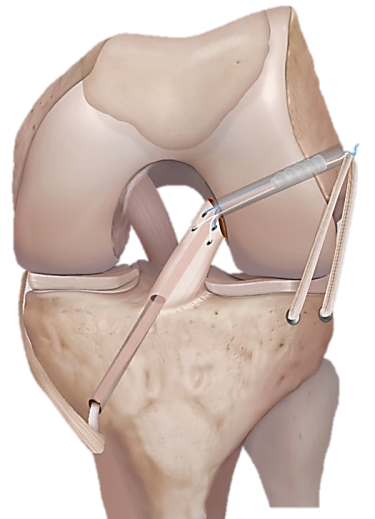


ACL REPAIR

J.M. Fayard, M. Rarchaert, M. Thaunat, B. Freychet, B. Sonnery-Cottet

Centre Orthopédique Santy, Lyon, France





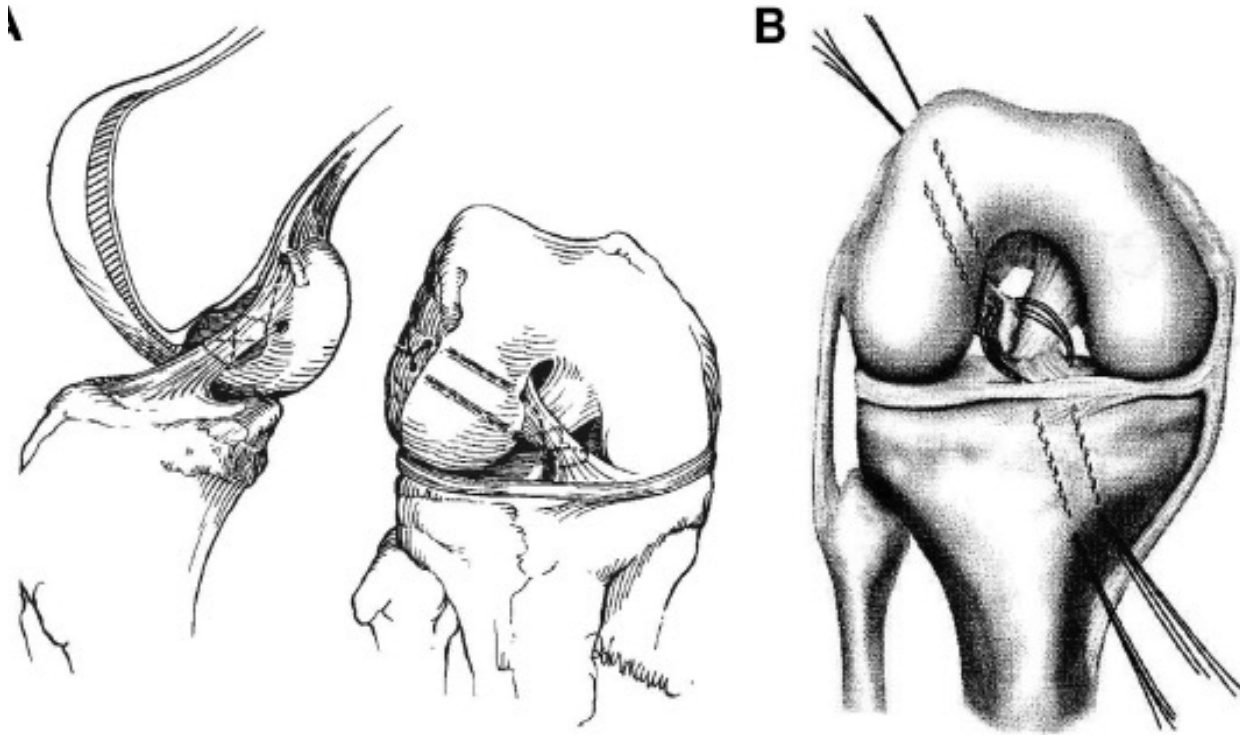
Disclosure

- Consultant: Arthrex, NewClip Technics
 - Royalties: NewClip Technics, X Nov
-

< 1980s : Open ACL repair

Isolated tear of the anterior cruciate ligament: 5-year follow-up study

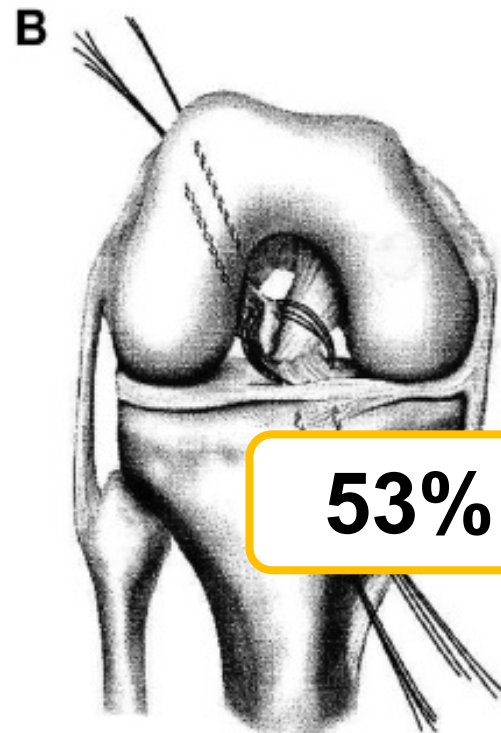
Feagin JA, Jr., Curl WW. *Am J Sports Med* 1976



