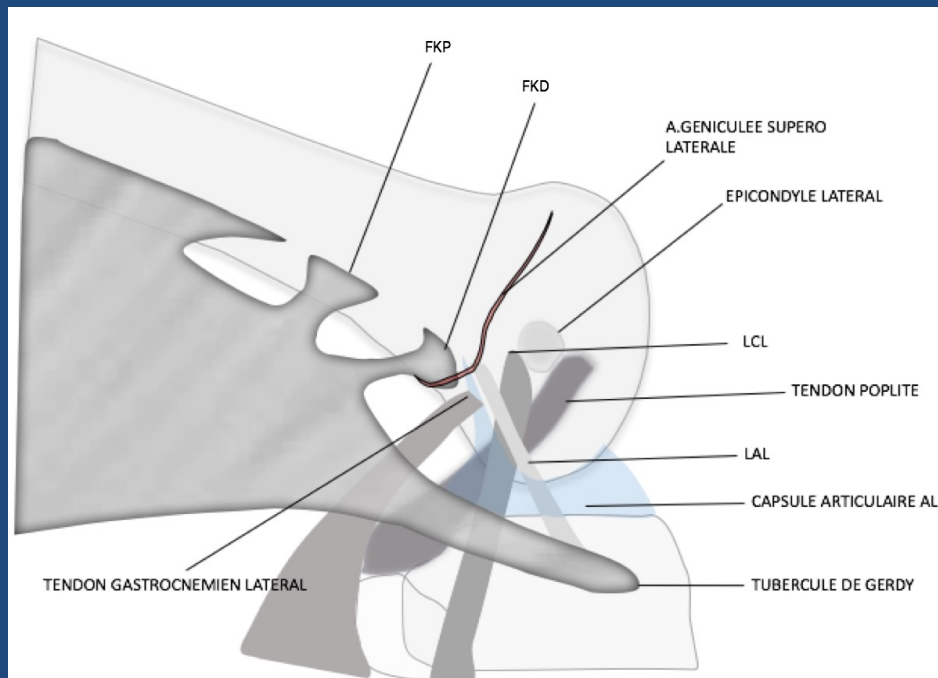


Pr Thomas NERI

MD, PhD



LATERAL EXTRA ARTICULAR TENODESIS





Outline

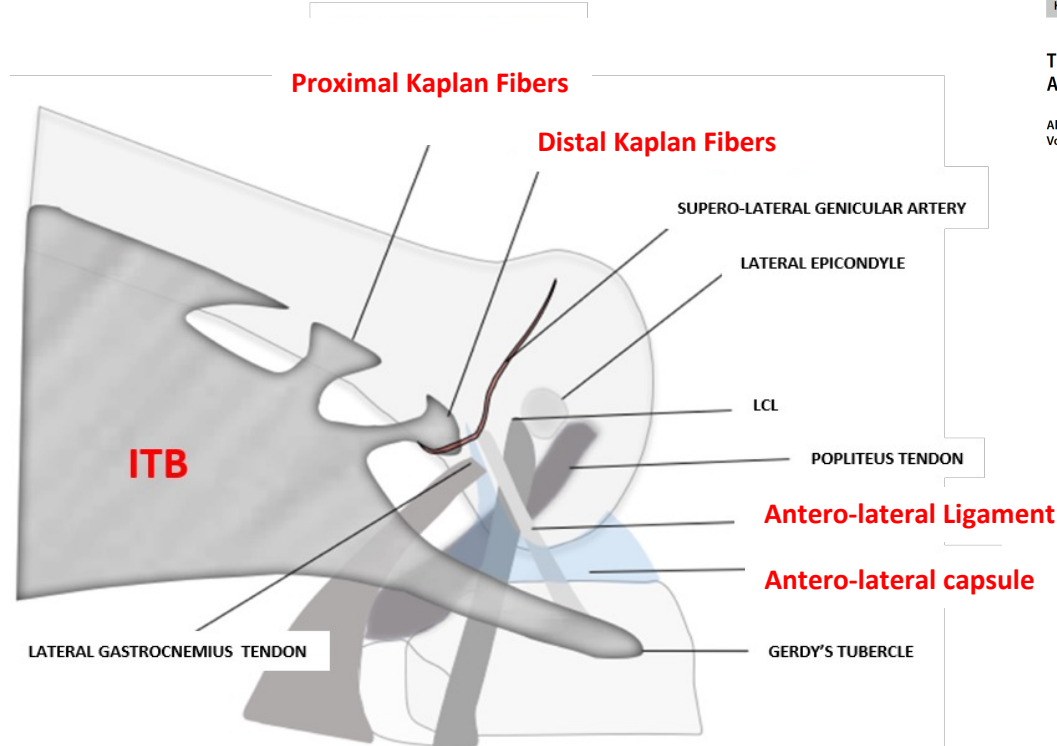
- Introduction
- Modified Ellison
- Modified Lemaire: deep & superf
- Modified Macintosh
- Kaplan fibers reconstruction



Outline

- **Introduction**
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Anatomy of ALC is the key



Knee Surgery, Sports Traumatology, Arthroscopy
<https://doi.org/10.1007/s00167-018-5072-6>

