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Modified Lemaire Technique in ACL Repair Surgery With a Return to Sport Focus

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Faculty Disclosure Information

- Nothing to disclosure.

Background & Purpose

- ACL injuries compromise knee stability and impact athletic performance.
- Standard ACL repair may lack sufficient rotational control, risking failure.
- The modified Lemaire technique, a lateral extra-articular tenodesis, may enhance rotational stability.
- Objective: Compare outcomes of ACL repair with vs without the modified Lemaire technique, focusing on return to sport (RTS) and stability.

Aim of the Study

- To evaluate whether adding the modified Lemaire technique to ACL repair improves return to sport and rotational stability outcomes compared to ACL repair alone.

Patient Cohort and Group Allocation

Prospective cohort study (2022–2023).

43 athletes undergoing primary ACL repair.

Group 1: ACL repair only (n = 22)

Group 2: ACL repair + modified Lemaire (n = 21)

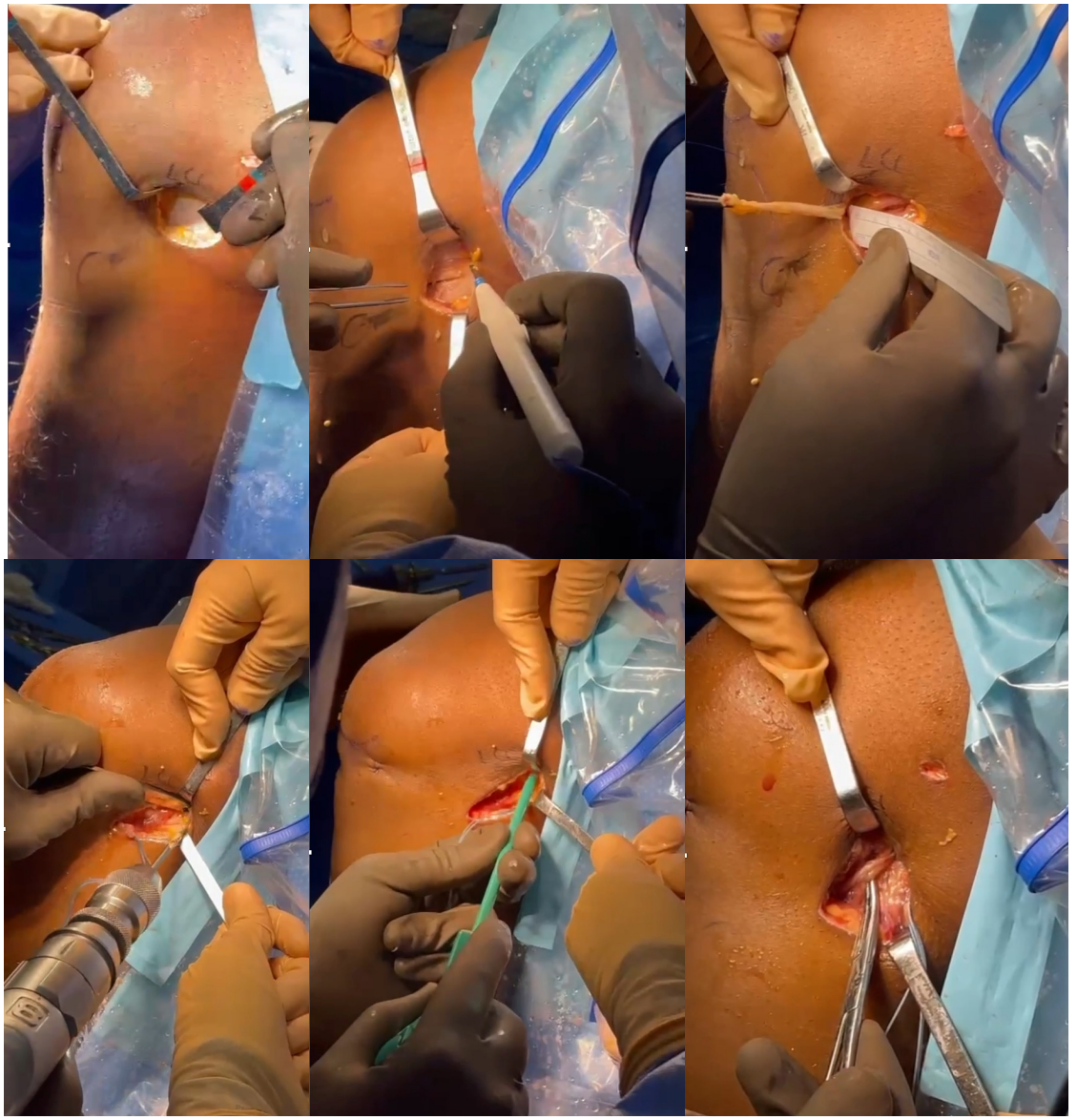
Follow-up at 30, 180, and 360 days post-op.

Evaluation Tools & Follow-Up

- Return to sport (RTS): self-reported + performance-based metrics.
- Rotational stability: pivot shift test + imaging (MRI)
- Functional outcome scores:
  - Lysholm Knee Score
  - ACL-Return to Sport after Injury (ACL-RSI)

Surgical Approach

- All ACL repairs performed arthroscopically.
- Modified Lemaire technique involved an iliotibial band strip fixed to the lateral femoral condyle.
- Same rehab protocol for both groups, including early ROM, progressive loading, and supervised return to sport programming.



