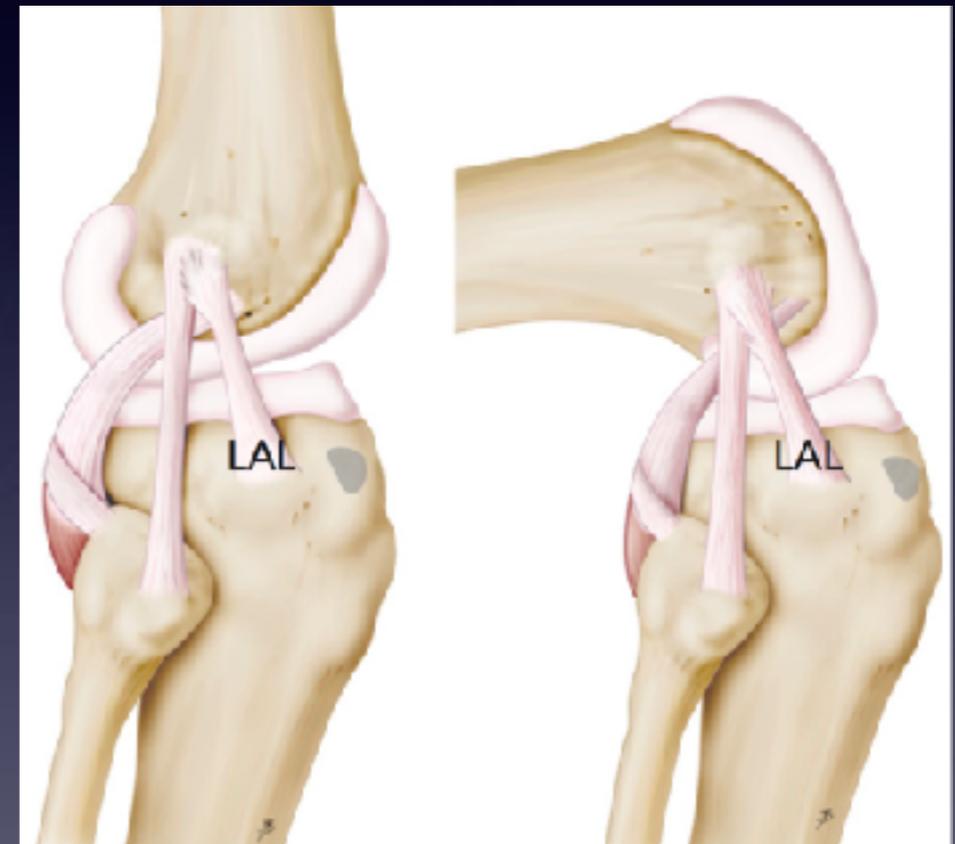
Popliteofibular Ligament



# Le Complexe Antéro-Latéral



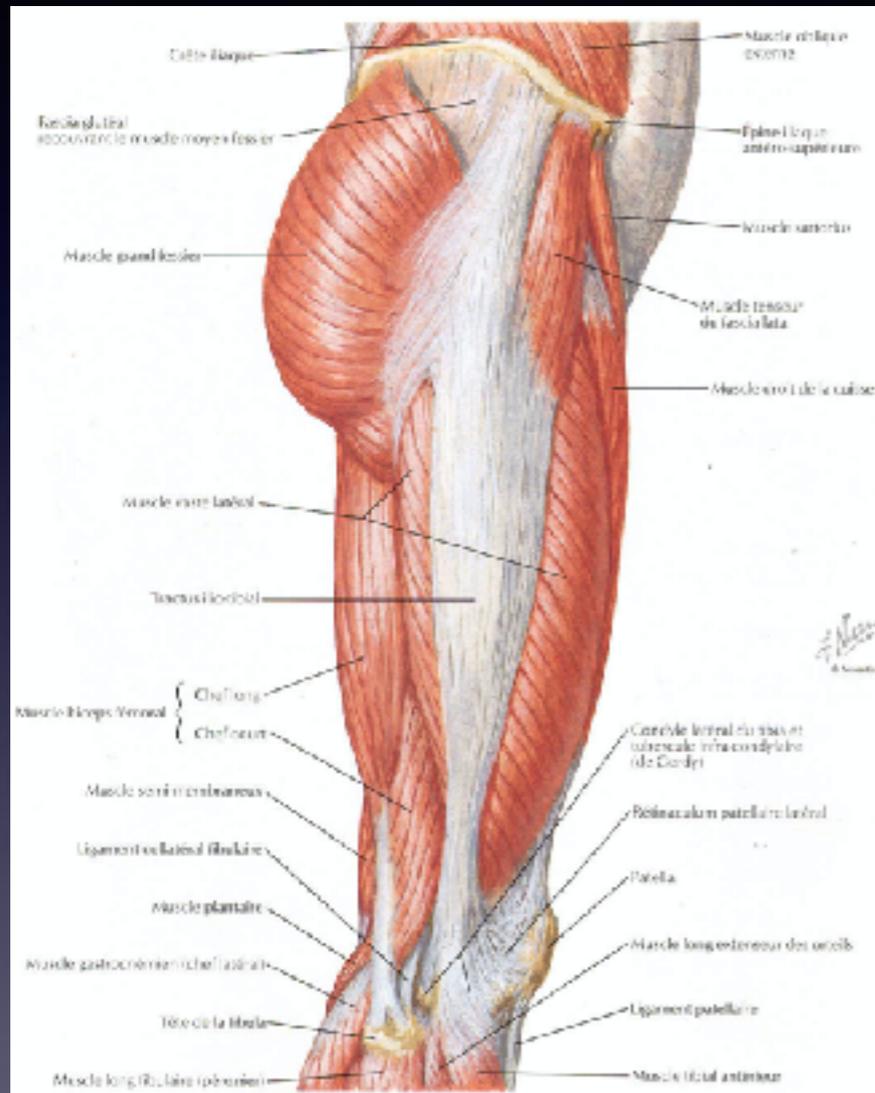
**Vs**



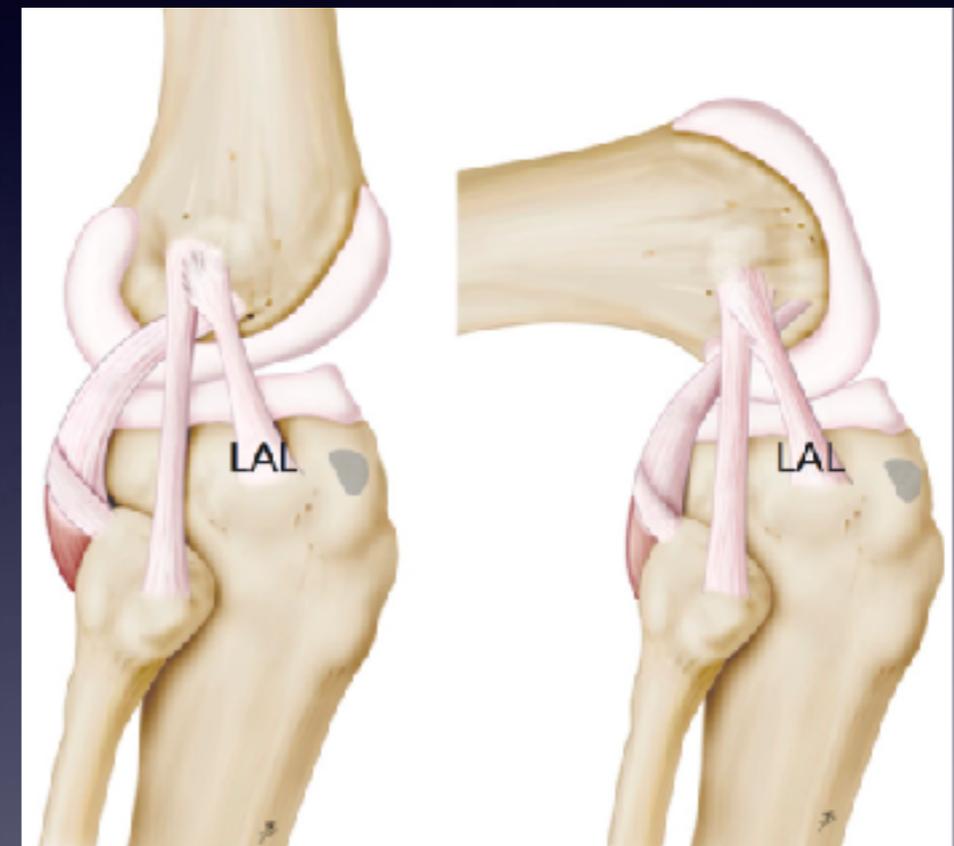