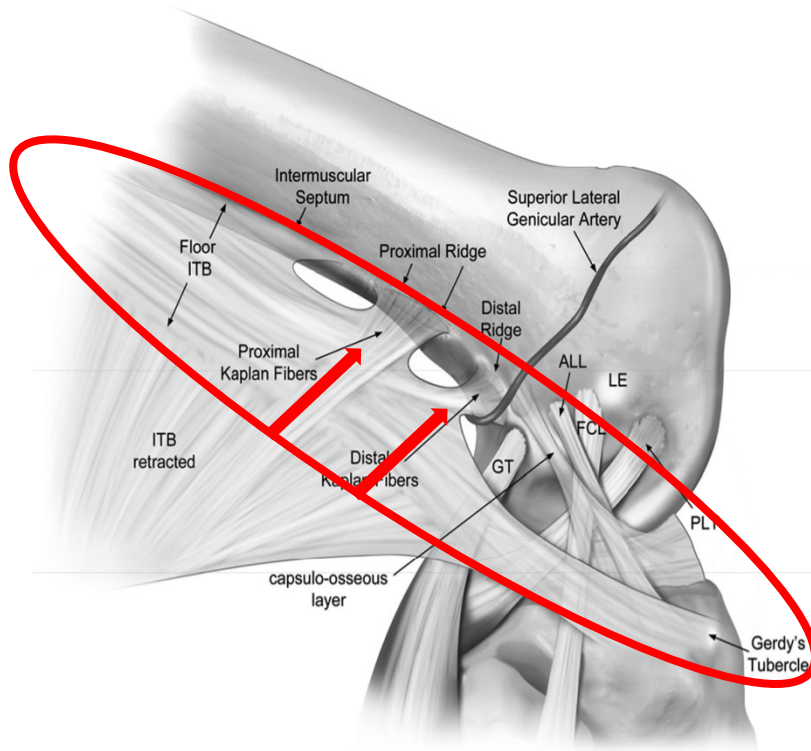
KNEE



The anterolateral complex of the knee: results from the International ALC Consensus Group Meeting

Alan Getgood¹ · Charles Brown² · Timothy Lording³ · Andrew Amis⁴ · Steven Claes⁵ · Andrew Geeslin⁶ · Volker Musahl⁷ on behalf of ALC Consensus Group





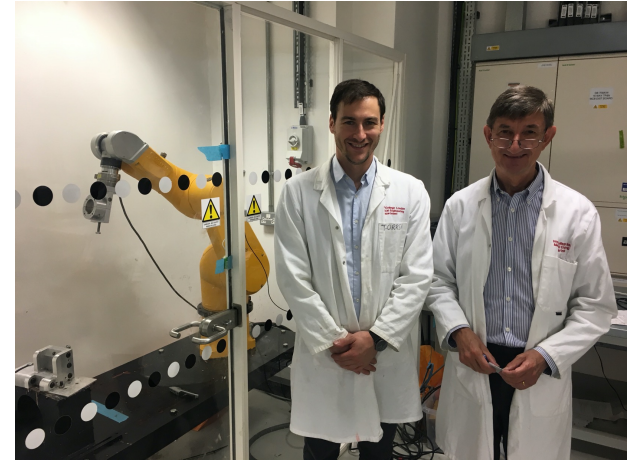
- **ITB: Ilio Tibial band**
- **Kaplan fibers**
- Antero-lateral ligament (ALL)
- Antero-lateral capsule
- Anterior attachment of biceps femoris

Andrew Amis words...

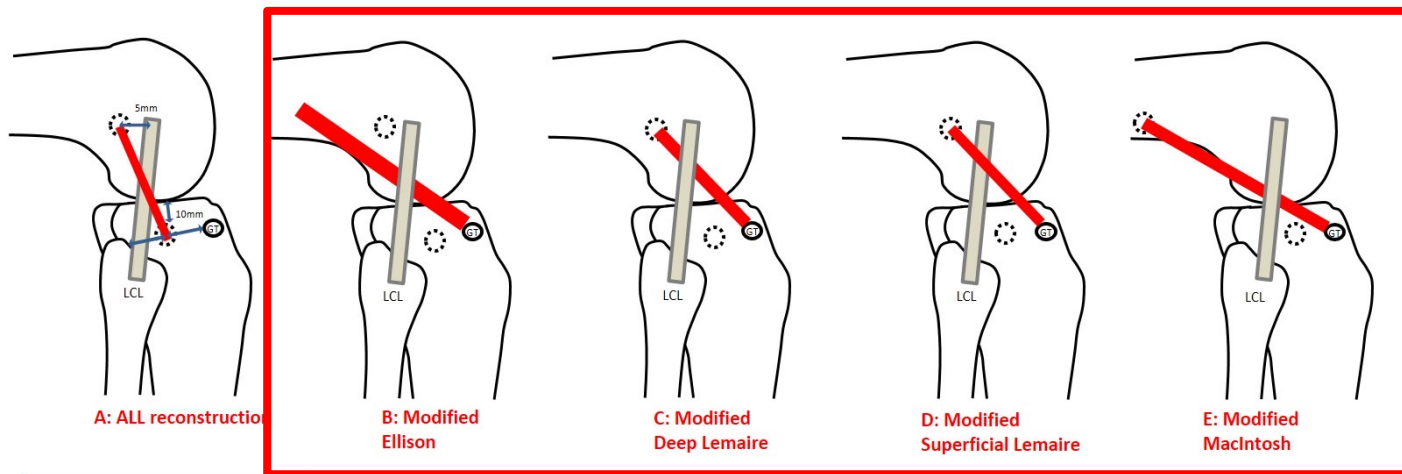
- ACL = primary restraint to AP translation
- it has a very small moment arm to control tibial IR



- The ALC has the largest moment arm to resist tibial IR
 - **ITB & kaplans Fibers**: during whole ROM
 - **ALL** and **anterolateral capsule**: between 0-30°



2 groups :