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Baseline Characteristics

Variable	ACL Repair Only (n = 22)	ACL + Lemaire (n = 21)	p-value
Age (mean ± SD, years)	24.8 ± 3.6	25.1 ± 4.0	0.71
Sex (Male/Female)	14 / 8	13 / 8	0.93
BMI (kg/m^2)	23.4 ± 2.1	23.8 ± 1.9	0.48
Pre-injury Tegner Score	6.8 ± 0.6	6.9 ± 0.7	0.62
Pivot Shift Positive (Pre-op)	100%	100%	–

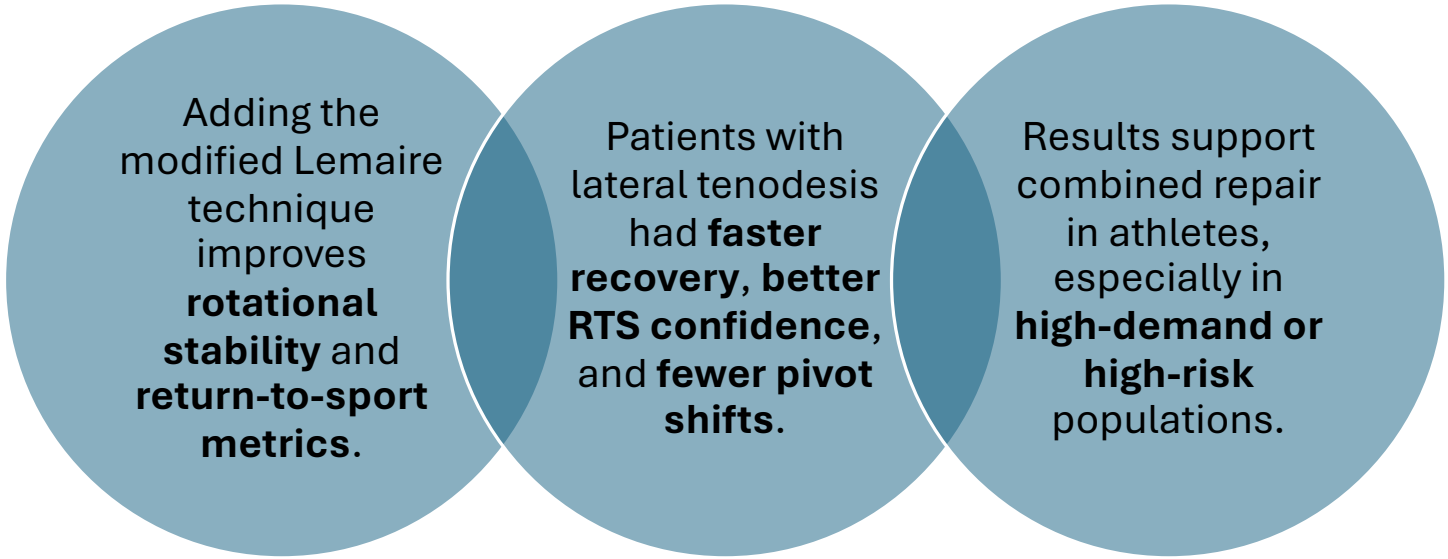
Return to Sport Outcomes

Outcome	ACL Repair Only	ACL + Lemaire	p-value
Returned to sport (%)	68.2% (15/22)	90.5% (19/21)	**0.04****
Time to RTS (days, mean ± SD)	278 ± 46	242 ± 39	**0.01****
RTS at same level as pre-injury (%)	54.5%	81.0%	**0.03****

Rotational Stability & Function

Variable	ACL Only	ACL + Lemaire	p-value
Pivot shift (grade ≥ 1 at 360 days)	4/22 (18.2%)	0/21 (0%)	**0.03****
MRI signal intensity (abnormal graft)	5/22	1/21	**0.04****
Lysholm Score (day 360)	87.6 ± 9.3	91.3 ± 7.1	0.08
ACL-RSI (day 360)	78.1 ± 11.8	85.7 ± 9.6	**0.02****

Interpretation of Findings



Conclusions

The modified Lemaire technique significantly improves RTS and rotational control.

Ideal for:
- Competitive athletes
- Patients with high pivot shift
- Adolescents or revision cases

Recommends further randomized and long-term studies.

References

1. Jesani S et al. Modified Lemaire lateral extra-articular tenodesis augmentation of ACL reconstruction. JBJS Essent Surg Tech. 2019.
2. Flury A et al. Modified Lemaire procedure: indication, procedure, and clinical results. Orthopade. 2019.
3. Muller B et al. Minimally invasive modified Lemaire tenodesis. Arthrosc Tech. 2020.
4. Joseph L et al. Modified Lemaire procedure in ACLR does not compromise muscle recovery. J Exp Orthop. 2020.
5. Schlichte LM et al. Modified Lemaire lateral tenodesis in pediatric ACL reconstruction. Arthrosc Tech. 2019.