La Bandelette  
ilio-tibiale

Le Ligament  
antéro-latéral

# Le Complexe Antéro-Latéral



+



La Bandelette  
ilio-tibiale

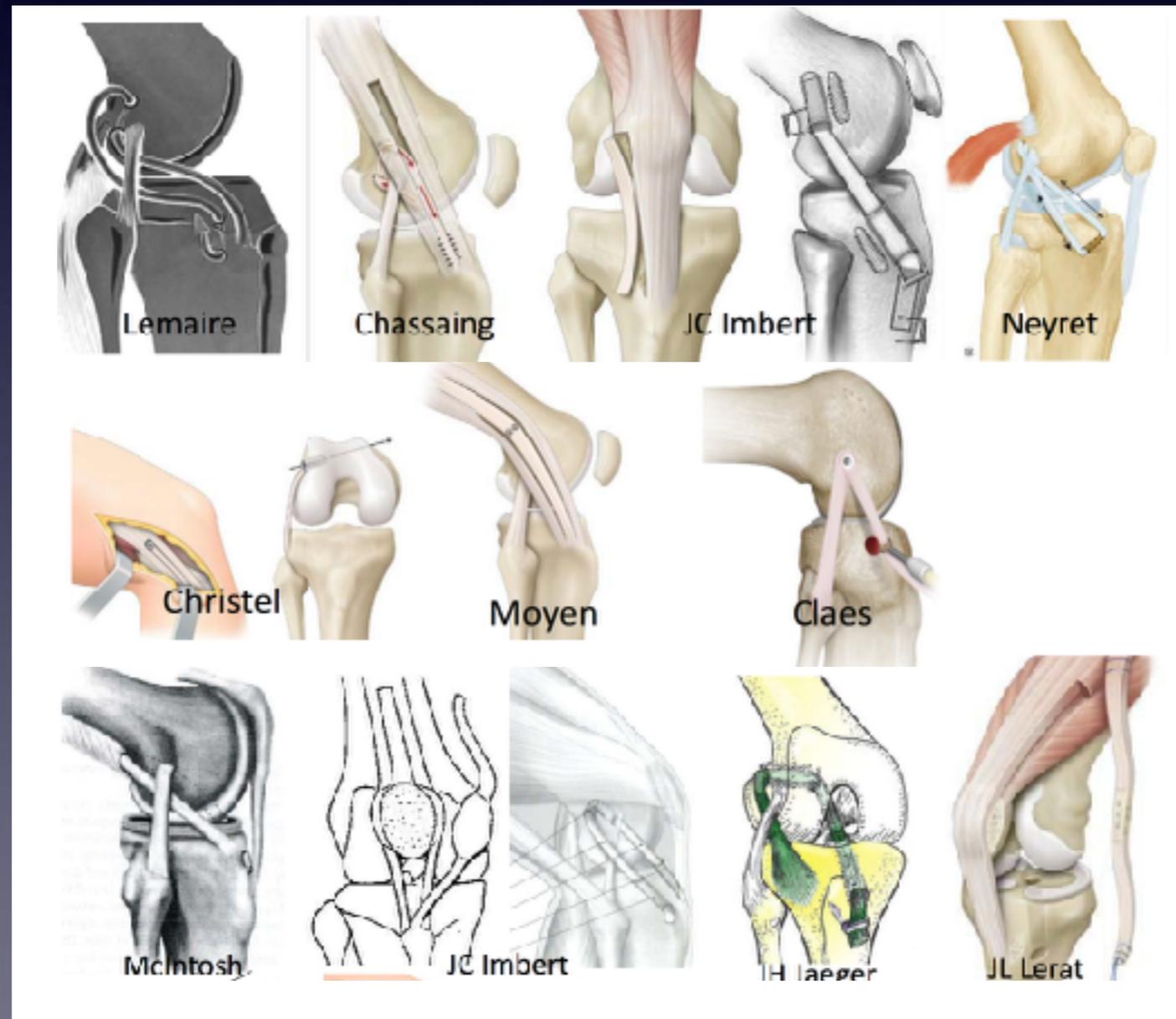
Le Ligament  