< 1980s : Open ACL repair

Isolated tear of the anterior cruciate ligament: 5-year follow-up study

Feagin JA, Jr., Curl WW. *Am J Sports Med* 1976

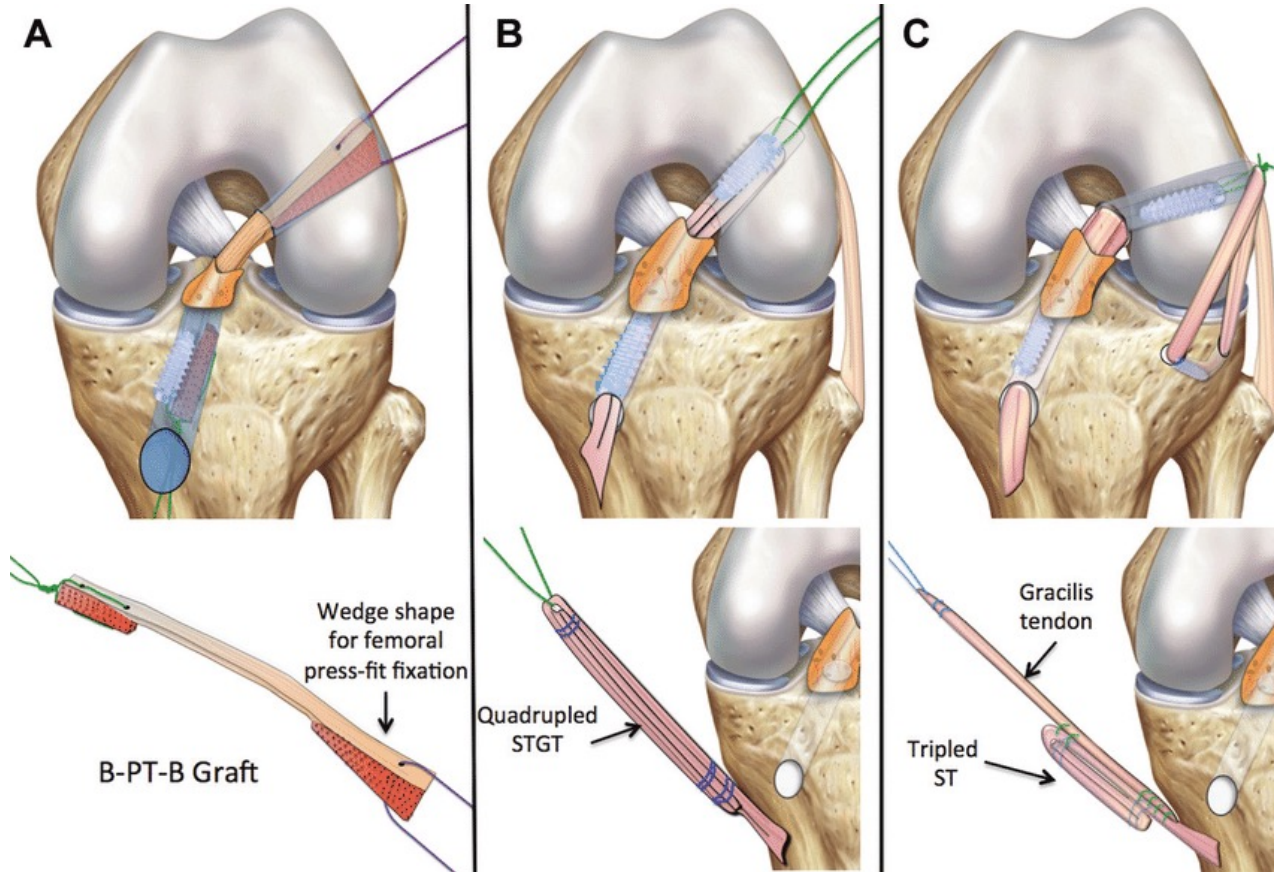


+

53% reinjury !!!