Anatomic

Non-anatomic

ALL reconstruction

Procedures with ITB



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= Julian Feller' technic

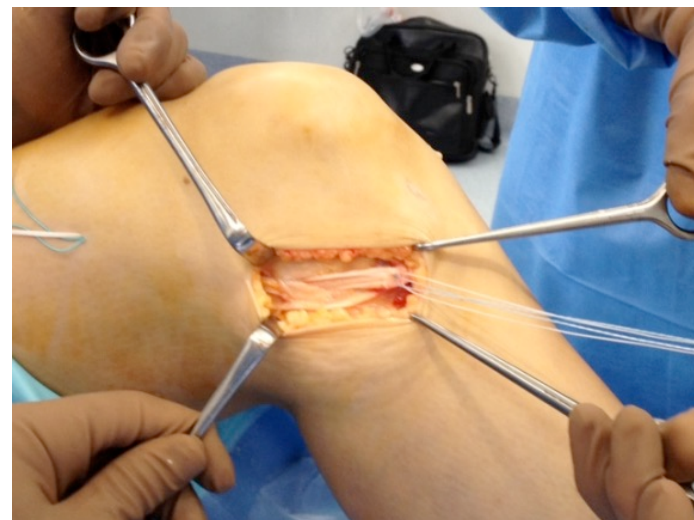
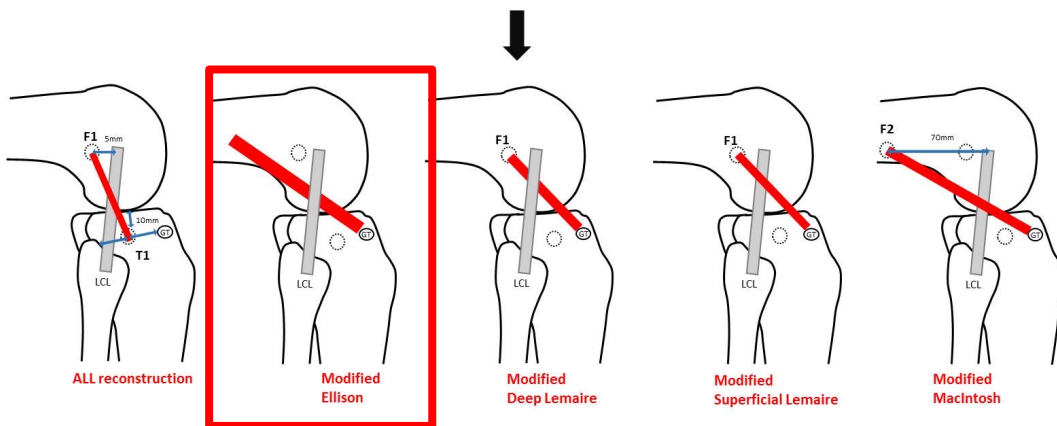
- ITB strip
- Unplug gerdy
- Passed under LCL
- Replug initial position
- Fixation: anchors +/- staple

1 - Intact knee

2 - ACL section

3 - combined ACL plus
anterolateral-deficient knee

4- ACL reconstruction



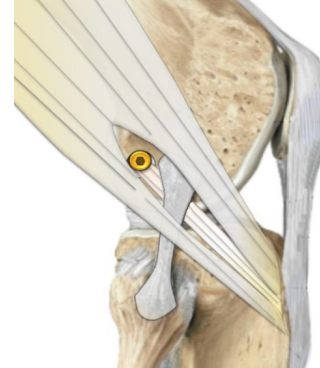
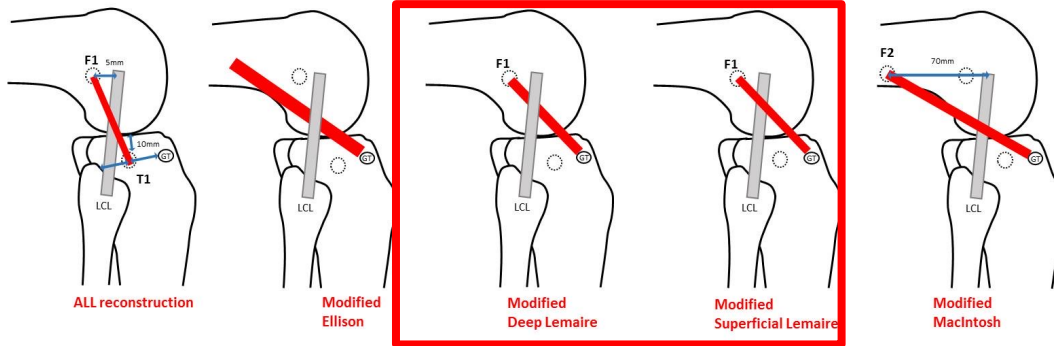


