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ACL-R + LET improves clinical outcomes, knee stability and reduce failure rate in pediatric population at 5 years follow-up

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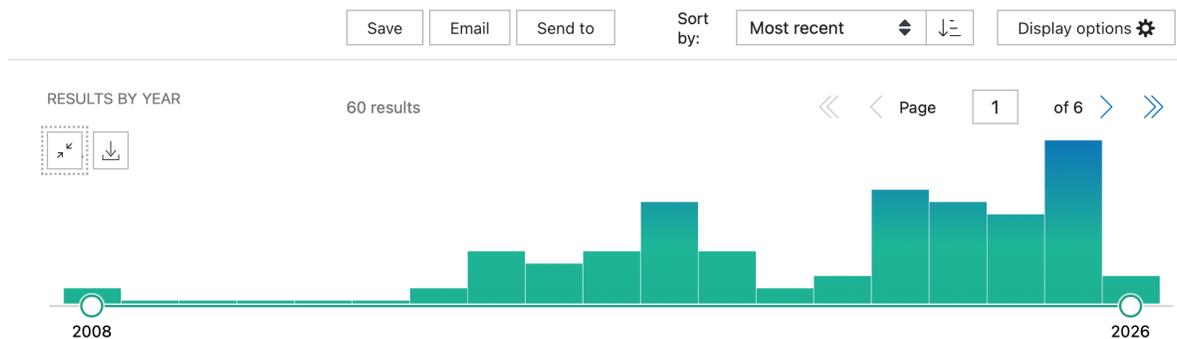
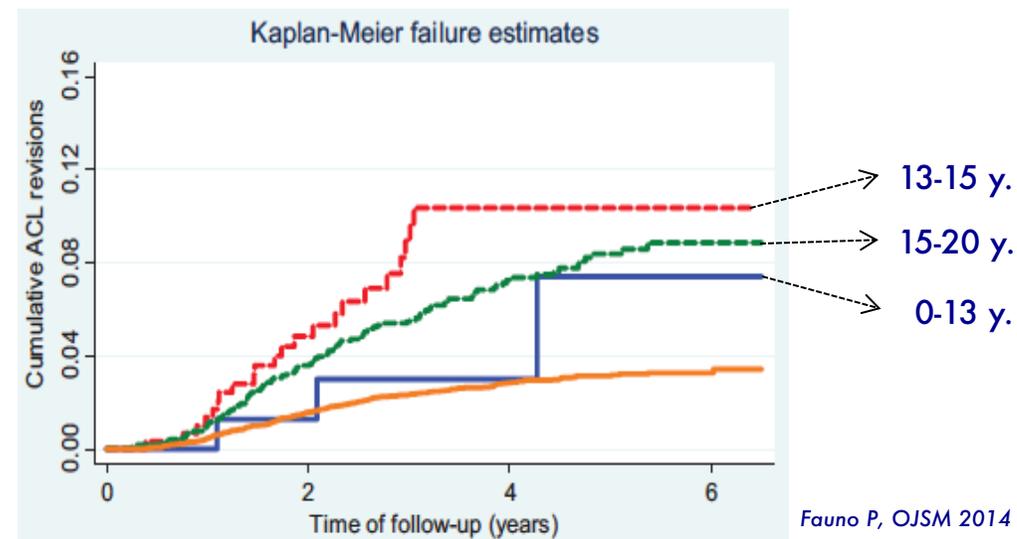
IcatKnee - ICATME - Hospital Universitario Quirón - Dexeus

Barcelona – **Prof. Joan Carles Monllau MD, PhD**

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- Failure rate after ACL-R ↑ (8.7 % - 26 %), independent of technique or graft
- Combination of lateral extra-articular tenodesis (*LET*) + *ACL-R* improves short-term outcomes
- *LET* + *ACL-R*: Unknown advantages, complications or growth disturbances in the mid-term



PURPOSE

To compare the knee stability, clinical/radiological outcomes and failure rates of isolated ACL-R versus ACLR + LET in pediatric patients at mid-term follow up

Hypothesis: combined procedures would improve knee stability, clinical outcomes and reduce the failure rate over years, without determining growth disturbance or lateral compartment degeneration

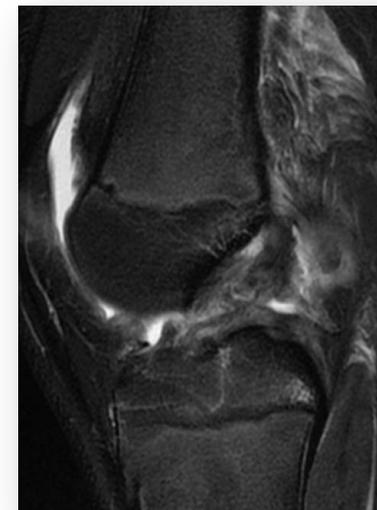
- Multicenter cohort study: **3 hospitals**

Inclusion:

- Skeletally immature (12 to 16 years of bone age)
- Complete ACL tear and primary ACL reconstruction +/- LET

Exclusion:

- Multiligament injuries
- Cartilage injuries treated at the time of ACL reconstruction
- Injuries to the roots or meniscal ramp
- Previous surgeries



2 groups, minimum follow-up 5 years:

1. Historical controls ACL-R (surgeries 2015 - 2017)
2. Prospective group ACL-R + LET (surgeries 2017 - 2019)

Assessments

Clinical

- Pedi-IKDC
- Pedi-FABS
- Failure rate

Objective stability

- KT1000

Radiological

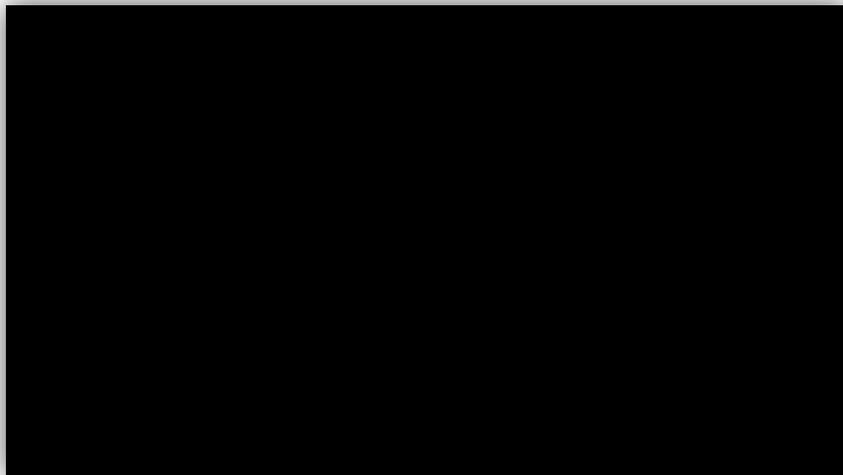
- MRI, Long-leg & Rosenberg
- Leg-length & alignment
- Degenerative changes



29 patients per group → Post-hoc power análisis >80%

Hybrid Reconstruction:

- Tibial transphyseal → Vertical tunnel
- Intraepiphyseal femur → retrodrill
- Proximal LET to avoid physis



Baseline Characteristics of the Groups^a

	Group 1	Group 2	P Value
Male, n	23	20	.191
Female, n	11	12	.434
Age, y	13.5 ± 1.2 (12-16)	13.8 ± 1.4 (12-16)	.792
Bone age, y	14.0 ± 0.9	14.1 ± 1.0	.897
Hyperextension, deg	8	9	.901
BMI, n	21.3 ± 1.6	20.9 ± 2.4	.486
Meniscal tears, n	18	22	.251
Partial meniscectomy, n	6	6	> .999
Posterolateral tibial slope, deg	6.8 (4-11)	7.3 (2-12)	.891
Posterolateral tibial slope >8°, n	8	8	.937
Graft diameter, mm	8.2 ± 0.8	8.3 ± 1.1	.879

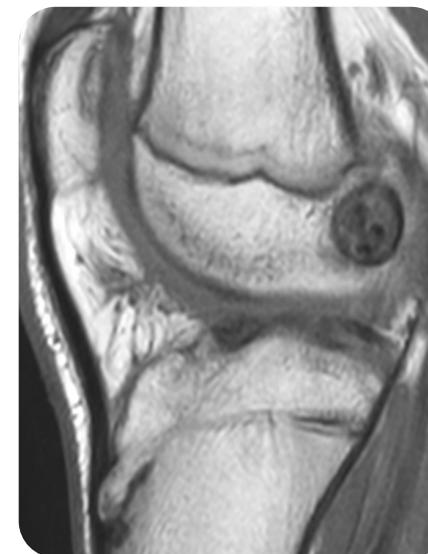
PROMs at 5-Year Follow-up

Outcome	P value
Pedi-IKDC	0.089
Pedi-FABS	0.095

Variable	Group 1	Group 2	P value
<u>AP Stability (KT-1000)</u>	2.1 ± 1.7 mm	0.9 ± 0.4 mm	0.029
Limb length discrepancy	2 patients	2 patients	0.991
Valgus deformity	2 patients	2 patients	0.884
Lateral compartment degeneration	None	None	-
Failures	8 patients (23.5%) 7 full graft ruptures (MRI) 1 clinical failure	3 patients (9.4%) 2 full graft ruptures (MRI) 1 clinical failure	0.027



Follow-up
62,2 ± 2,6 m



Original Articles

Lateral extra-articular reconstruction for anterior cruciate ligament sport

Amedeo Guarino¹
Massimo Mariconc
¹ Section of Orthopaedic
Molecular Sciences, University of
Negrar (VE), Italy

Impact of Lateral Extra-Articular Procedure Augmentation on Tegner Activity and Adolescent Anterior Cruciate Ligament Reconstruction

A Matched Comparison of Isolated ACL Reconstruction Versus ACL Reconstruction Combined With Lateral Extra-Articular Procedure: A 2-Year Follow-up

Mohamad K. Moussa,^{*†} MD, MSc
Adam Coughlan,[‡] MD, Aymen Zg
and Alexandre Hardy,[†] MD, MSc
Investigation performed at the Clinica

Isolated ACL Reconstruction Versus ACL Reconstruction Combined With Lateral Extra-Articular Procedure

A Comparative Study in Adolescent Patients

Edoardo Monaco,^{*} MD, Alberto
Fabio Conteduca,^{*} MD, Alberto
Marta Minucci,^{*} MD, Bertr
Investigation performed at

Anterolateral augmentation procedures during anterior cruciate ligament reconstructions in skeletally immature patients: Scoping review of surgical techniques and outcomes

Martijn Dietvorst¹  | Stéphanie Verhagen¹ | Marieke C. van der Steen^{1,2} | Florens Q. M. P. van Douveren¹ | Rob P. A. Janssen^{1,3,4}

Hypothesis: combined procedures would improve stability, clinical outcomes and reduce the failure rate over years, without determining disturbance or lateral compartment degeneration





Autologous 4-strand hamstring **ACLR+LET** reduced the **cumulative failure rate** and improved objective stability at mid-term follow up, **without significant growth disturbance** or lateral compartment degeneration



Mission, Vision, Plan



Thank you for your attention