antéro-latéral

# Le Complexe Antéro-Latéral



# Le Complexe Antéro-Latéral

## Les Alternatives Chirurgicales



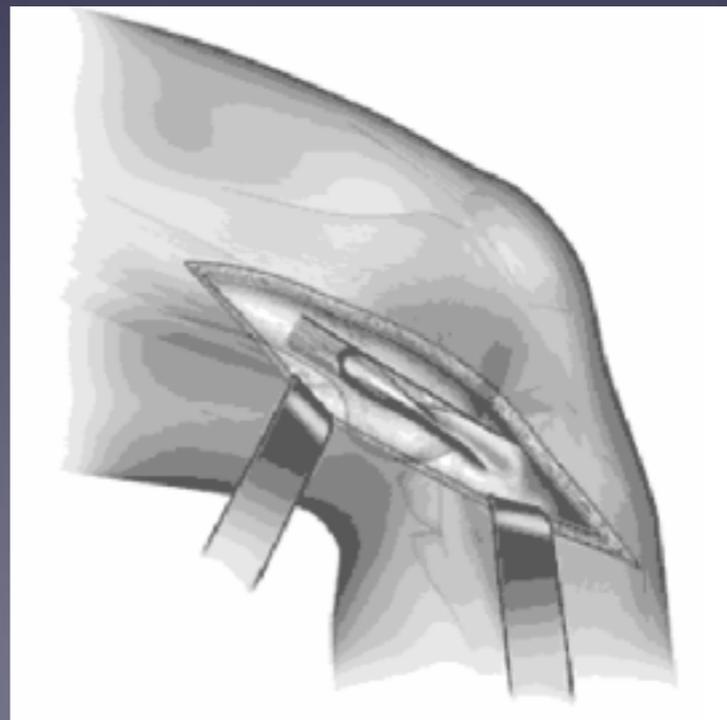
# Le Complexe Antéro-Latéral

Lemaire / Fascia lata



