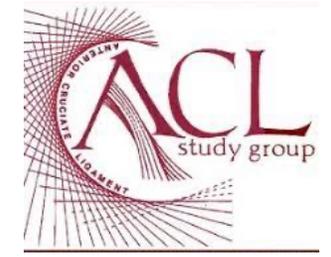




The Rectus Femoris Tendon: a New Graft Possibility for Ligament Reconstruction Around the Knee

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SANTI Study Group / ACL Study Group



Declaration of conflicts of interest

• Speaker

- Apsen
- Atlasmed (Reviscon)
- Conmed
- Curve Beam AI
- Geistlich
- Jonhson & Jonhson Med Tech
- Link Orthopaedics
- P&G Health
- Rigenera AMT
- Sintegra
- Smith Nephew
- VSY

Journals Editorial Board

- Arthroscopy Journal
- BMC Musculoskeletal disorders
- Knee Surgery Sports Traumatology and Arthroscopy
- Orthopaedic Journal of Sports Medicine
- Video Journal of Sports Medicine

Medical Societies

- **ACL Study Group** - Member-at-large / Program chair 2026
- **BS KNEE**
- **EPOREGEN**
- **ISAKOS** - Chair Young Professionals Task Force
- **SANTI STUDY GROUP**
- **SBCJ** - Member of the Scientific Support Committee
- **SBOT** - President of Education Projects Committee
- **SLARD** - Brazilian Representative in Board of directors
- **WBCT Society** - Knee Committee chair



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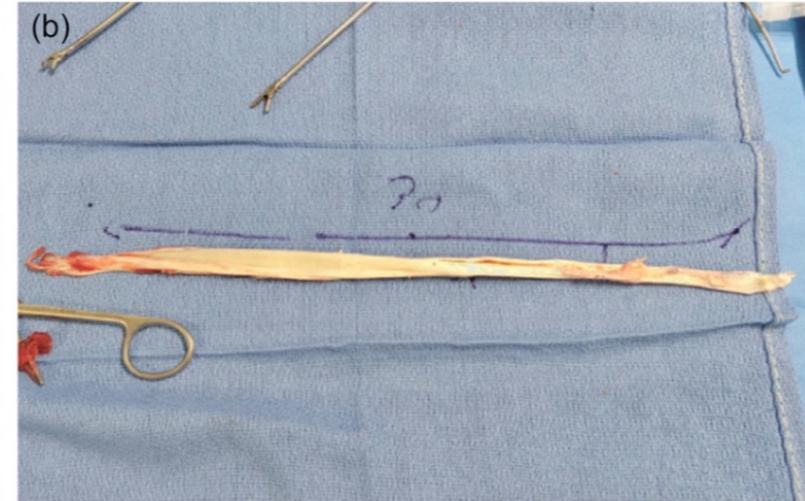
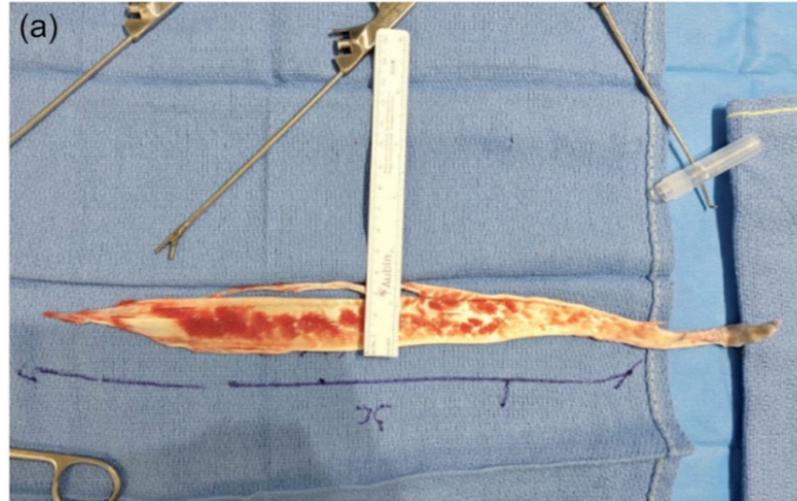
ACL STUDY GROUP pre meeting Rio de Janeiro 2026



Rectus femoris tendon: An emerging option in ACL reconstruction

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Etienne Cavaignac³
Thomas Neri⁴
Sergio Canuto⁵
Camilo Helito^{6,7}
Matthieu Ollivier⁸ 