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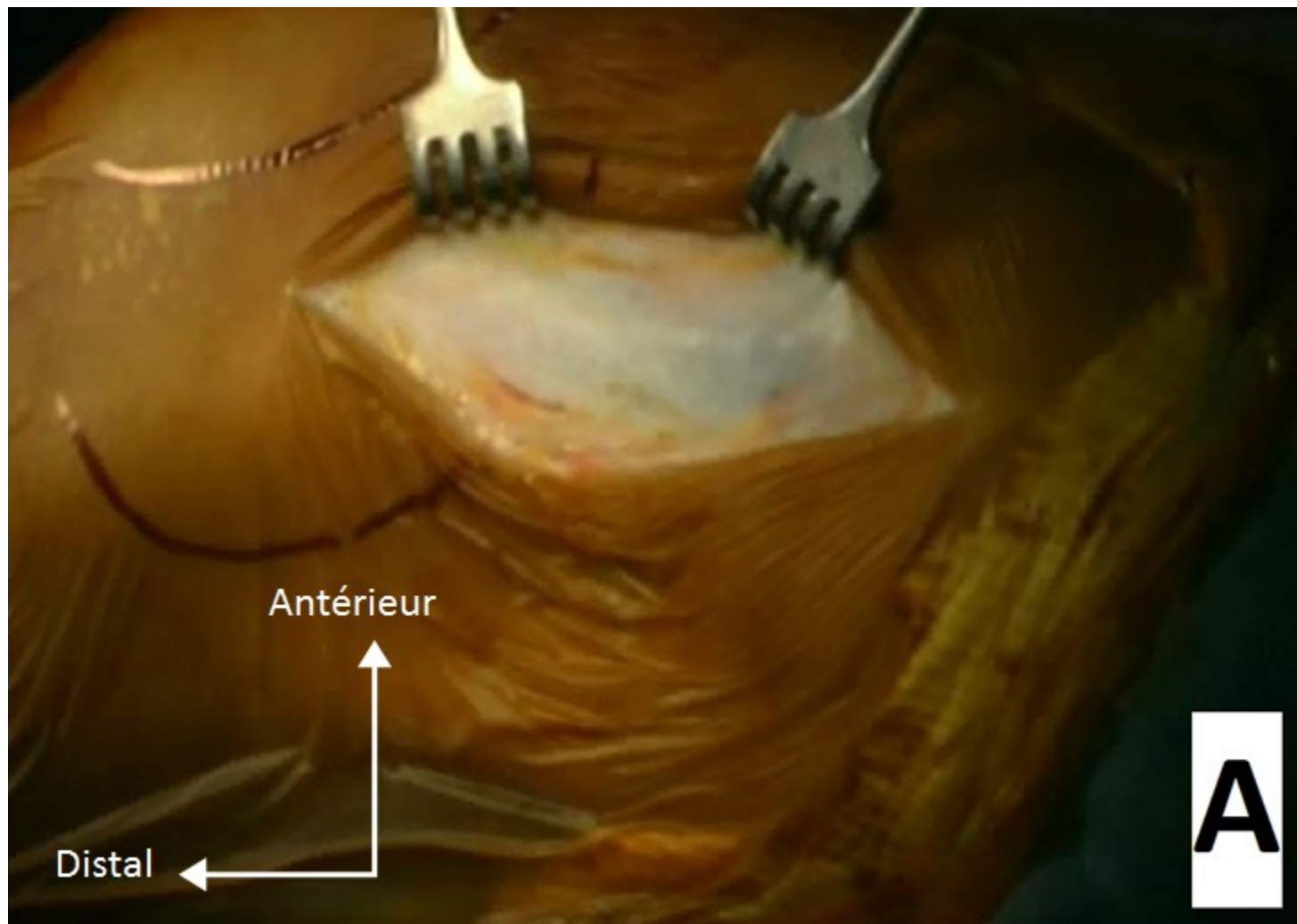
Lemaire