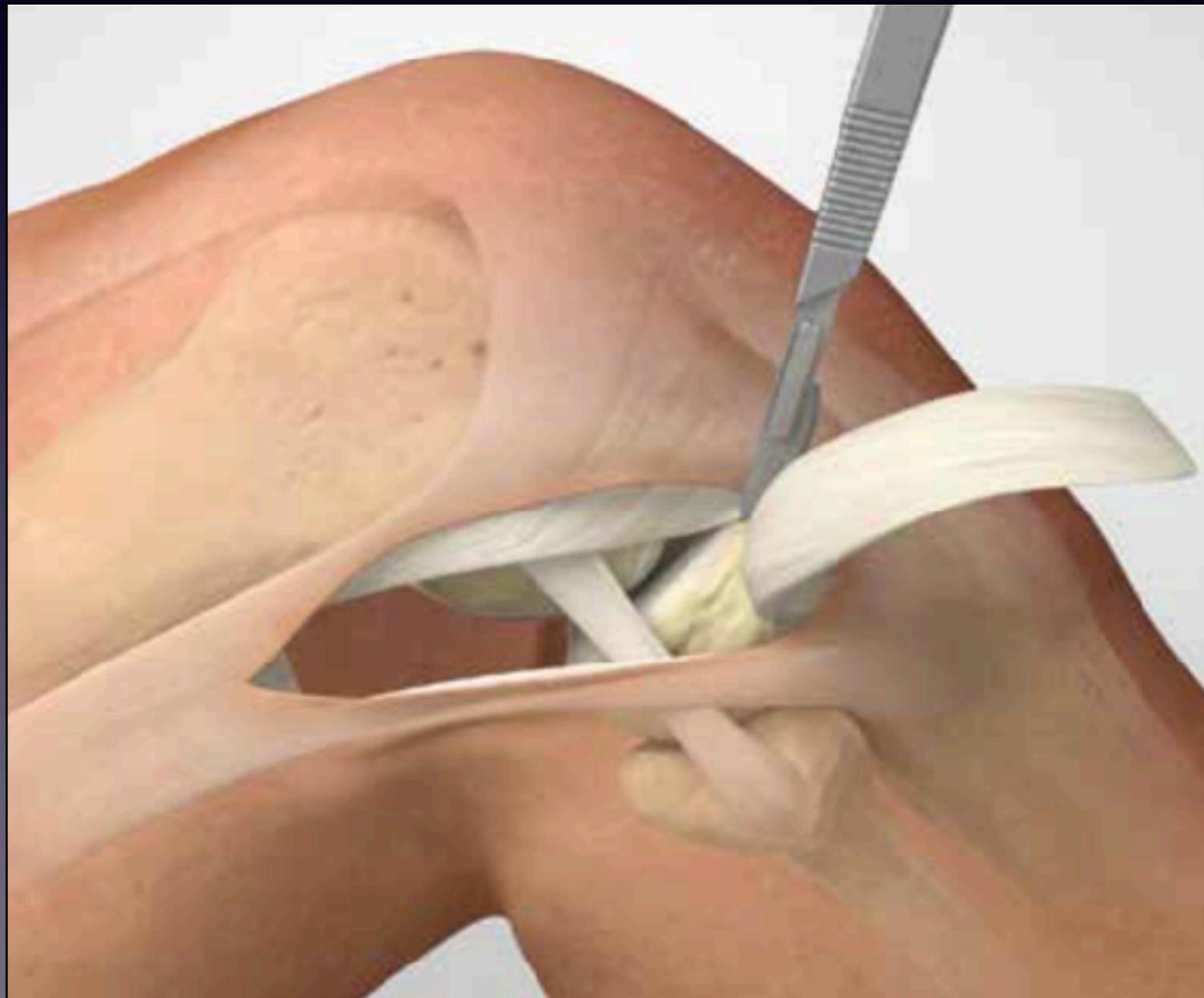
Lemaire 1967

*Ruptures anciennes du ligament croisé  
antérieur. Fréquence-Clinique-  
Traitement. J. Chir., 93,3, 311-320, 1967*