KSSTA editorial



A different way to harvest the quadriceps tendon – the rectus femoris tendon





Quads with bone plug

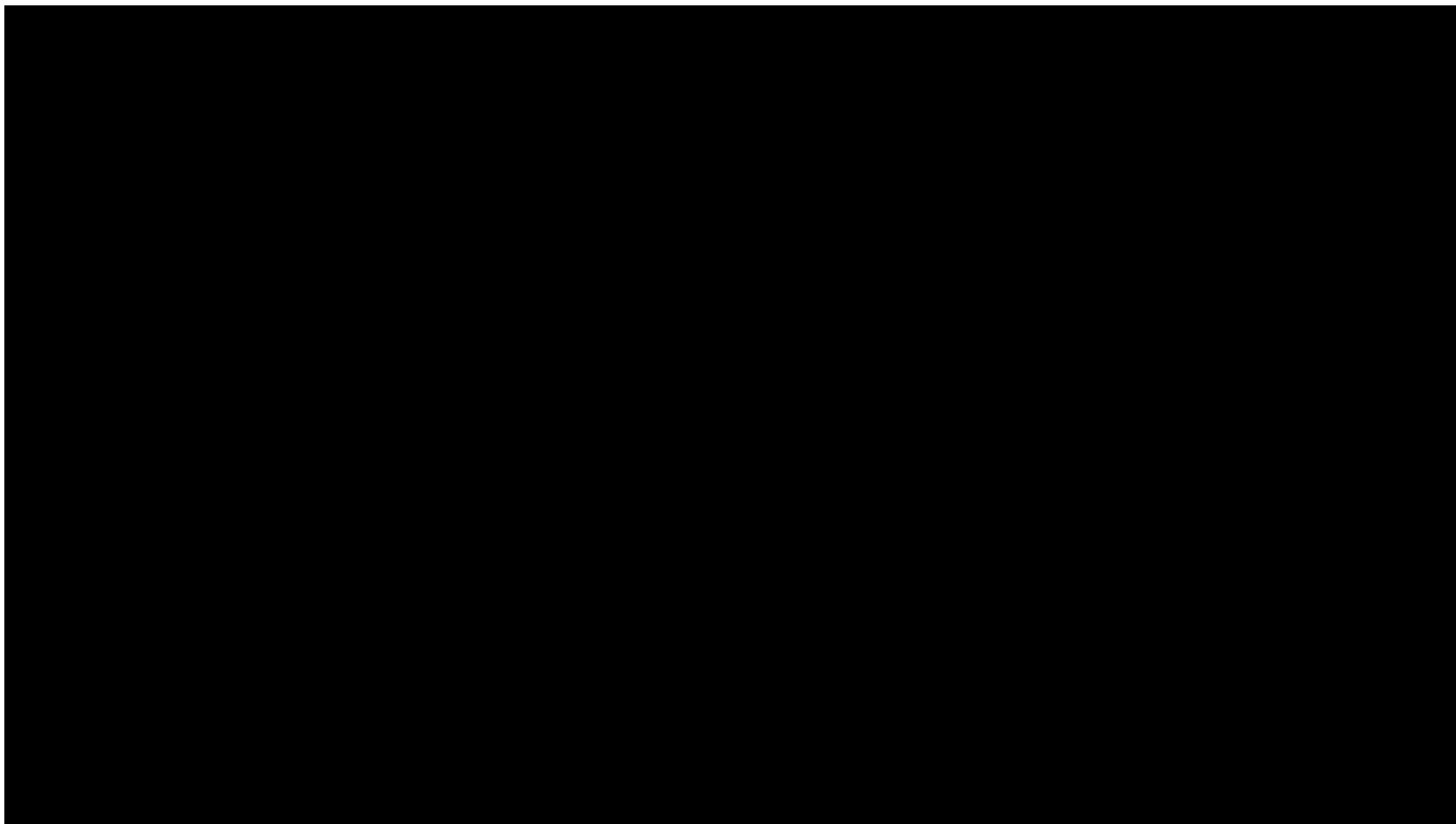


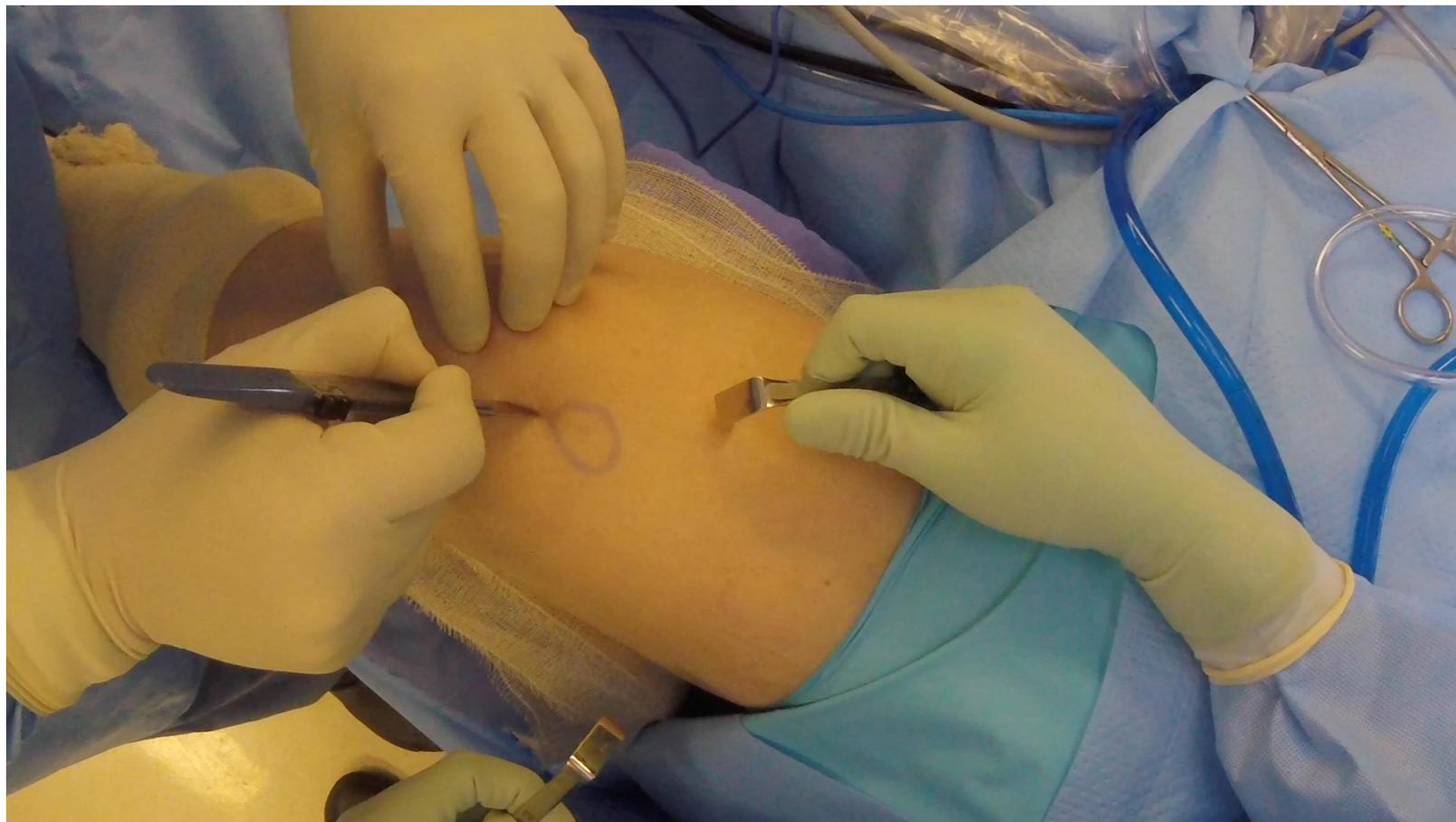