- **deep:** band under the LCL
- **Superf:** bande over the LCL

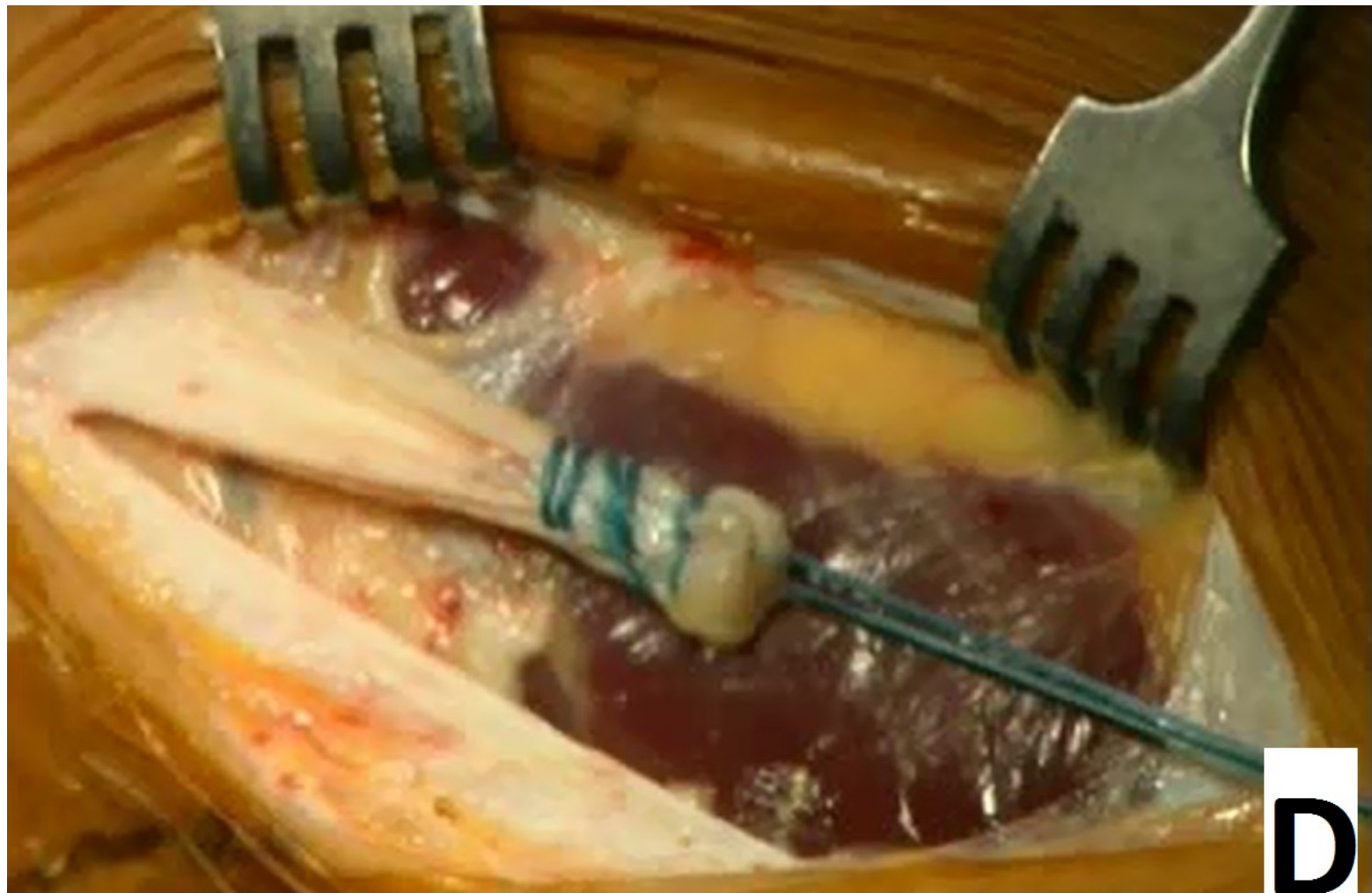


Source: Arthrex®









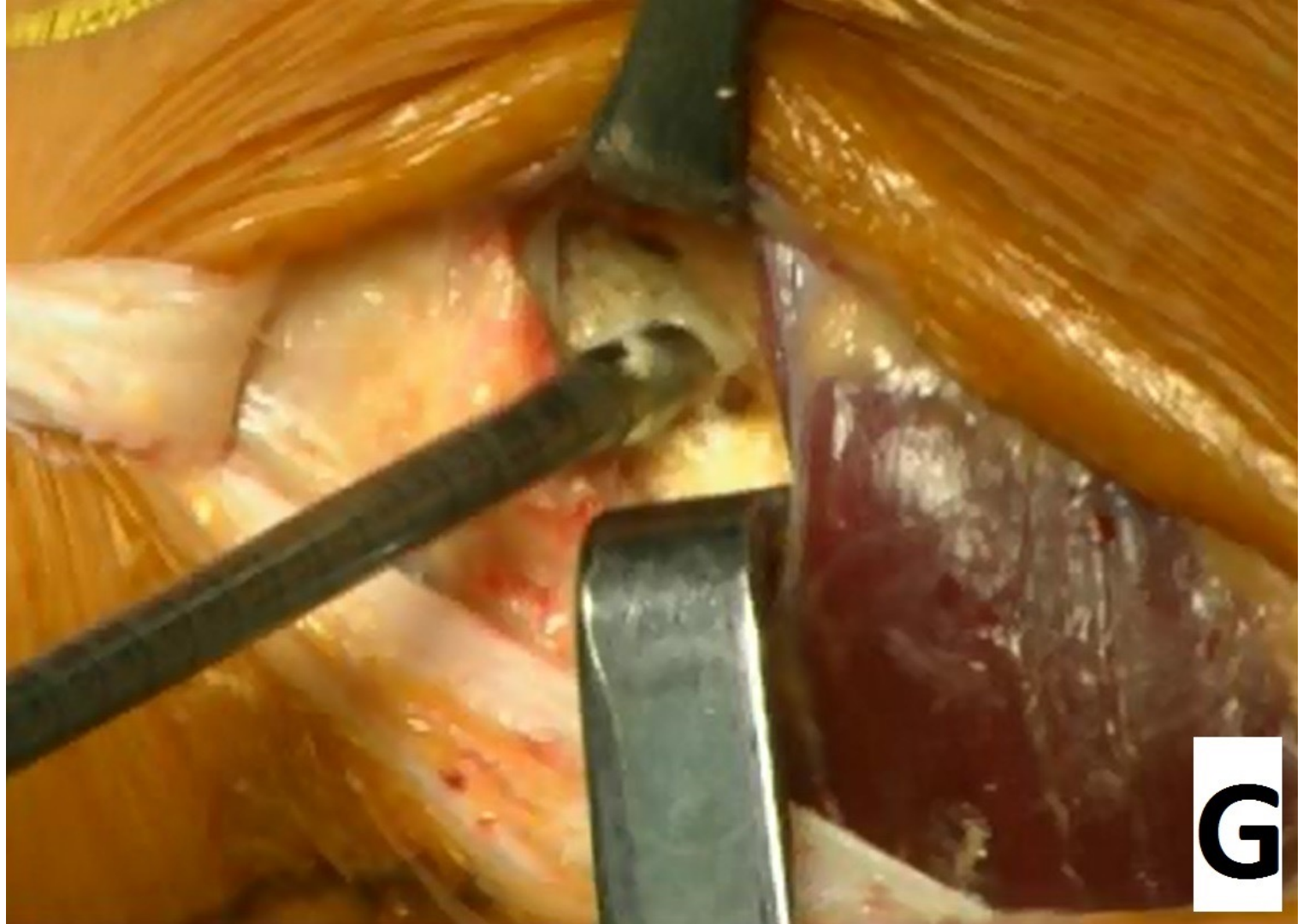
D



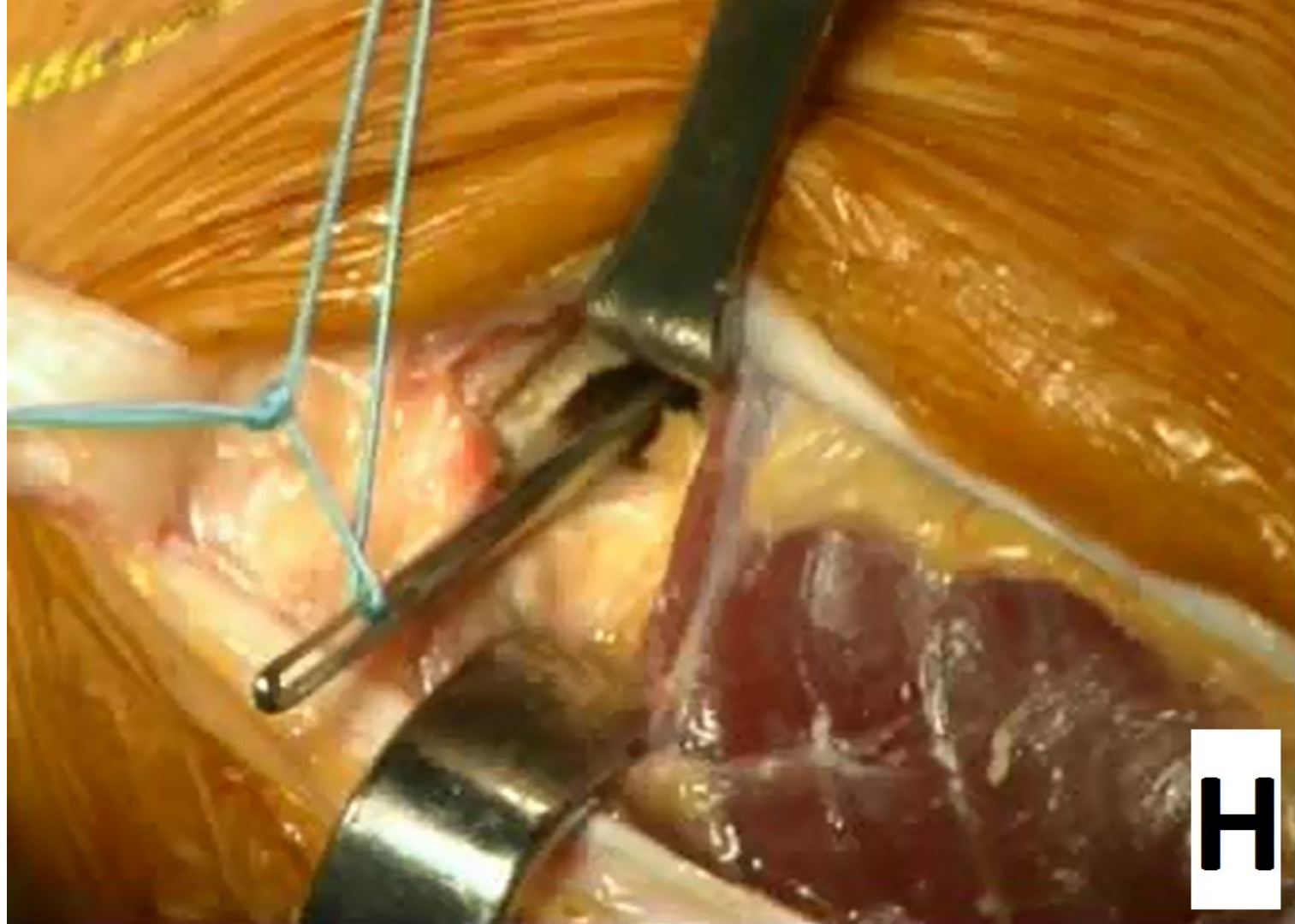
E



F