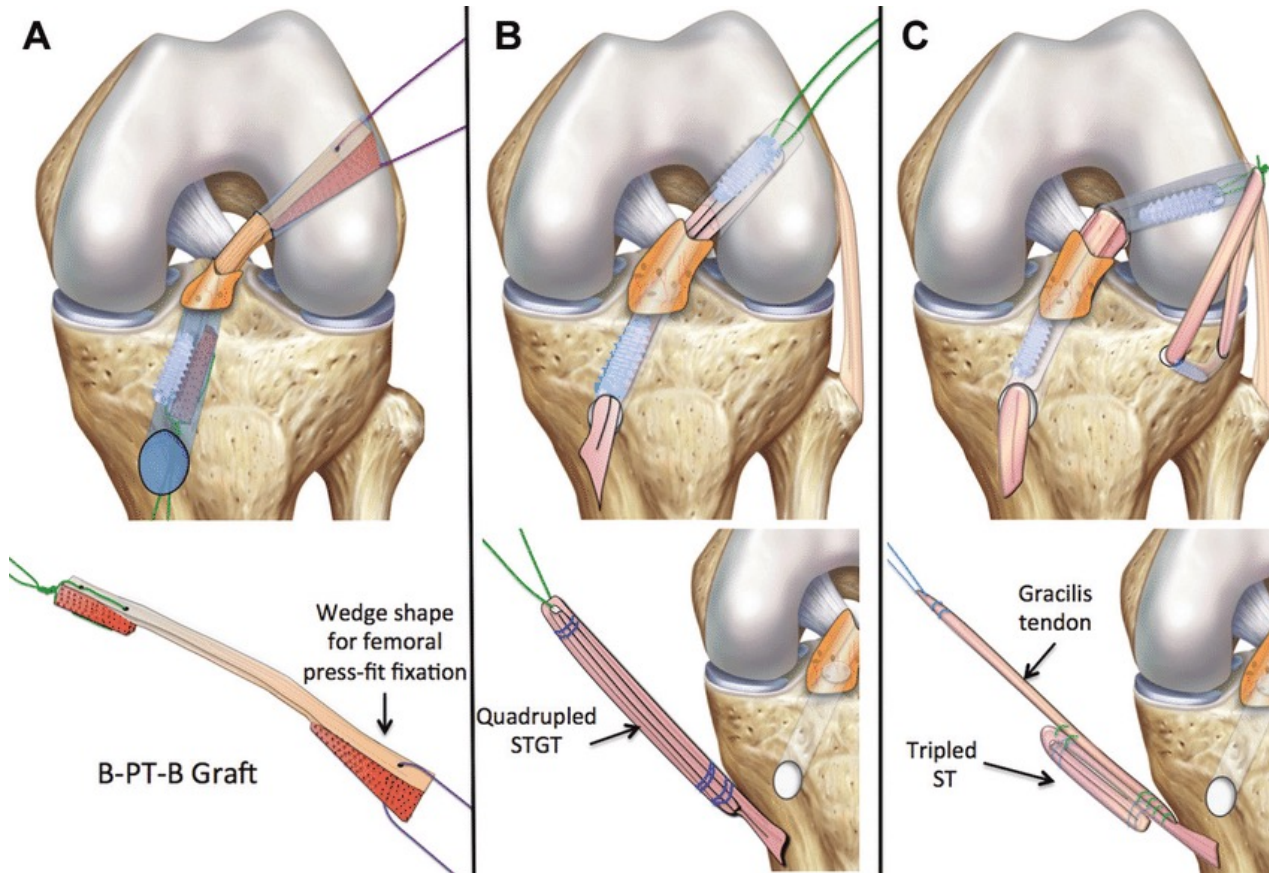
1990s : ACL reconstruction



+



1990s : ACL reconstruction

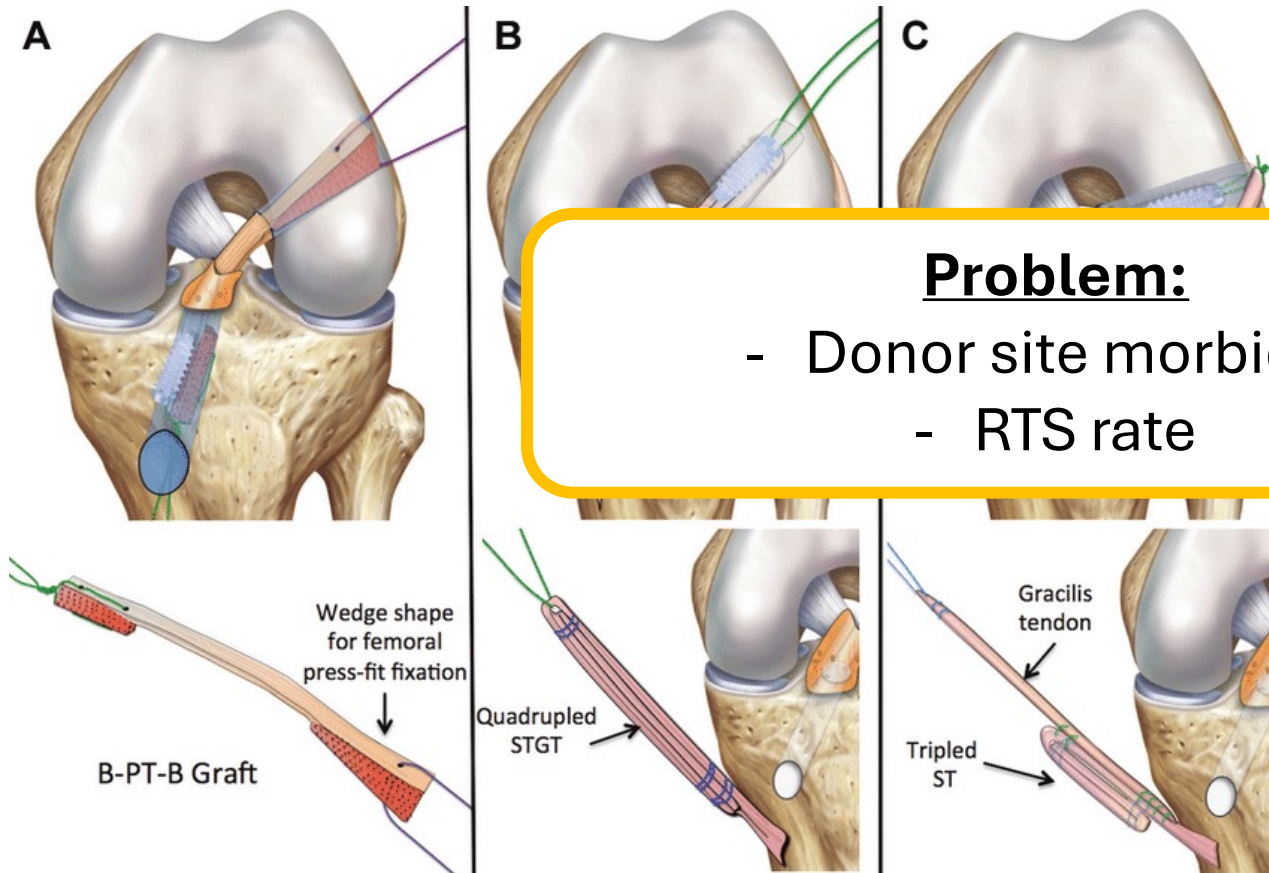


+



Arthroscopic procedure
Stronger fixation
Gold Standard

1990s : ACL reconstruction



Problem:

- Donor site morbidity
- RTS rate



Arthroscopic procedure
Stronger fixation
Gold Standard

ACL repair : renewed interest

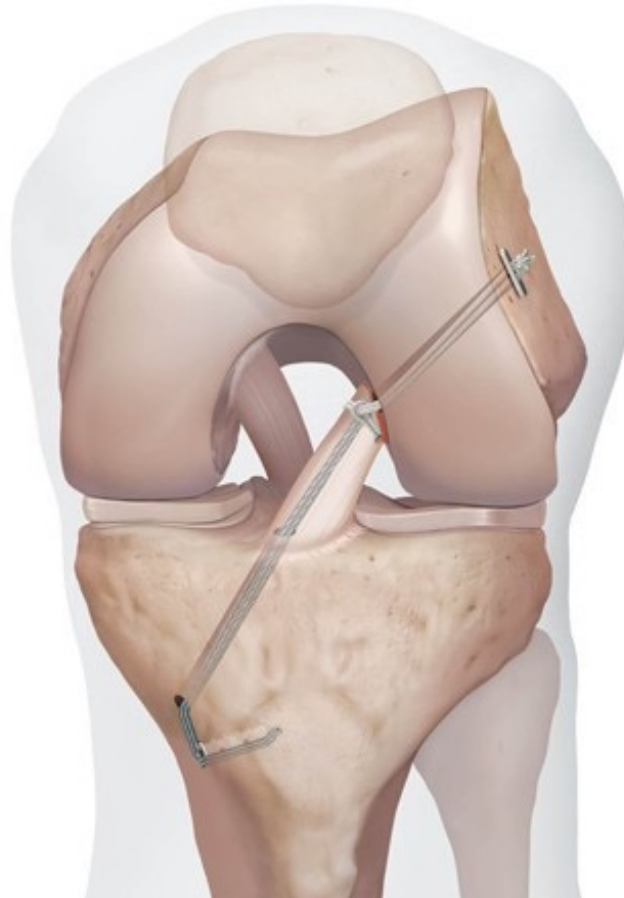


Dr. Gordon MACKEY

**Anterior Cruciate Ligament Repair
with Internal Brace Ligament
Augmentation.**

Wilson WT, Hopper GP, Byrne PA,
MacKay GM.

Surg Technol Int 2016



Dr. Greg DIFELICE

**Primary Repair of the Anterior
Cruciate Ligament: A Systematic
Review.**

Taylor SA, Khair MM, Roberts TR,
DiFelice GS.

Arthroscopy 2015

ACL repair in association with an additional procedure



Dr Pierre CHAMBAT

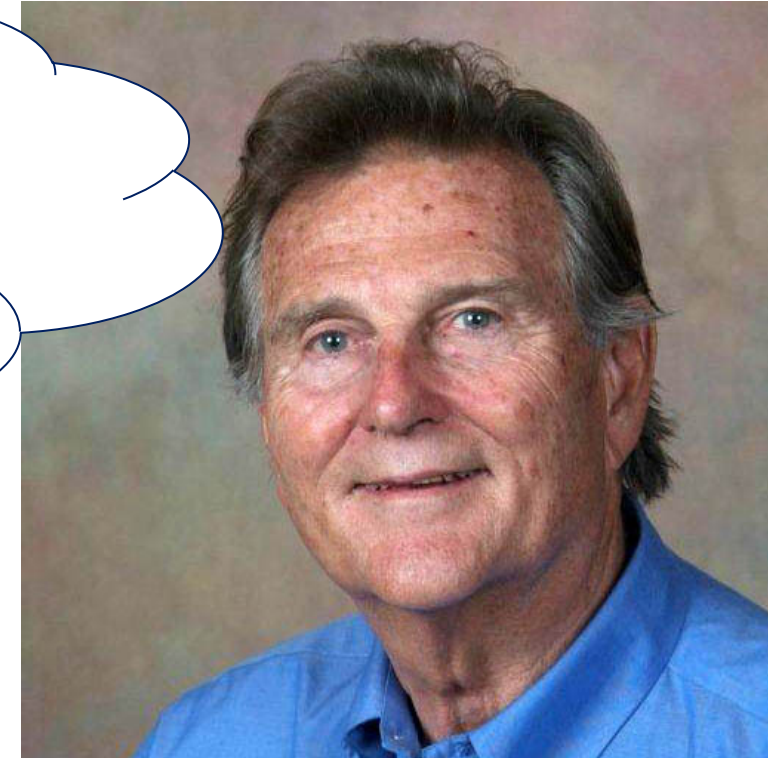
ACL ruptures should be treated by
Suture Repair augmented by Lateral
Tenodesis or ACL augmentation