Soft tissue quads



Rectus femoris

THE RECTUS FEMORIS IS DIFFERENT FROM THE REGULAR QUADRICEPS GRAFT





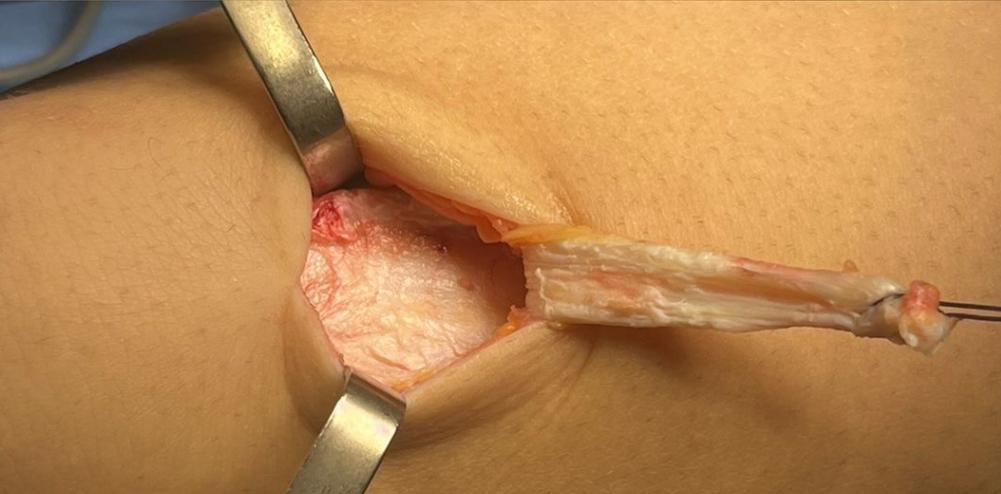
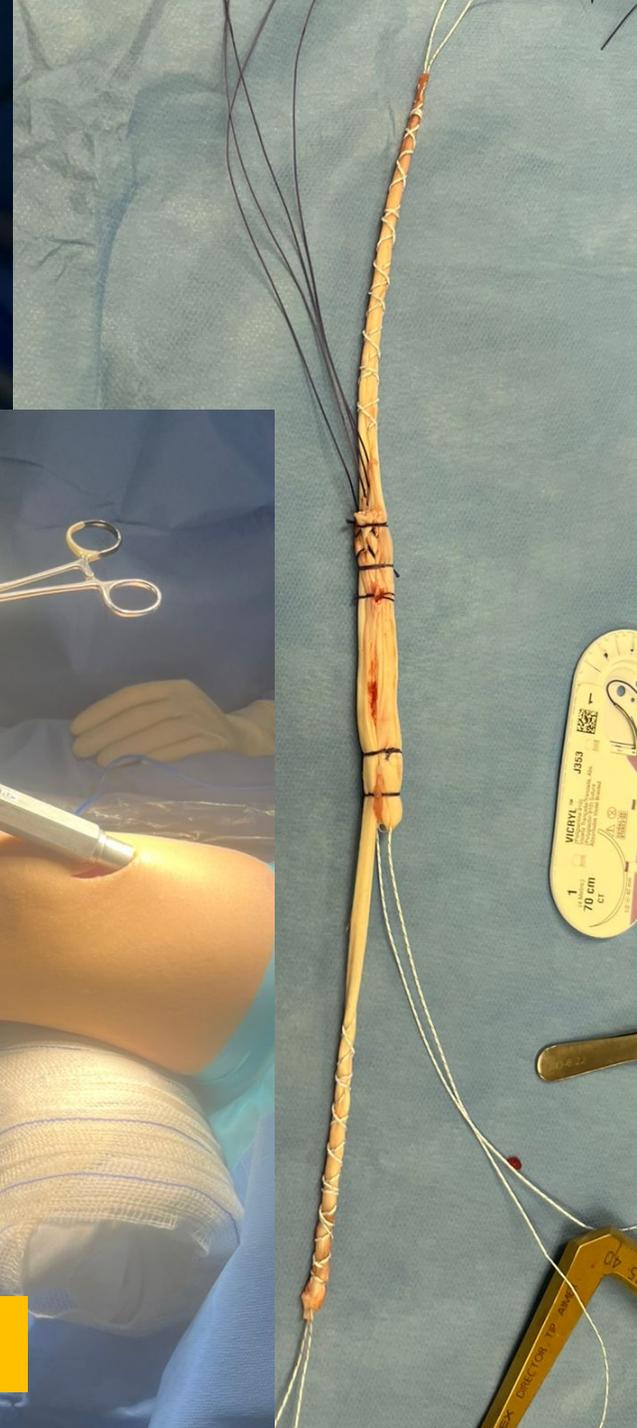