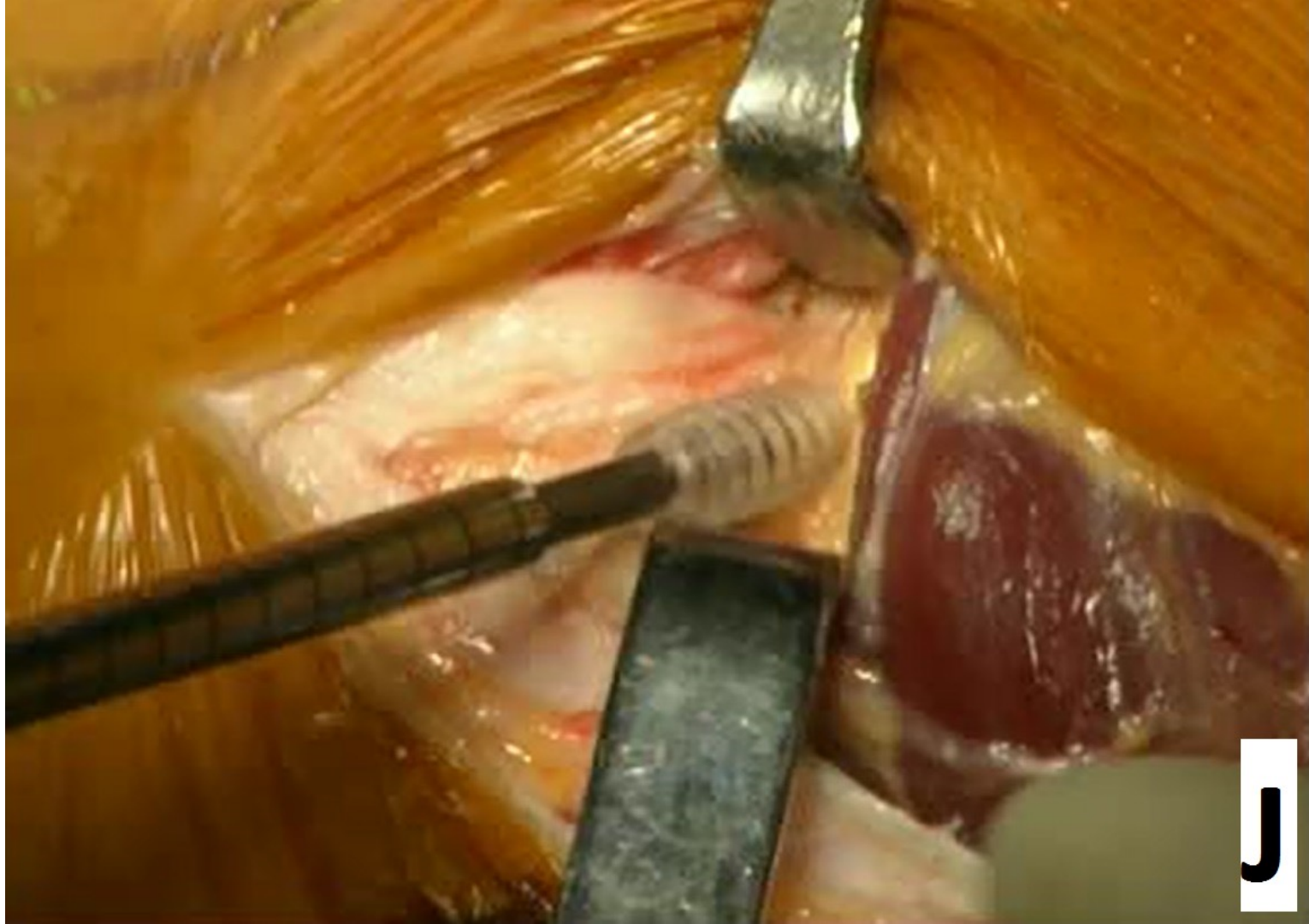


G



H





J



K



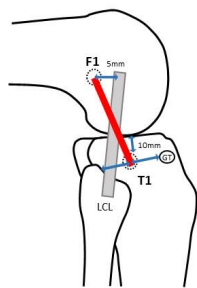


Outline

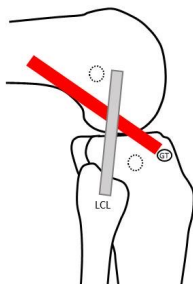
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MacIntosh modifiée