**Acute lesions of the anterior cruciate ligament of the knee. A
propos of 71 follow-up cases.**

Chambat P, Walch G, Deschamps G, Dejour H. *RCO* 1984

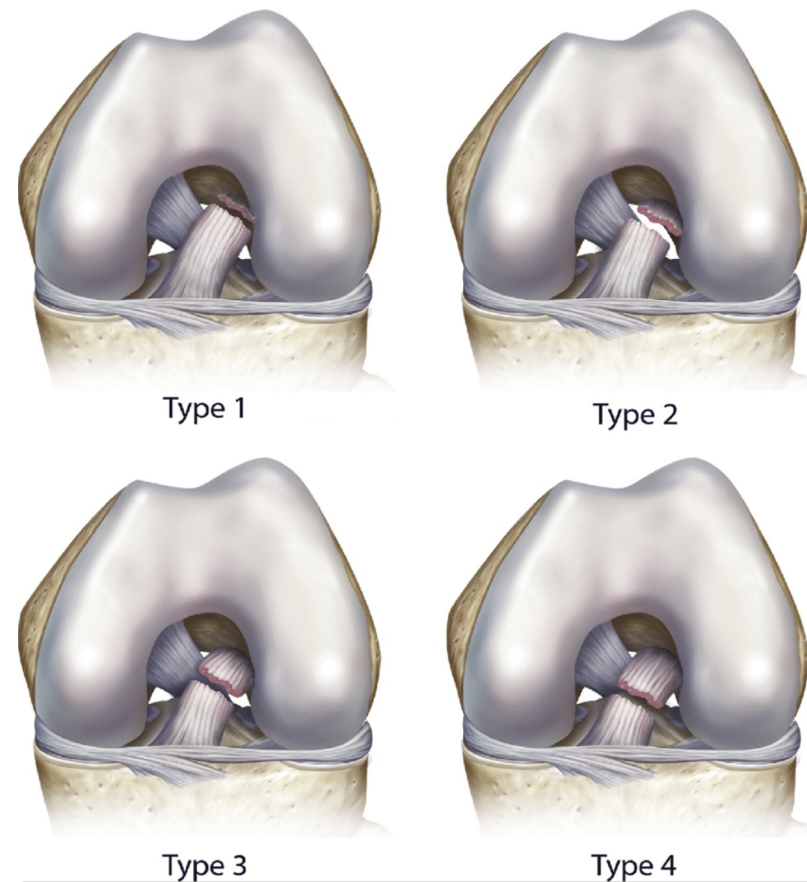
Anterior cruciate ligament repairs in world class skiers.

Higgins RW, Steadman JR. *Am J Sports Med.* 1987



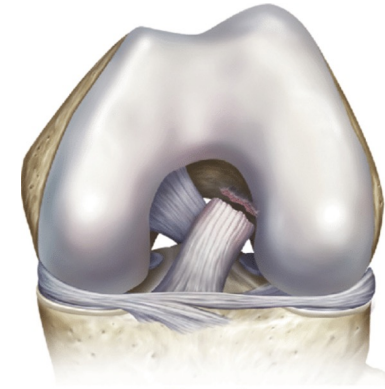
Dr Richard STEADMAN

ACL repair : indications

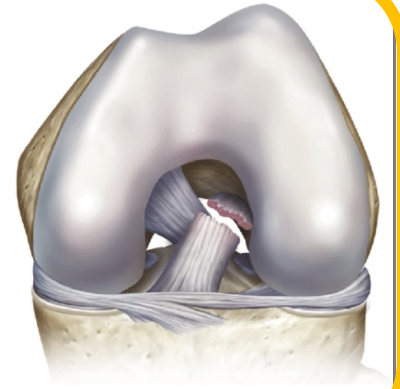


ACL repair : indications

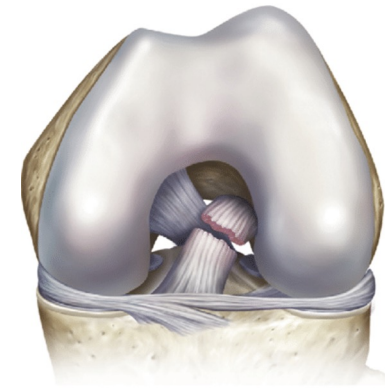
- Proximal avulsion tear Sherman I-II
- Early intervention
- Good tissue quality



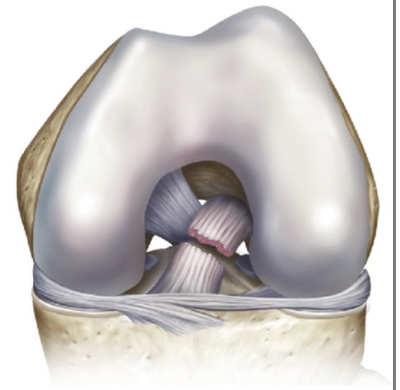
Type 1



Type 2



Type 3



Type 4

Principles

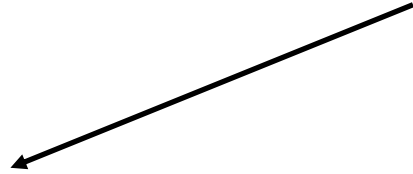
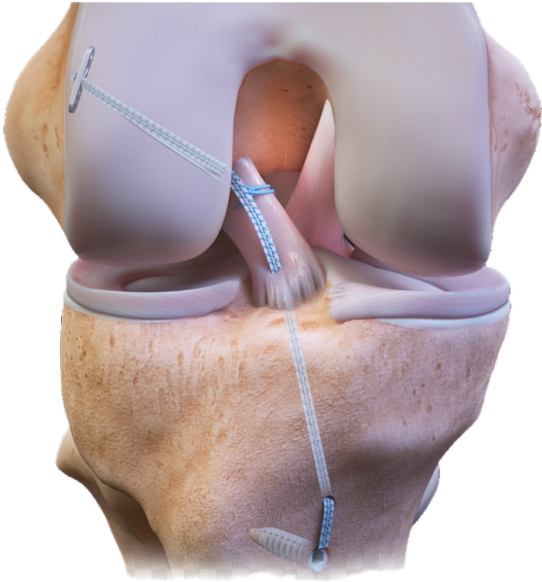
ACL repair + **Intraligamentary bracing**