No significant quadriceps inhibition postoperatively



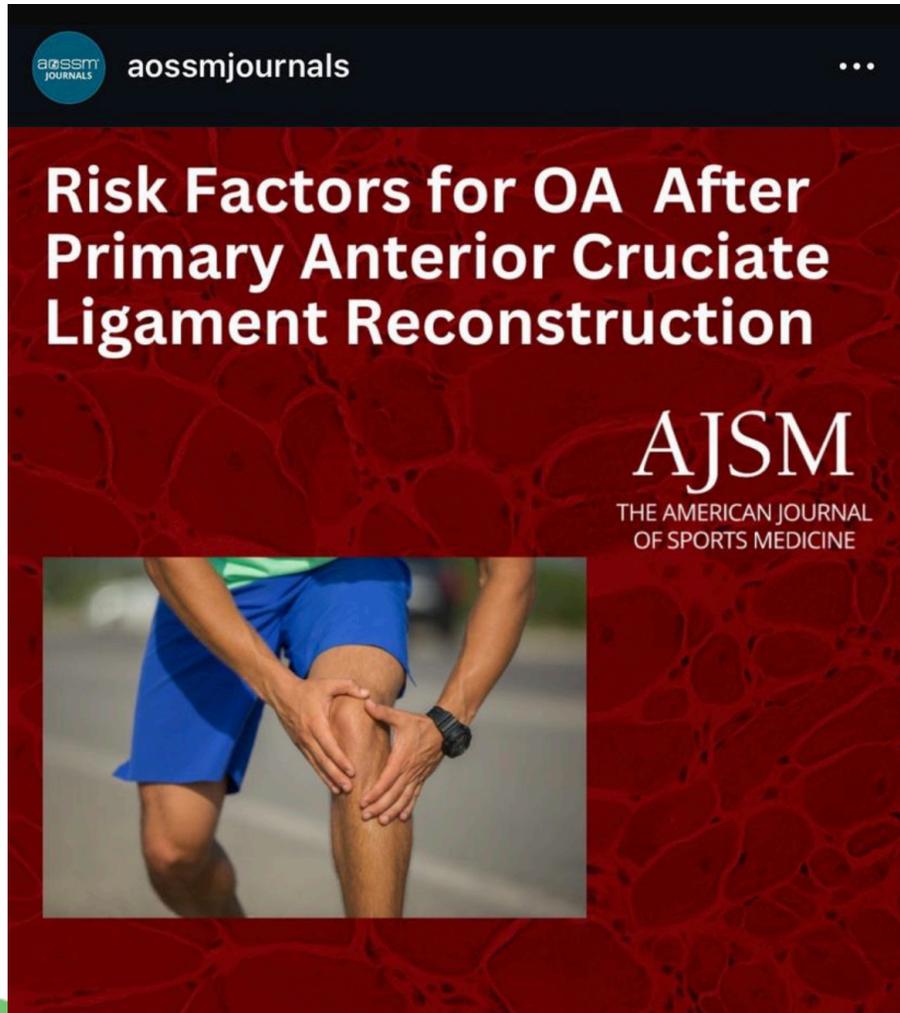
Same patient as in the last slide – 7 days post-op





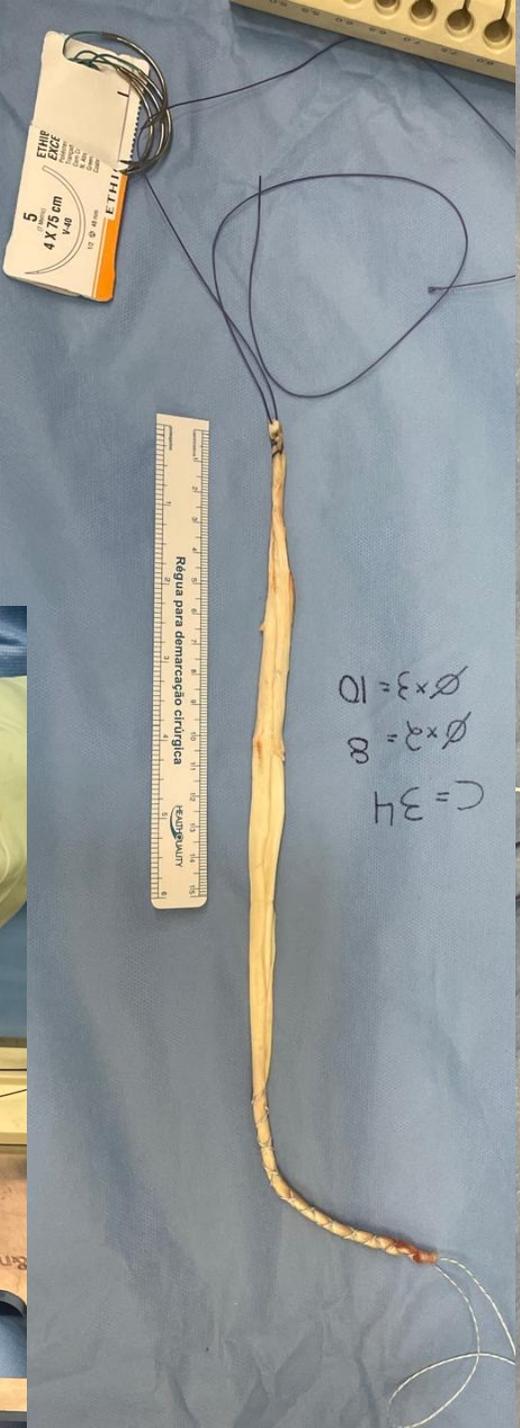
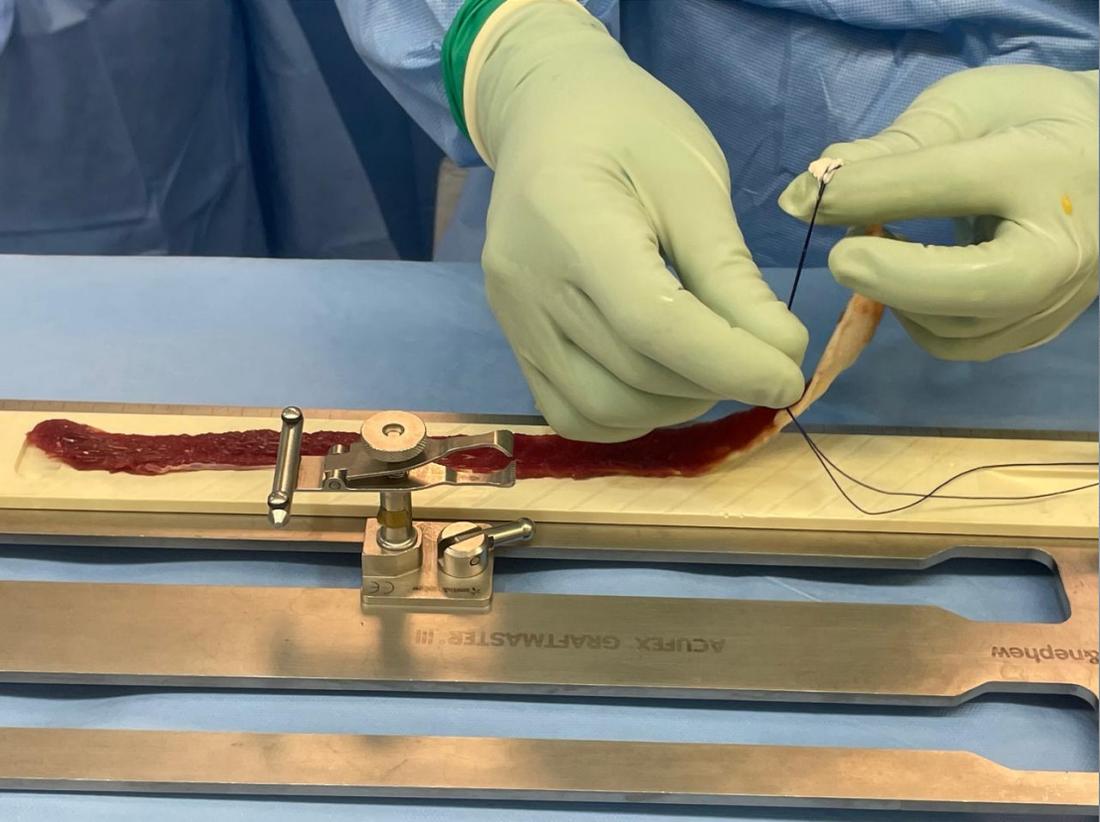
No need to close the tendon – less increase in patellofemoral pressure?