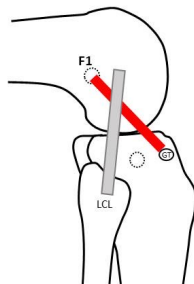
Long ITB band
proximal femoral tunnel= 70mm proximal to lateral epicondyle



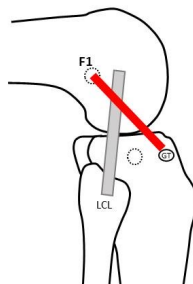
ALL reconstruction



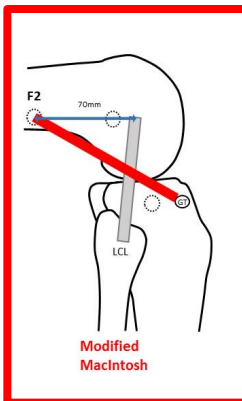
Modified Ellison



Modified Deep Lemaire

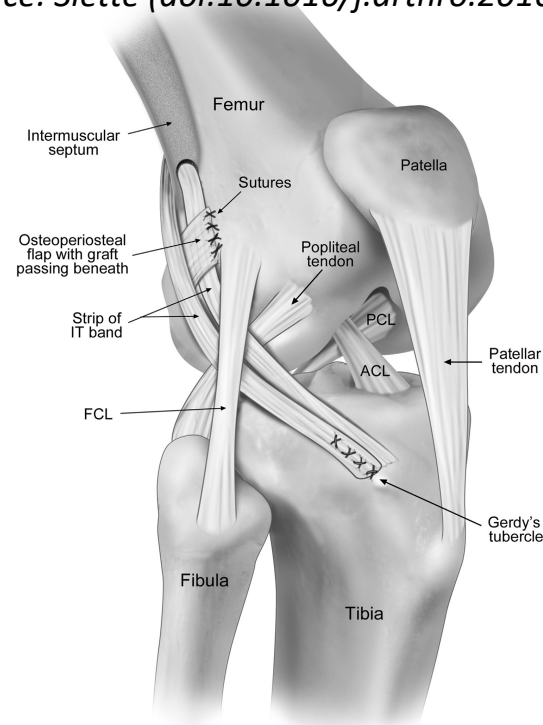


Modified Superficial Lemaire



Modified MacIntosh

Source: Slette (doi:10.1016/j.arthro.2016.04.028)





Outline

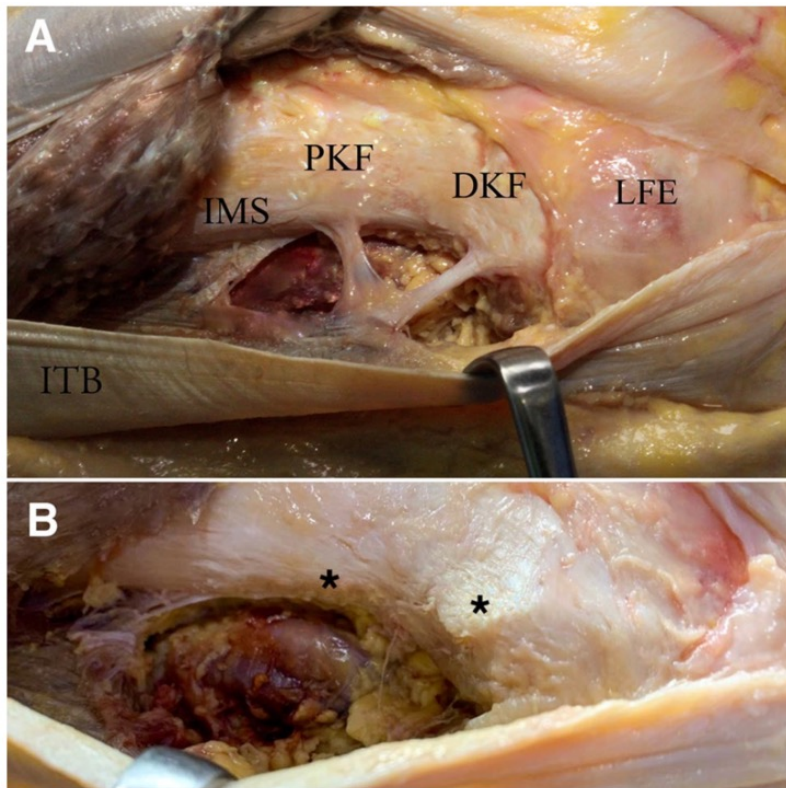
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- **Kaplan fibers reconstruction**



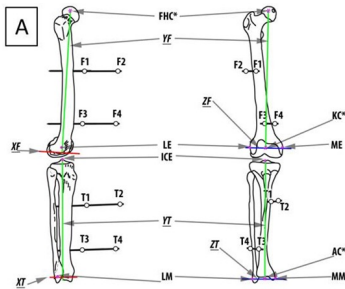
The anatomy of Kaplan fibers

Gary Sayac¹ · Alexandre Goimard² · Antonio Klasan³ · Sven Putnis⁴ · Florian Bergandi¹ · Frederic Farizon¹ · Remi Philippot^{1,5} · Thomas Neri^{1,5}

- 2 distinct expansions coming from the deep part of the ITB
- Individualizable from the intermuscular septum with internal rotation of the knee
- Presence of bony ridges in the areas of bony insertion
- DKFs were thicker ($p < 0.001$), wider ($p < 0.001$) and longer ($p < 0.001$) than the PKFs