Principles

ACL repair

+

Intraligamentary bracing



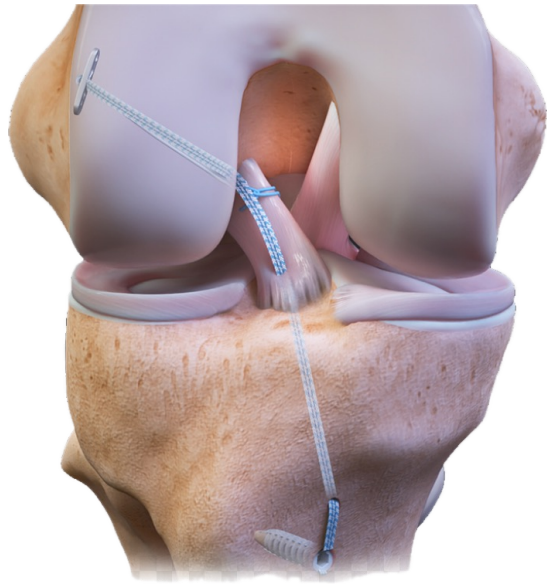
InternalBrace™

Principles

ACL repair

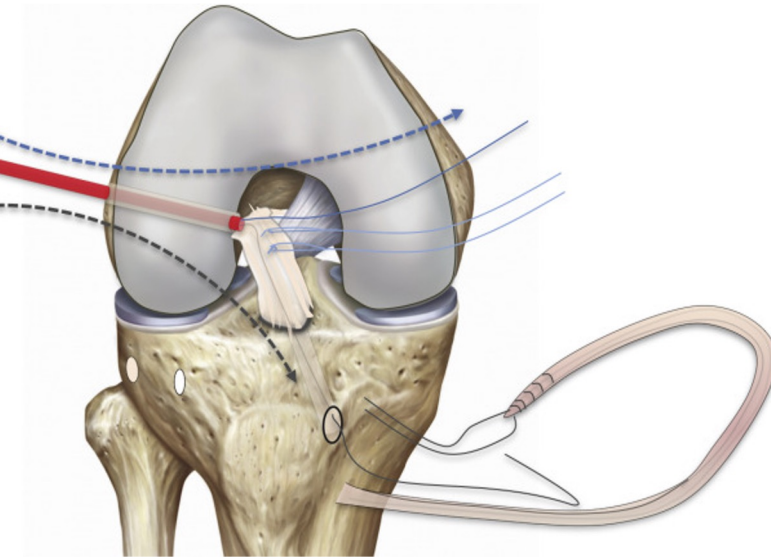
+

Intraligamentary bracing



Internal/Brace™

Gracilis ± ALL



Fayard JM, Penet A, Bauwens PH, Thaumat M.
Combined Anterior Cruciate Ligament Repair and Anterolateral
Ligament Reconstruction With a Single-Strand Gracilis Graft.
Arthrosc Tech. 2021