Quadriceps tendon graft



Risk factor for osteoarthritis

Knee pain after ACLR may be an early sign of PTOA. Surgeons should consider the adverse associations of a higher body mass index and an allograft or **quadriceps tendon autograft with the development of PTOA**, as these were factors identified with a higher risk, regardless of a patient's age at the time of primary ACLR





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- 211 cases evaluated
- Average length – 30.7 ± 3.4 cm
- Double diameter – 8.1 ± 0.6 mm
- Triple diameter – 9.2 ± 0.7 mm

Tips and Tricks

- 1 – Separate the rectus femoris from the vastus intermedius about 2 cm proximal to the patella (at the patella, separation is more difficult)
- 2 – Only sink the scalpel blade about 2-3 mm (more than that will cause capsule rupture and vastus invasion)
- 3 – Dissect the tendon proximally for about 7-8 cm (less than that will not adequately separate the tendon from the vastus intermedius)
- 4 – Test that the tendon moves well, without adhesions
- 5 – Use a rigid and wide stripper (preferably at least 8 or 9 mm apperture)

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Combined Anterior Cruciate Ligament and Anterolateral Ligament Reconstruction Using the Superficial Layer Quadriceps Tendon Graft: Surgical Technique Description

Bernardo Garcia Barroso, M.D., Sergio Marinho de Gusmão Canuto, M.D., Camilo Partezani Helito, M.D., Ph.D., Márcio Cabral Fagundes Rêgo, M.D., Felipe Silveira Martins, M.D., and Marcelo Cabral Fagundes Rêgo, M.D.

Combined Reconstruction of the Anterior Cruciate Ligament, Anterior Oblique Ligament, and Medial Collateral Ligament of the Knee: Surgical Technique Description

Vinícios Barreto Melo, M.D., Saulo Santos Blunk, M.D., Sérgio Marinho de Gusmão Canuto, M.D., Gustavo da Silva Caldeira, M.D., Vitor Barion de Castro de Pádua, M.D., Ph.D., Camilo Partezani Helito, M.D., Ph.D., and Pedro Baches Jorge, M.D., Ph.D.



Medial Patellofemoral Complex Reconstruction Using the Rectus Femoris Tendon

Anshu Shekhar, M.S., Sachin Tapasvi, M.S., D.N.B., F.R.C.S., and Camilo Helito, M.D., Ph.D.



Combined Anterior Cruciate Ligament and Anteromedial Oblique Ligament Reconstruction Using the Rectus Femoris Tendon: Description of Surgical Technique

Márcio Cabral Fagundes Rêgo, M.D., Bernardo Garcia Barroso, M.D., Camilo Partezani Helito, M.D., Ph.D., Marcelo Cabral Fagundes Rêgo, M.D., Sergio Marinho de Gusmão Canuto, M.D., Diego Escudeiro de Oliveira, M.D., and Pedro Baches Jorge, M.D.

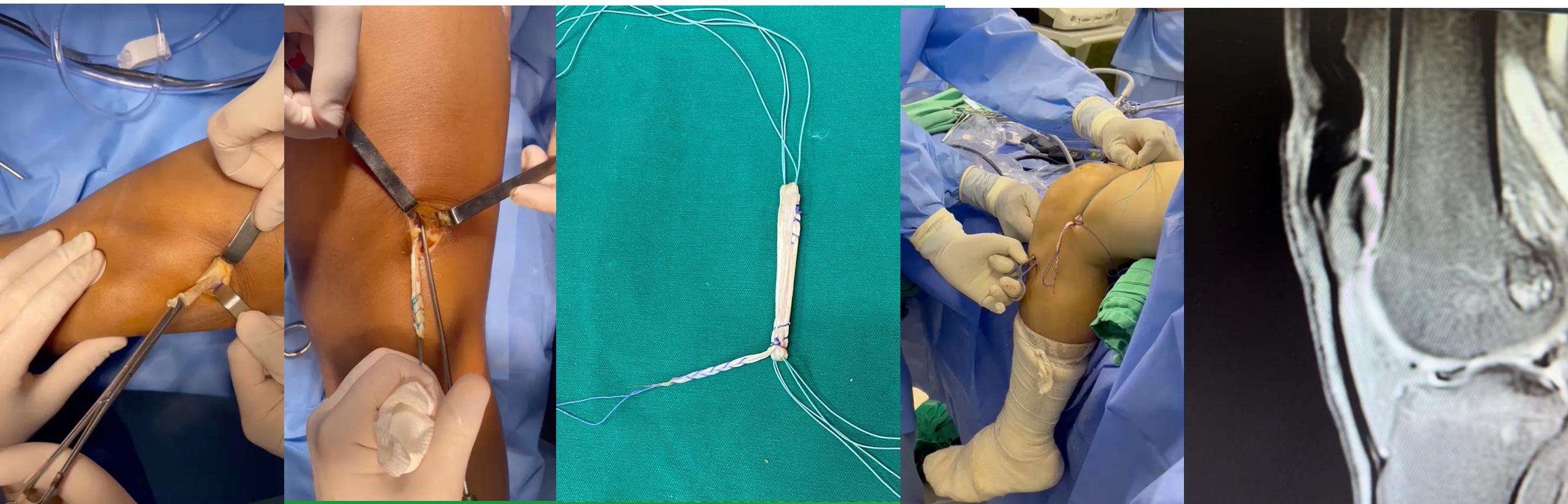


Double-Bundle Posterior Cruciate Ligament Reconstruction Using the Rectus Femoris Graft-Superficial Layer of the Quadriceps: Surgical Technique