# Le Complexe Antéro-Latéral

Lemaire / Fascia lata



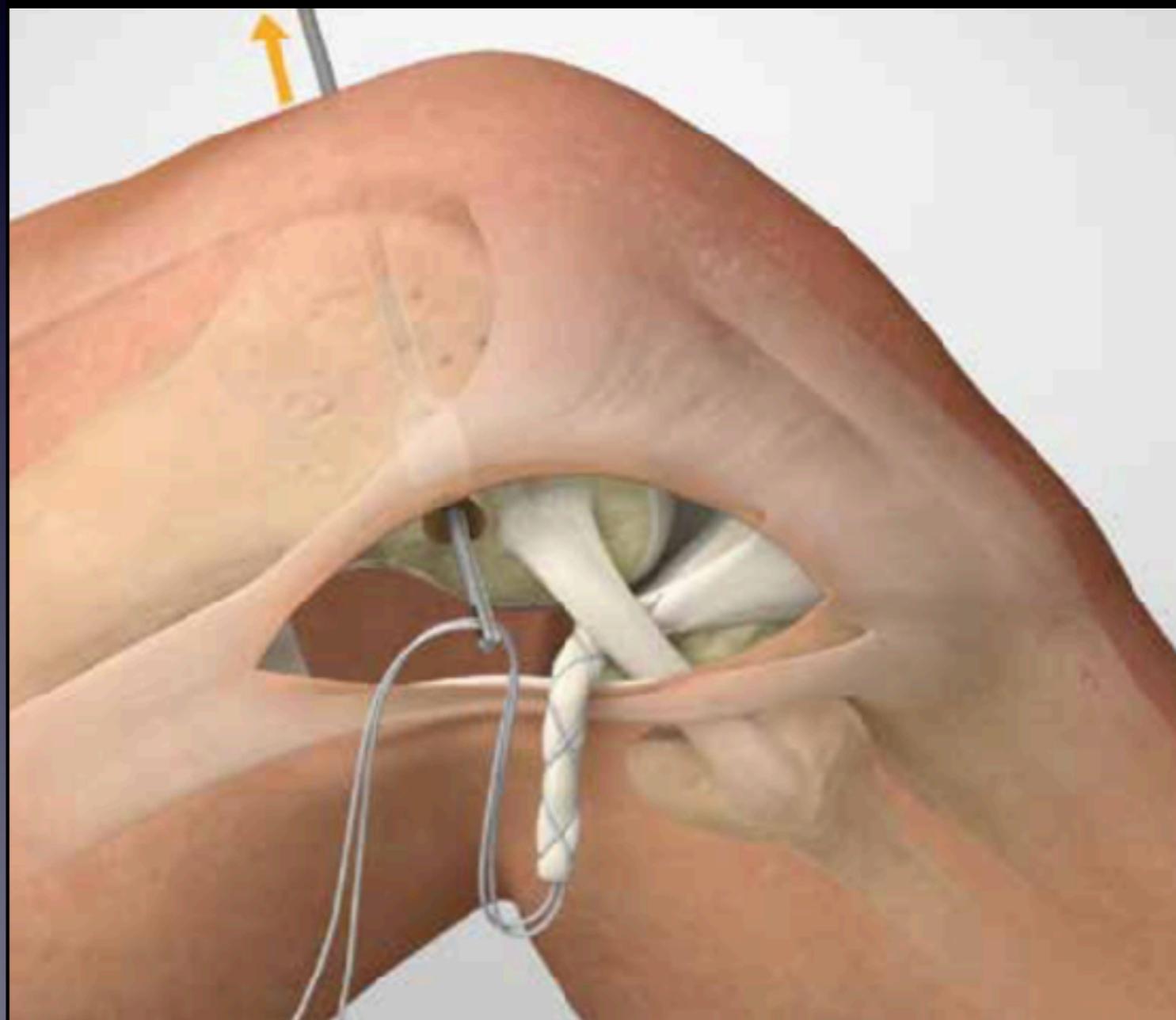
# Le Complexe Antéro-Latéral

Lemaire / Fascia lata



# Le Complexe Antéro-Latéral

Lemaire / Fascia lata



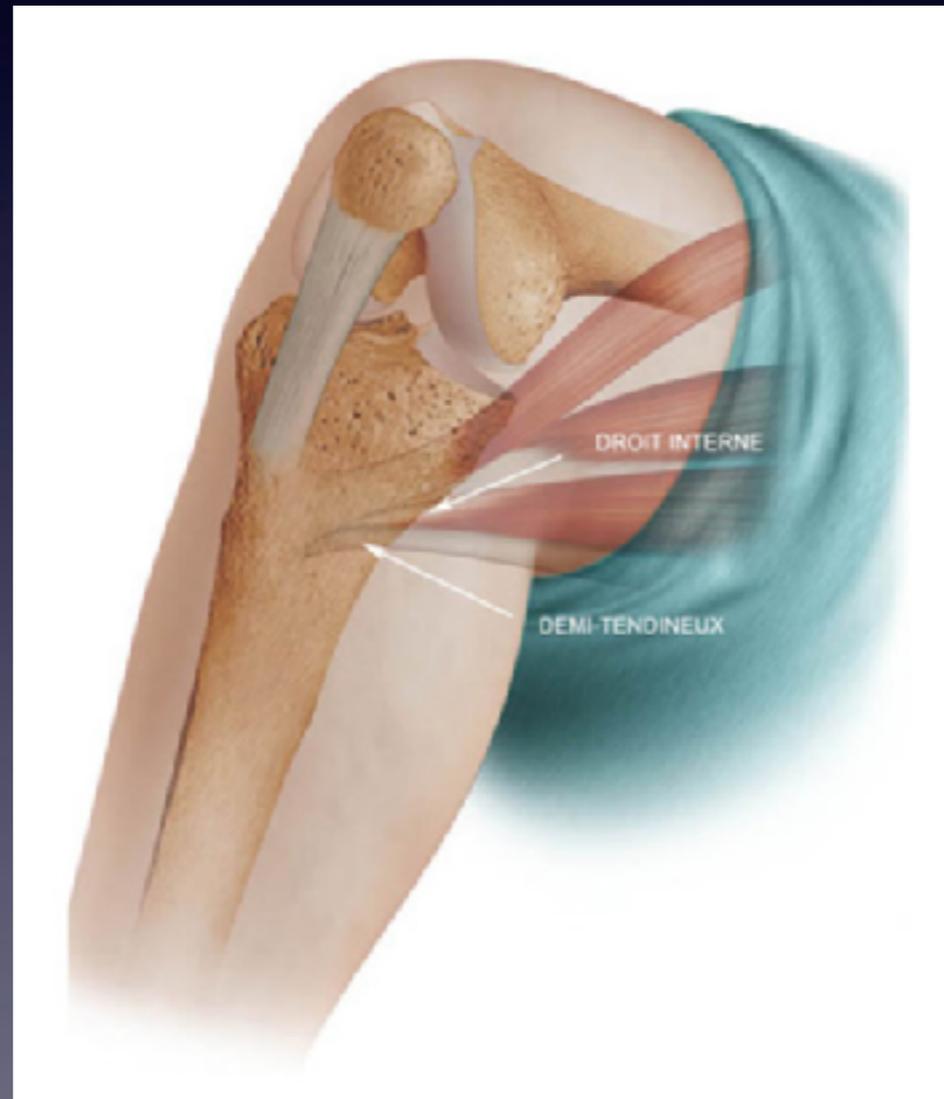
# Le Complexe Antéro-Latéral

Lemaire / Fascia lata



# Le Complexe Antéro-Latéral

## Plastie LAL / Ischio-jambiers



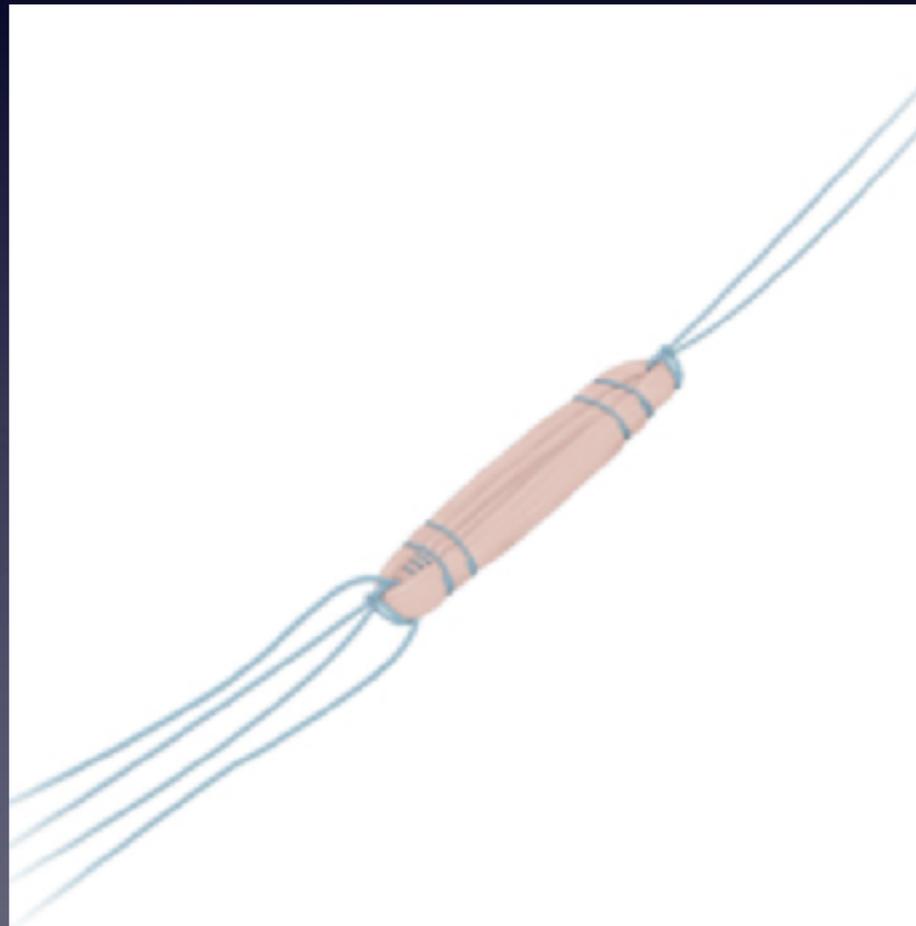
# Le Complexe Antéro-Latéral

Plastie LAL / Ischio-jambiers