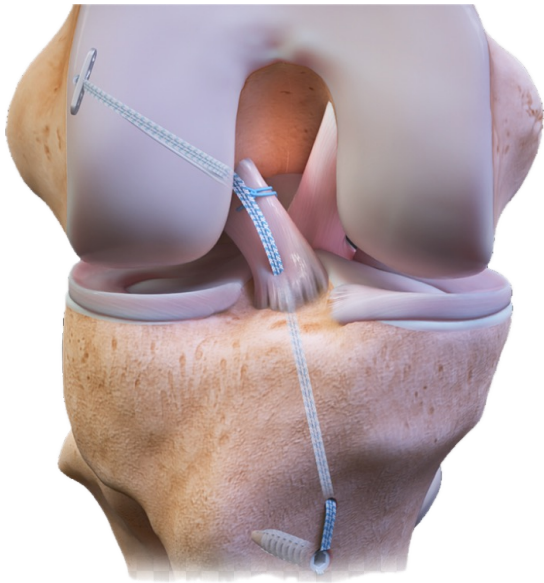
Principles

ACL repair

+

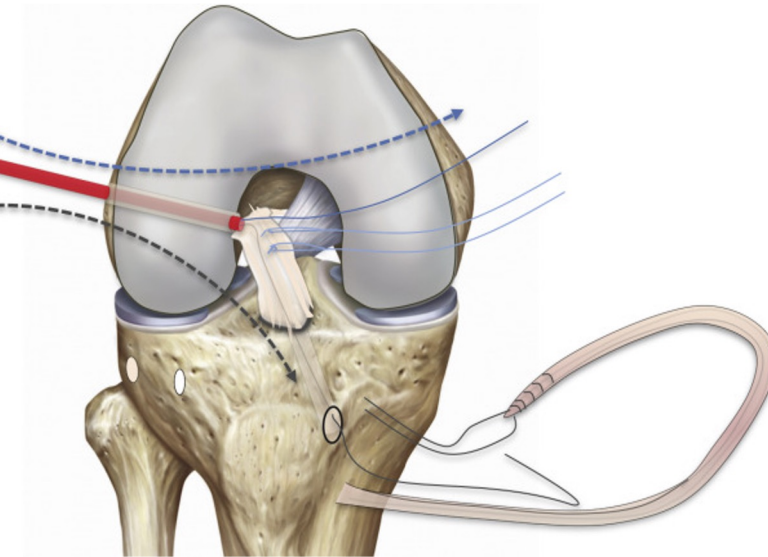
Intraligamentary bracing

OUR CHOICE



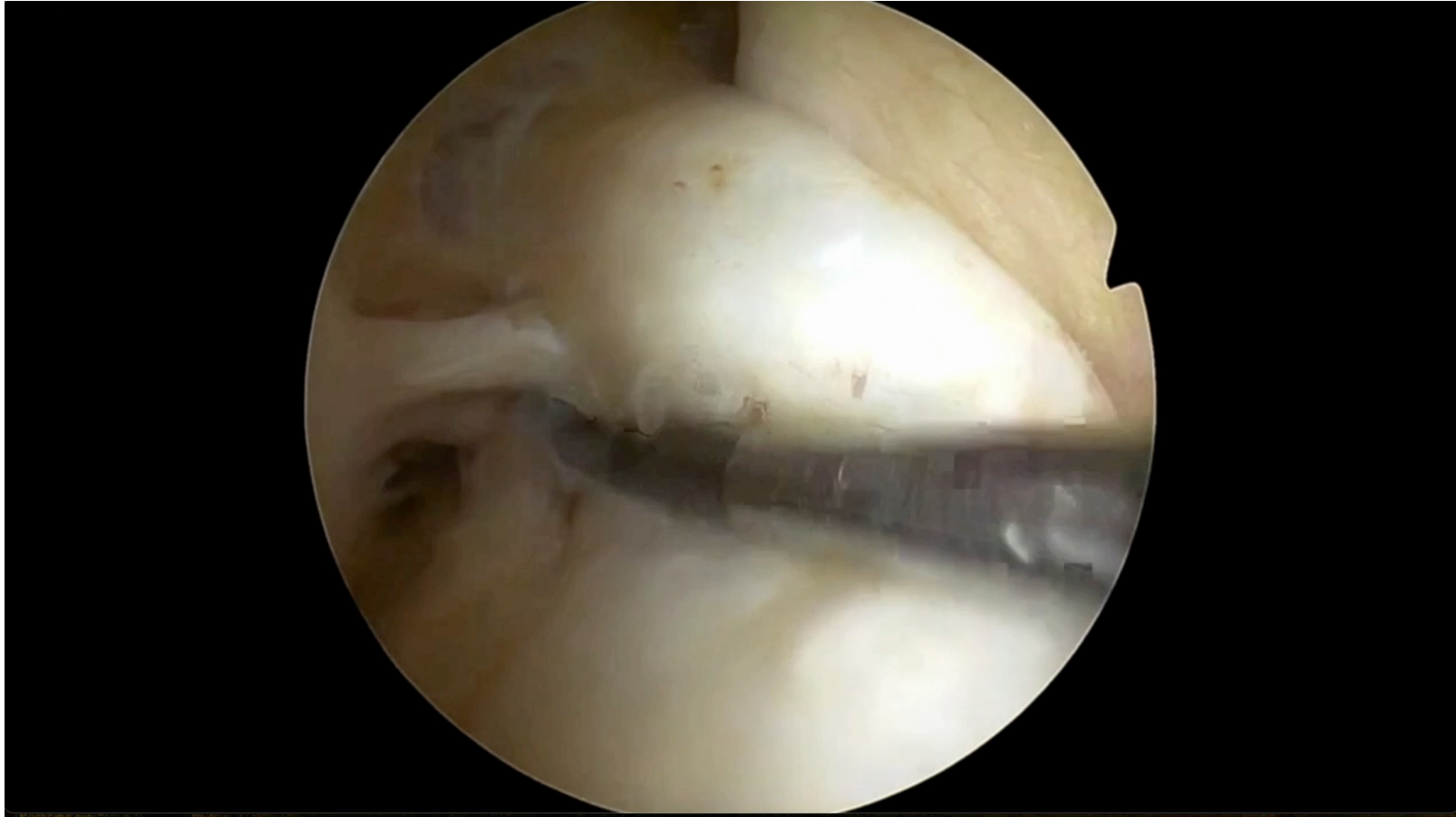
Internal/Brace™

Gracilis ± ALL

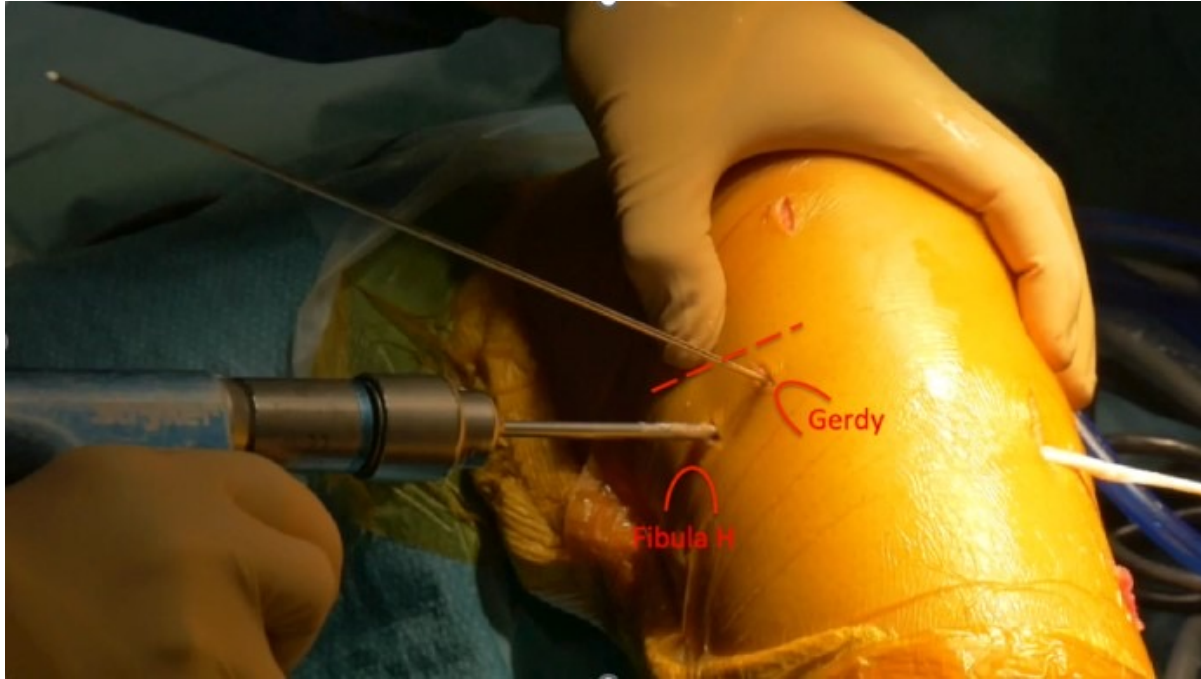


Fayard JM, Penet A, Bauwens PH, Thaumat M.
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Ligament Reconstruction With a Single-Strand Gracilis Graft.
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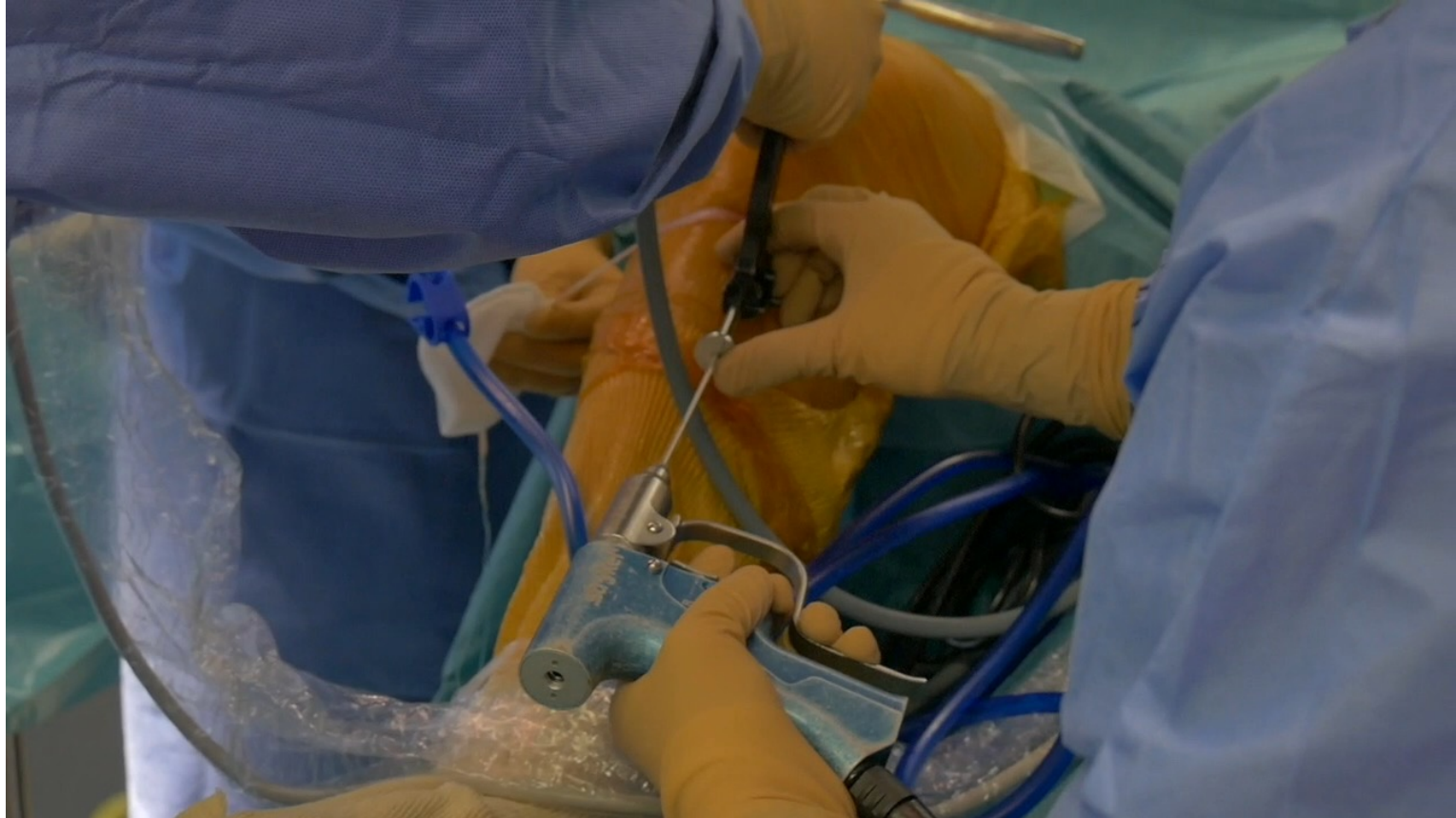
Surgical technique : Remnant evaluation and Gracilis harvesting



Surgical technique : ALL tunnels



Surgical technique : femoral and tibial tunnels (Ø 5 mm)



Surgical technique : femoral and tibial tunnels (Ø 5 mm)



Surgical technique : femoral and tibial tunnels (Ø 5 mm)



Surgical technique : ACL stomp fixation



Surgical technique : stiches & graft fixation



Surgical technique : stiches & graft fixation



ACL repair : recent studies

Meta-Analysis > [Knee Surg Sports Traumatol Arthrosc.](#) 2020 Jun;28(6):1946-1957.

doi: 10.1007/s00167-019-05697-8. Epub 2019 Sep 5.

Arthroscopic primary repair of proximal anterior cruciate ligament tears seems safe but higher level of evidence is needed: a systematic review and meta-analysis of recent literature