Felipe Silveira Martins, M.D., Augusto Thadeu Cardoso Filho, M.D., Sergio Marinho de Gusmão Canuto, M.D., Camilo Partezani Helito, M.D., Ph.D., Bernardo Garcia Barroso, M.D., Márcio Cabral Fagundes Rêgo, M.D., Marcelo Cabral Fagundes Rêgo, M.D., and Diego Ariel de Lima, M.D., Ph.D.

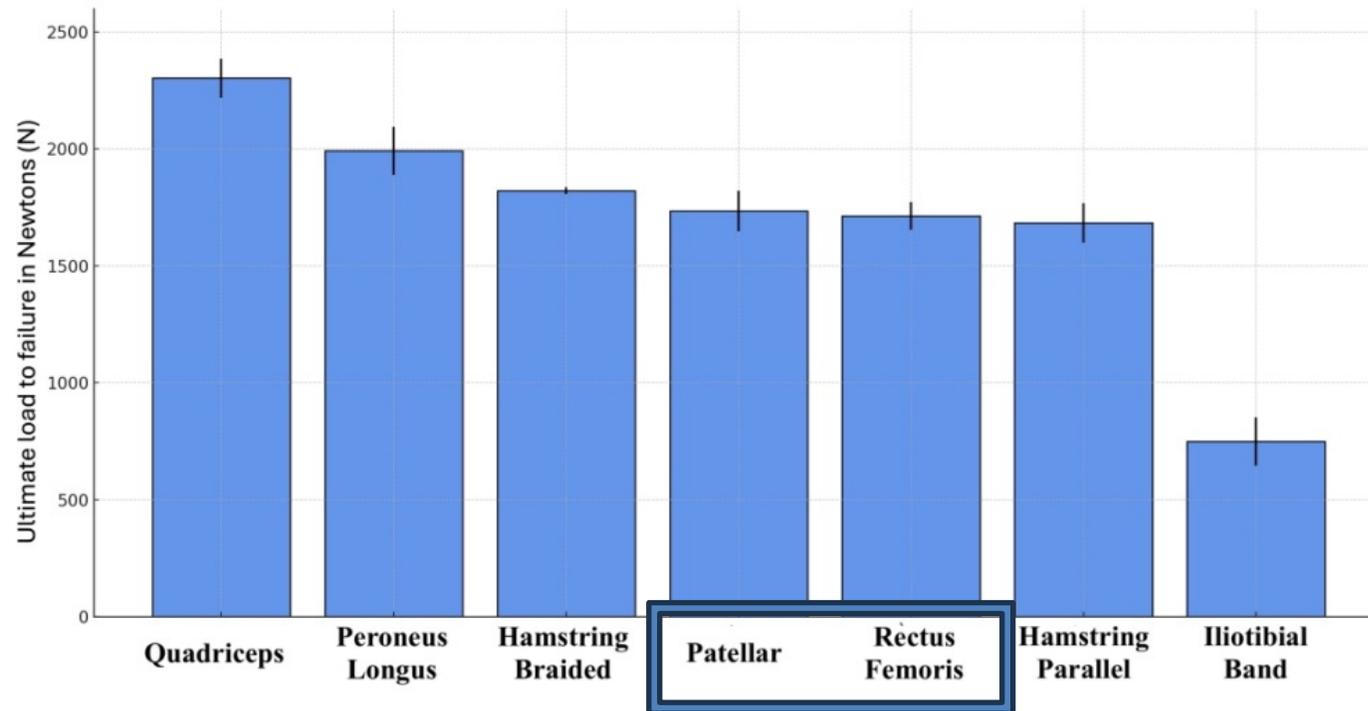


Several ongoing studies on ACL reconstruction using the rectus femoris tendon



Comparative Biomechanical Strength of Autografts for Ligament Reconstruction: Quadriceps, Rectus Femoris, Peroneus Longus, Patellar, Hamstring quadruple, Hamstring braided, and Iliotibial Band