# Le Complexe Antéro-Latéral

Plastie LAL / Ischio-jambiers



# Le Complexe Antéro-Latéral

Plastie LAL / Ischio-jambiers



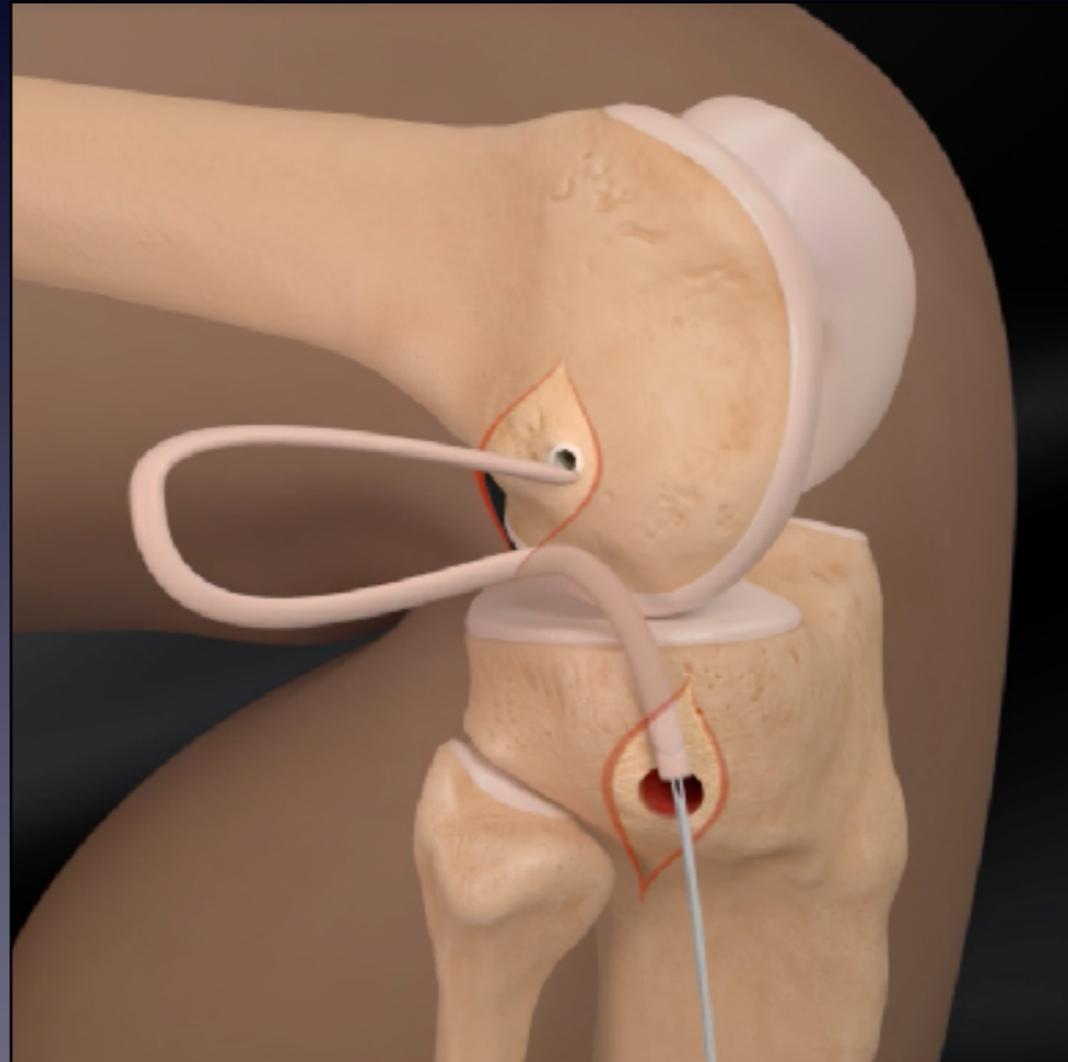
# Le Complexe Antéro-Latéral

Plastie LAL / Ischio-jambiers



# Le Complexe Antéro-Latéral

Plastie LAL / Ischio-jambiers



# Le Complexe Antéro-Latéral

Plastie LAL / Ischio-jambiers



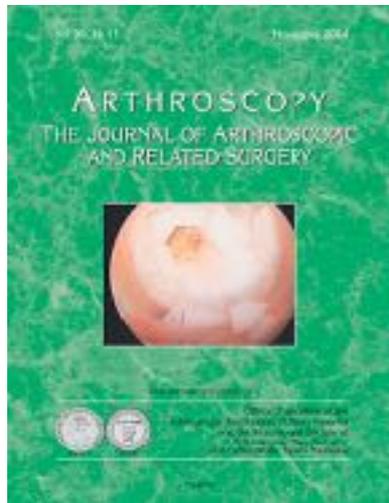
# Le Complexe Antéro-Latéral

Lemaire / Fascia lata

Plastie LAL / Ischio-jambiers



# Le Complexe Antéro-Latéral



A Biomechanical Study of the Role of the Anterolateral Ligament and the Deep Iliotibial Band for Control of a Simulated Pivot Shift With Comparison of Minimally Invasive Extra-articular Anterolateral Tendon Graft Reconstruction Versus Modified Lemaire Reconstruction After Anterior cruciate ligament Reconstruction

Patrick A. Smith, M.D., Dimitri M. Thomas, M.D., Ryan J. Pomajzl, M.D.,  
Jordan A. Bley, B.A., Ferris M. Pfeiffer, Ph.D., and James L. Cook, D.V.M., Ph.D.