Jelle P van der List ^{1 2 3}, Harmen D Vermeijden ^{4 5}, Inger N Sierevelt ^{4 6}, Gregory S DiFelice ⁵, Arthur van Noort ⁴, Gino M M J Kerkhoffs ^{6 7 8}

1,101 patients
Failure rate 11%

ACL repair : recent studies

➤ [Am J Sports Med.](#) 2022 Nov;50(13):3522-3532. doi: 10.1177/03635465221126171.

Epub 2022 Oct 19.

The Minimal Clinically Important Difference, Patient Acceptable Symptom State, and Clinical Outcomes of Anterior Cruciate Ligament Repair Versus Reconstruction: A Matched-Pair Analysis From the SANTI Study Group

Alexandre Ferreira ¹, Adnan Saithna ², Alessandro Carrozzo ^{1 3}, Sylvain Guy ¹, Thais Dutra Vieira ¹, Johannes Barth ⁴, Bertrand Sonnerly-Cottet ¹

Improved Ability to Return to Sports After ACL Augmentation With Anterolateral Reconstruction (ALR) Harvesting Gracilis Only Compared With ACL Reconstruction With ALR Harvesting Both Hamstring Tendons

Jean-Marie Fayard,^{††} MD, Constant Foissey,^{††} MD, Victor Pacoret,^{††} MD, Hichem Abid,^{††} MD, Thais Dutra Vieira,^{††} MD , Ayman Gabr,[§] MBChB, MRCS, MD, and Mathieu Thauinat,^{††} MD [\[GQ: 1\]](#)
Investigation performed at Centre Orthopédique Santy, Lyon, France

Match studies:

Graft failure (Rp: 5.3%-6.1% vs Rc:0%)

ACL repair : recent studies

➤ [Am J Sports Med.](#) 2022 Nov;50(13):3522-3532. doi: 10.1177/03635465221126171.