Under review

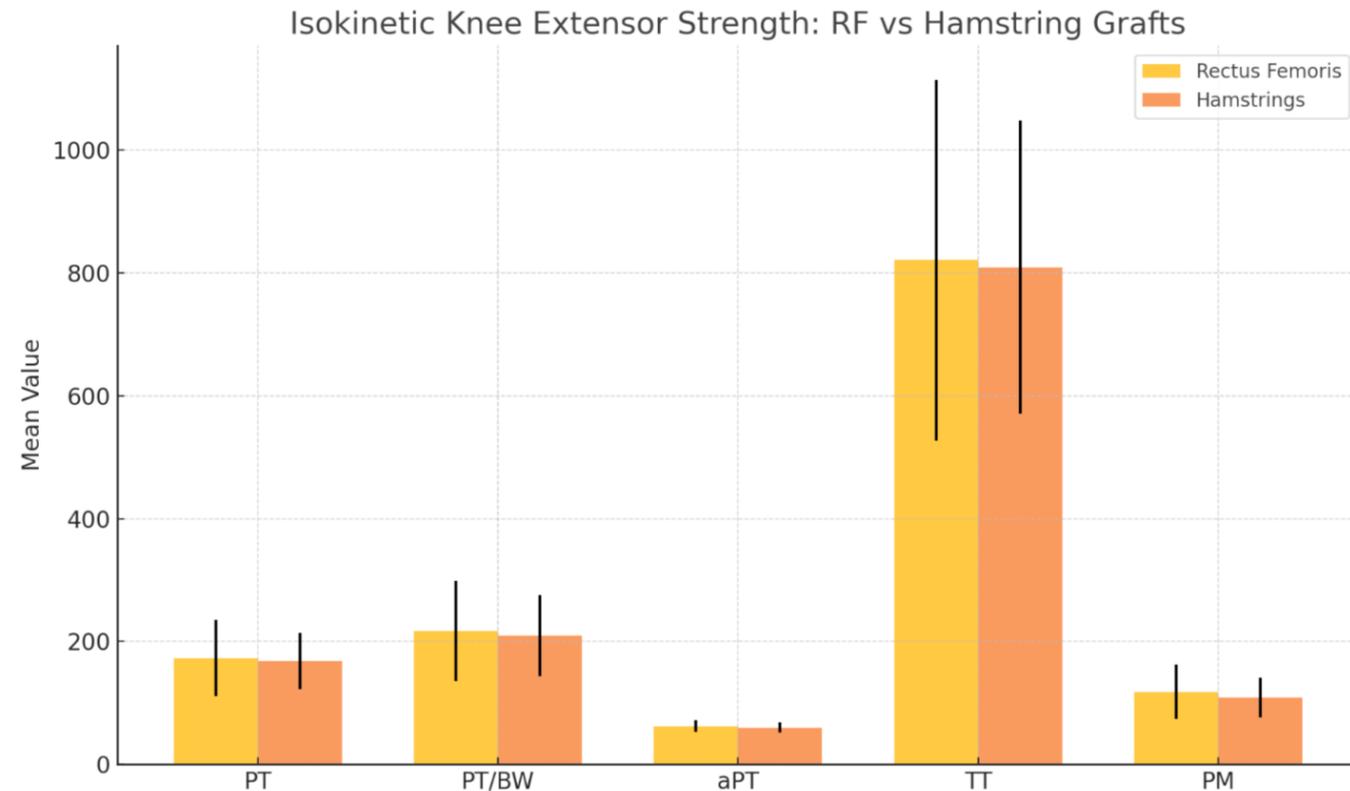


“...double strand rectus femoris and braided quadruple strand hamstring configurations showed similar properties to patellar tendon and parallel quadruple strand hamstring...”

Figure 3. Ultimate load to failure of different autologous graft configurations. Units expressed in Newtons (N).

Comparable isokinetic quadriceps performance six months after ACL reconstruction with rectus femoris versus hamstring tendon autografts

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 Jamilson Simões Brasileiro²  | Marcelo Cabral Fagundes Rêgo¹  |
 Camilo Partezani Helito³  | Carlos Eduardo da Silveira Franciozi⁴  |
 Diego Ariel de Lima⁵  

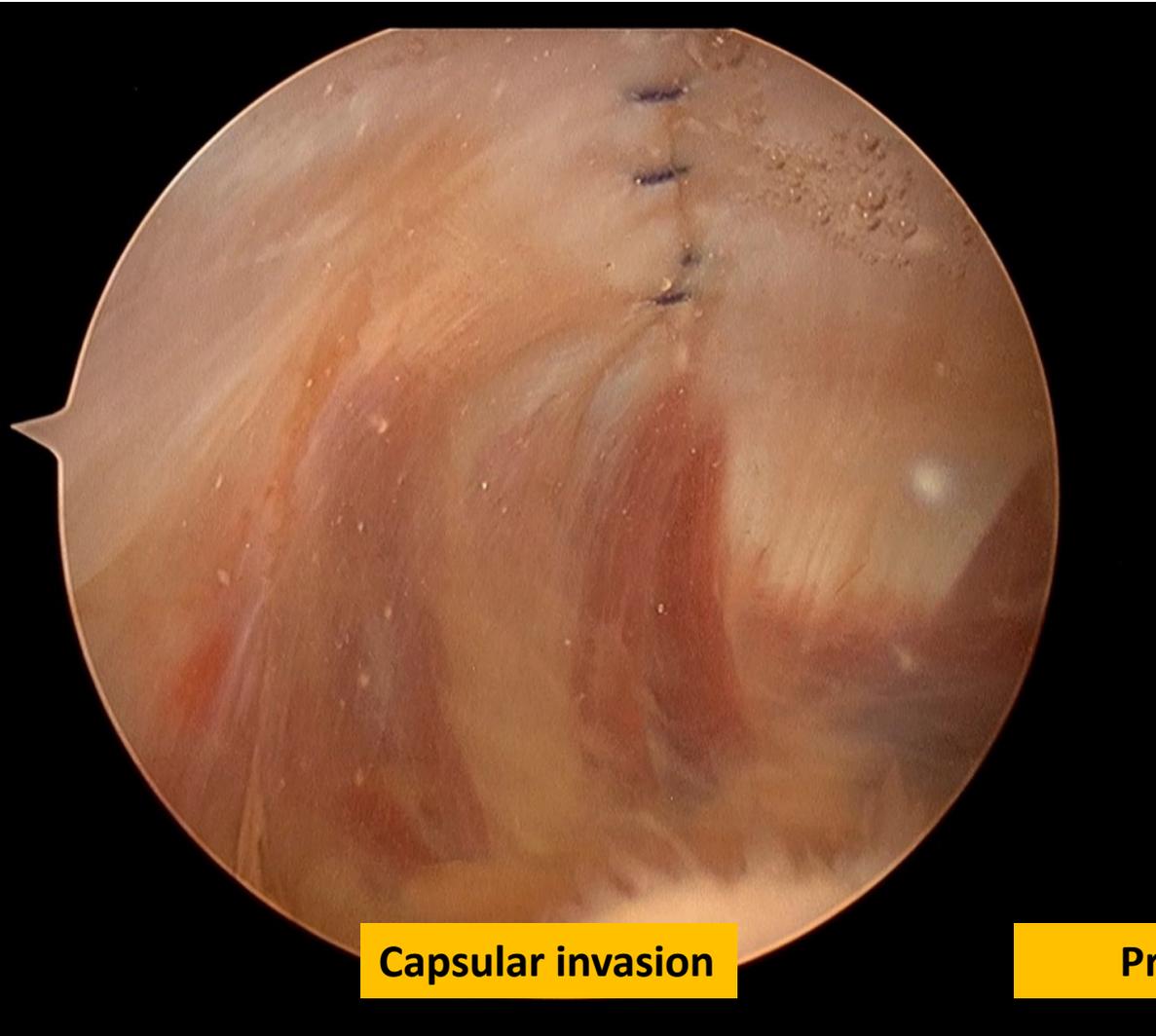


At 6 months after ACLR, quadriceps performance did not differ between RF and HT autografts