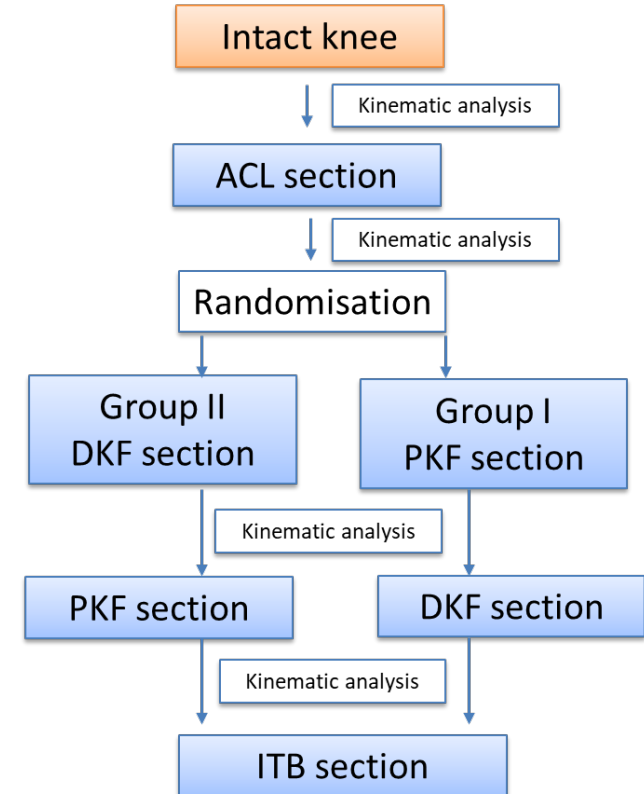


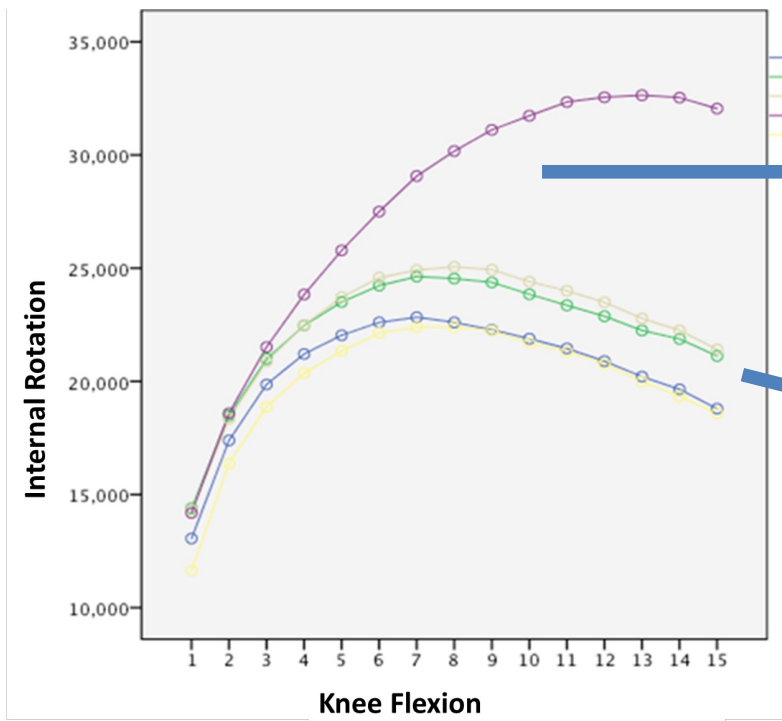
- biomechanical study
- Kinematics analysis with 3D Motion capture



Section protocol

- complete knee flexion kinematics: **0** to **90°**
- in Internal Rotation (**IR**) set at **5** Nm





ITB section

There was a significant increase in IR during the ITB section over the entire kinematic profile

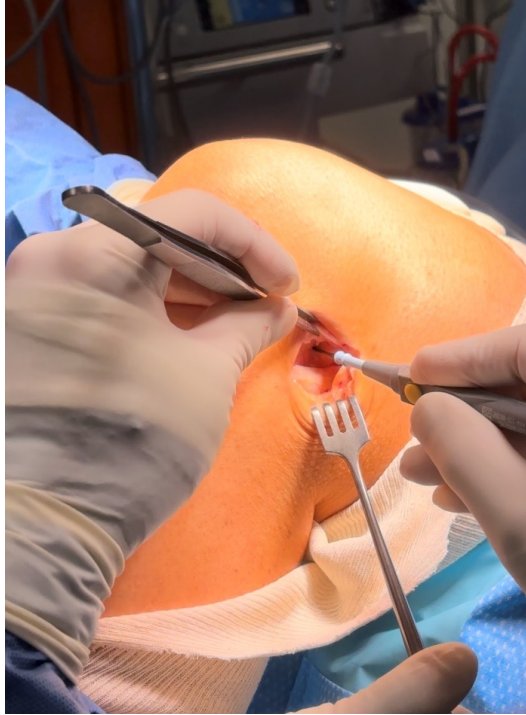
ITB = major stabilizer of tibial IR on a deficient ACL knee

PKF and DFK section

Combined cross-section of PKF and DFK resulted in a significant increase in IR ($p < 0.05$), starting at 30° of flexion.

DKF and PFK, also participate to a lesser extent in this rotational control. By establishing a connection with the distal femur, they seem to reinforce the anti-rotatory action of the ITB





284 patients

Matching on
TEGNER scale

30 patients ALLR

30 patients KFCR

Comparison of ACLR/ALL and ACLR/KFC

Variable	Moyenne (SD) ACLR/ALL	Moyenne (SD) ACLR/KFC	Différence (IC 95%)	p-value
KOOS	74,07 (13,69)	81,22 (9,98)	7,157 (0,967; 13,346)	0.0242
IKDC	68,73 (9,09)	76,19 (12,34)	7,457 (1,1854; 13,061)	0.0100
Re rupture	0,033	0,033	0	1