2018

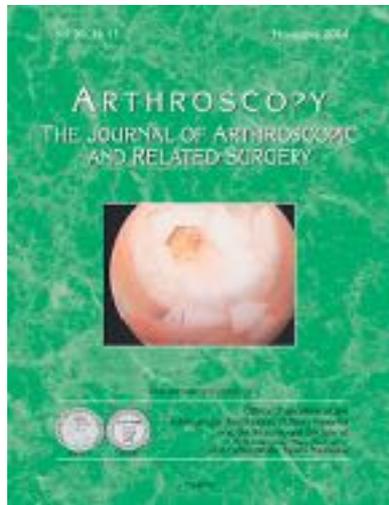
Plastie LAL Vs Retour externe  
Mêmes Résultats biomécaniques



# Le Complexe Antéro-Latéral

## Indications?

# Le Complexe Antéro-Latéral



## Biomechanical Results of Lateral Extra-articular Tenodesis Procedures of the Knee: A Systematic Review



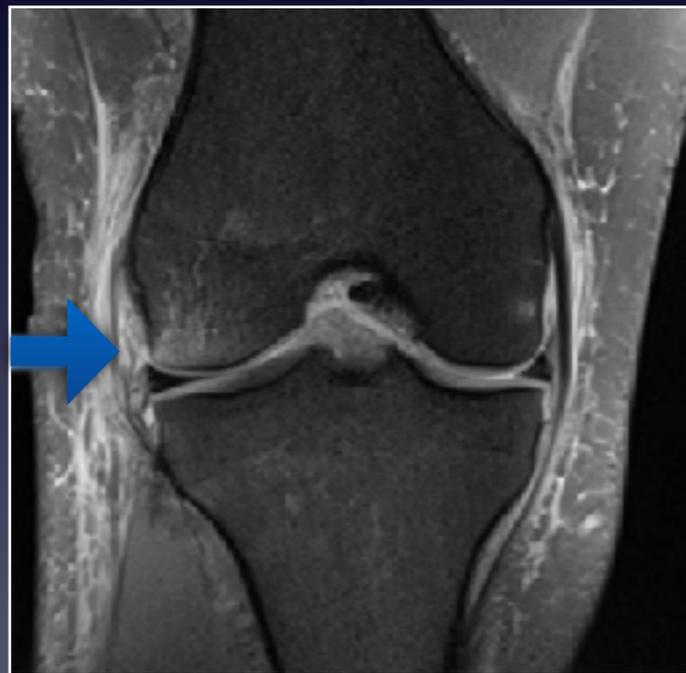
2016

Erik L. Slette, B.A., Jacob D. Mikula, B.S., Jason M. Schon, B.S., Daniel C. Marchetti, B.A.,  
Matthew M. Kheir, B.S., Travis Lee Turnbull, Ph.D., and Robert F. LaPrade, M.D., Ph.D.

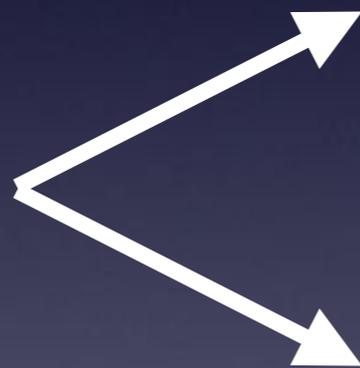
Contraintes excessives du compartiment latéral  
Limitation de la rotation interne



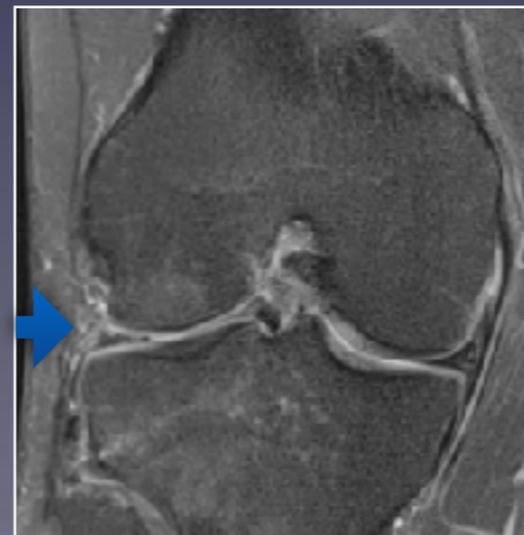
# Le Complexe Antéro-Latéral



Rupture



Cicatrisation



Lésion  
chronique

# Le Complexe Antéro-Latéral

- **Indications:**

- Ressaut rotatoire +++
- Fracture de Segond
- Disparition de la structure à l'IRM
- Reprise  
(Ligamentoplastie itérative)