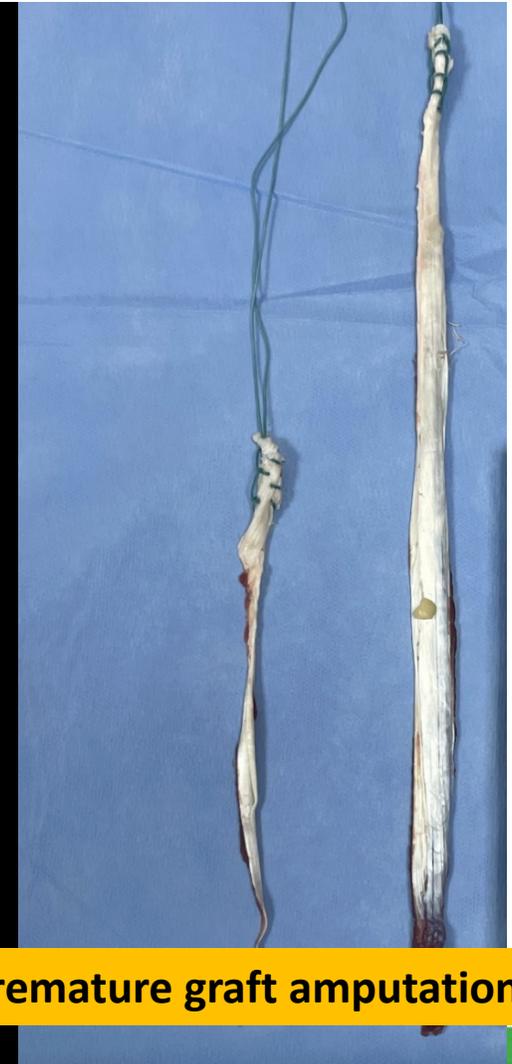
Possible complications – 11,4% of minor complications in our first series (learning curve)



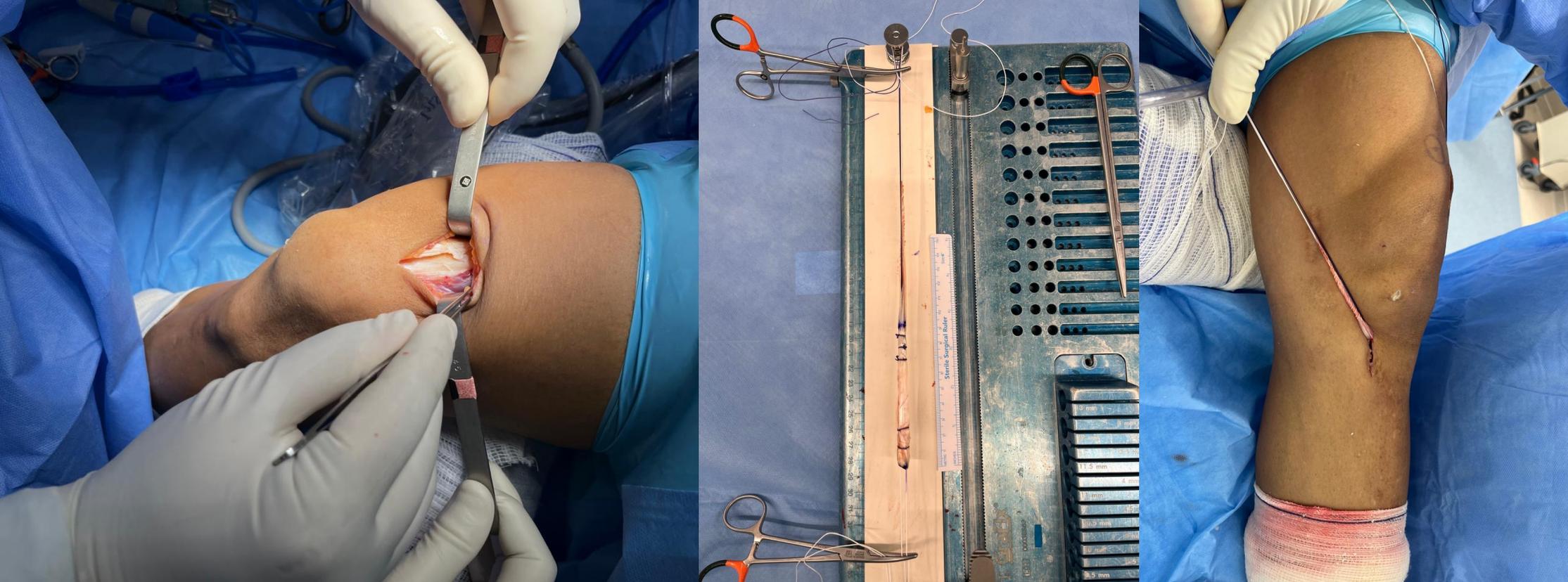
Thigh hematoma



Capsular invasion



Premature graft amputation



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- Multicentric clinical study started in 2021 – 369 cases (minimum 2y FU)
- 200 isolated ACL / 142 ACL + ALL / 27 ACL + AOL
- Age – 26.2 +/- 8.7y
- Lachmeter – 1.4 +/- 1.6mm / Failure rate – 3.0%

Take home message

- **The rectus femoris tendon appears to be an excellent option for reconstructions around the knee (especially ACL)**
- **Size and diameter are fairly predictable**
- **Complication rate is low after a learning curve (I personally estimate a minimum of 10 cases)**
- **An adequate stripper is key to a perfect harvesting**
- **Studies are underway to prove its effectiveness – So far, its biomechanical characteristics appear to be adequate, and the loss of quadriceps strength does not seem excessive**
- **My personal opinion is that it's an excellent graft with low morbidity during harvesting**



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Muito Obrigado!
Thank you!
Gracias!

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