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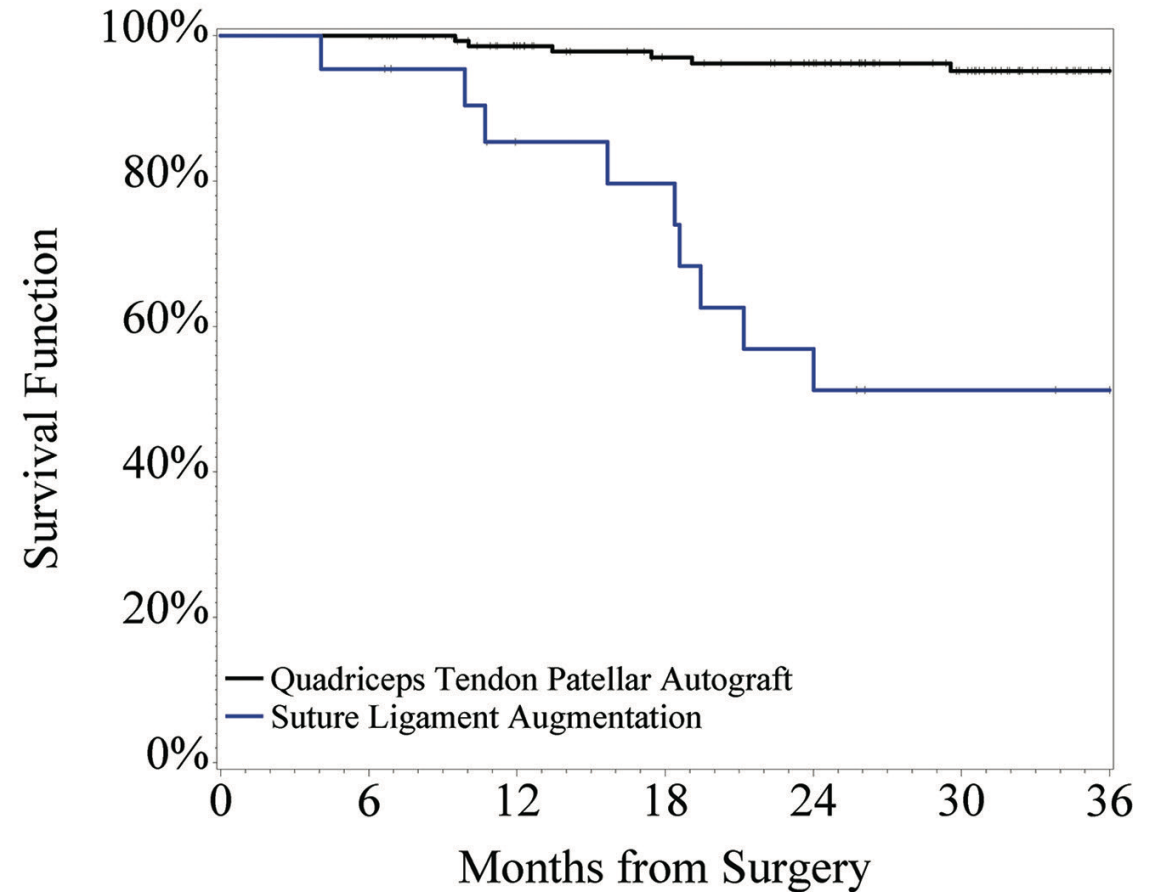
Alexandre Ferreira ¹, Adnan Saithna ², Alessandro Carrozzo ^{1 3}, Sylvain Guy ¹, Thais Dutra Vieira ¹, Johannes Barth ⁴, Bertrand Sonnerly-Cottet ¹

Patients > 21 yo:
Graft failure No difference
(Rp: 2.8%% vs Rc:0%)

ACL repair : Young athletes

- Age 7-18 yo
- 22 repairs vs 157 reconstructions
- FU 2.7 years (2 to 3.6)
- Odds RR = 10 (repairs: 48.8% vs QT: 4.7%)

ACL Repair With Suture Ligament Augmentation Is Associated With a High Failure Rate Among Adolescent Patients
Gagliardi AG, et al. AJSM 2019



ACL repair : recent studies

Am J Sports Med. 2022 Nov;50(13):3522-3532. doi: 10.1177/03635465221126171.

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Investigation performed at Centre Orthopédique Santy, Lyon, France

6 months FU

Better isokinetic (HT+++)

Better RTS tests in ACL-Rp group (p=0.001
and p=0.04)

ACL repair : recent studies

➤ [Am J Sports Med.](#) 2022 Nov;50(13):3522-3532. doi: 10.1177/03635465221126171.

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2 years FU:

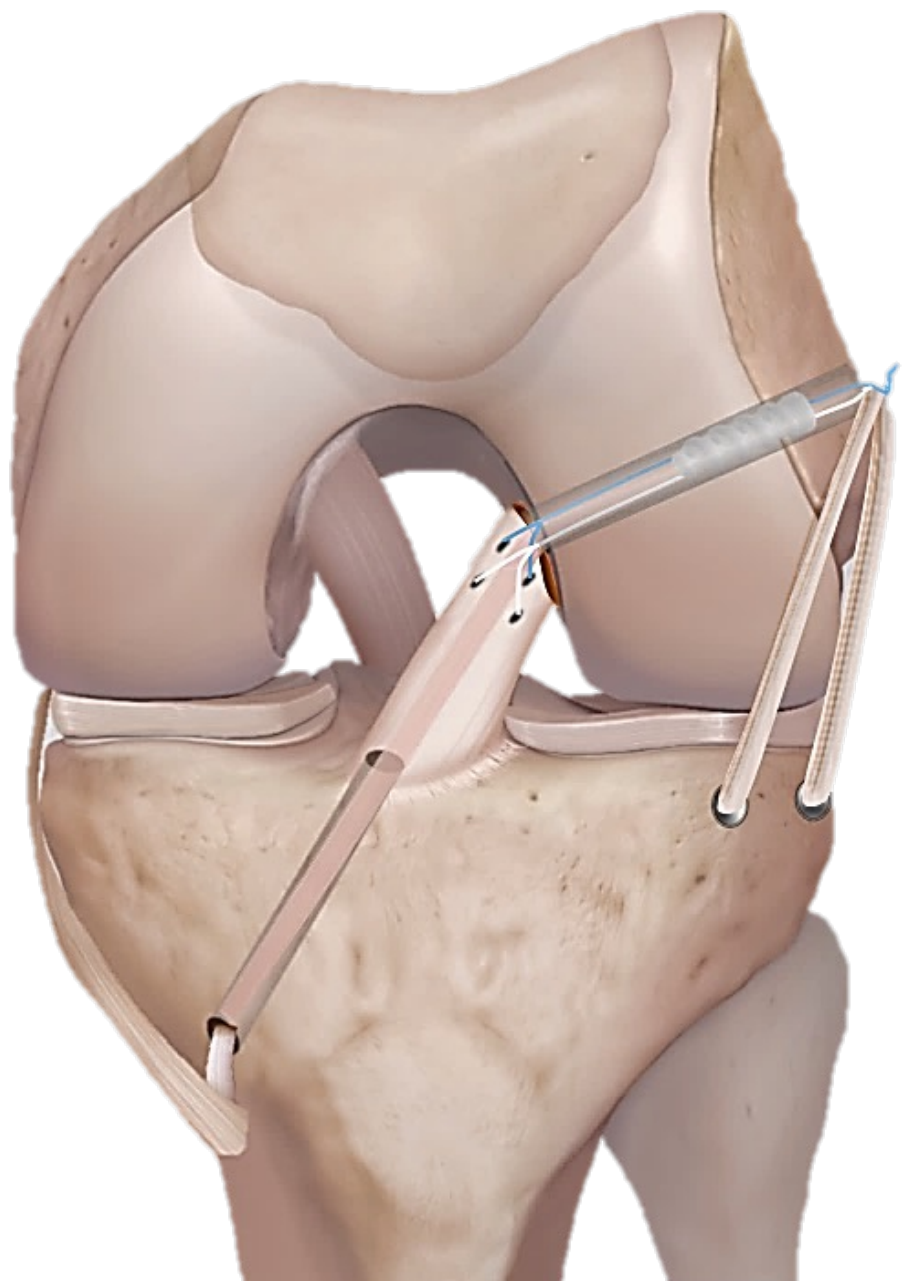
RTS same level

Rp: 74% vs 60% Rc (p=0.078)

Take-home message

- ACL repair is a valuable option for proximal tears
- But patient selection is a key point (Tears location, Age, Sports)
- Not a good indication in Youngs Athletes
- LEAP is probably an important “belt protection”





Thank you