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Evaluation of Anterior Tibial Translation Under Physiological Axial Load After ACL Reconstruction with Lateral Extra-Articular Tenodesis

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Faculty Disclosure Information

- Nothing to disclosure



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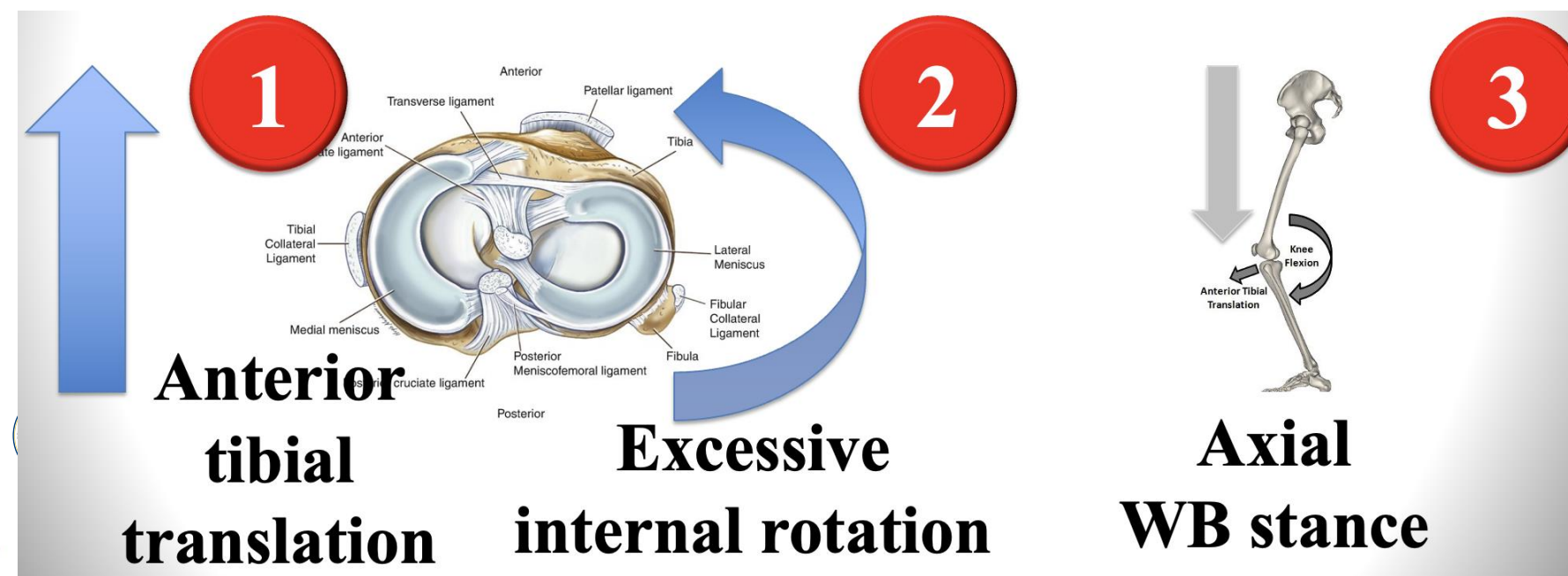


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Introduction

Laxity in ACL surgery can be assessed by the response to

- 1) Translational force – Lachman test/ KT-1000
- 2) Excessive internal rotation- Pivot shift
- 3) Axial load= ‘Static anterior tibial translation’



Introduction

Static anterior tibial translation
= In vivo measure of ACLR graft stress.

= radiographic measure of the amount of tibial translation
in response to the physiological axial load during a single-leg stance

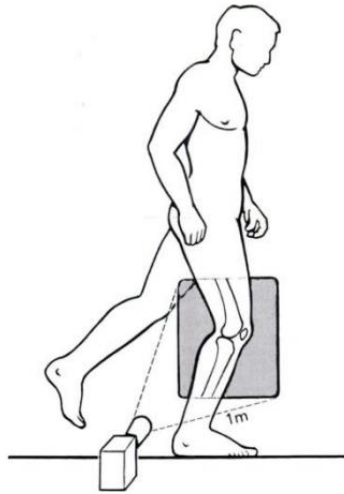


Fig. 1

The technique of the lateral monopodal stance test.



Fig. 2

The radiological measurement of medial anterior tibial translation (MATT-MS) in a monopodal stance test on a patient with chronic anterior laxity of one knee. On the right knee which had ACL rupture and a damaged medial meniscus, the MATT-MS was 10 mm, on the left (normal) knee it was 2 mm, giving a difference of 8 mm.

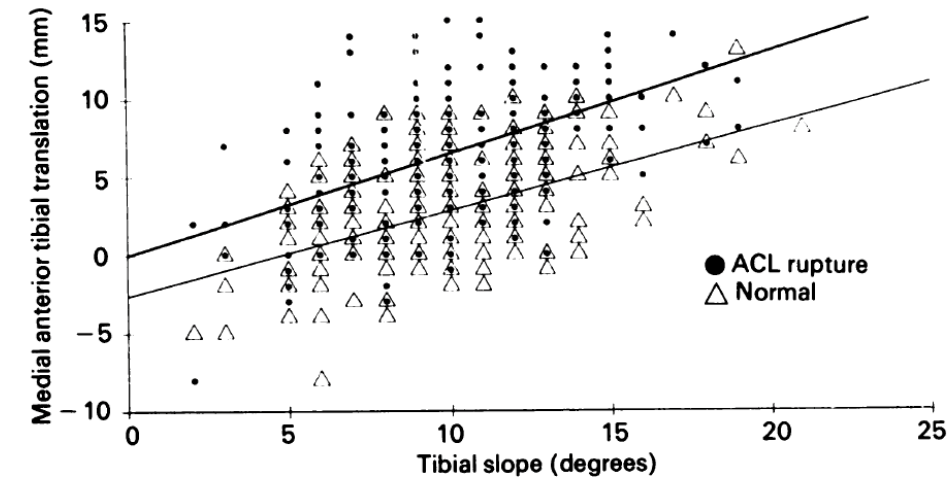


Fig. 6

Correlation between the slope of the tibial plateau and medial anterior tibial translation in monopodal stance (see text).

Slope and translation correlated,
even if ACL intact



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Introduction

Lateral Extra-articular procedures(LEAP) reduce laxity due to internal rotation- ↓ pivot shift

What effect does LEAP have on SATT????

?????



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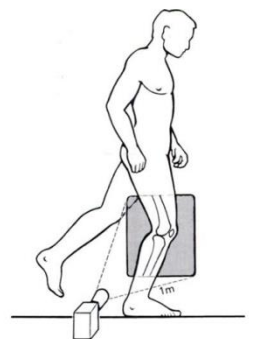
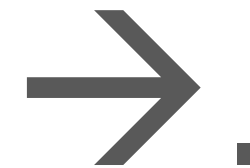


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Methods

Retrospective consecutive series between 2020 and 2022

ACL Reconstruction (hamstring) tendon autografts + LET (modified Lemaire) was paired 1 to 1 to a cohort of patients who underwent ISOLATED ACLR (hamstring tendon autografts



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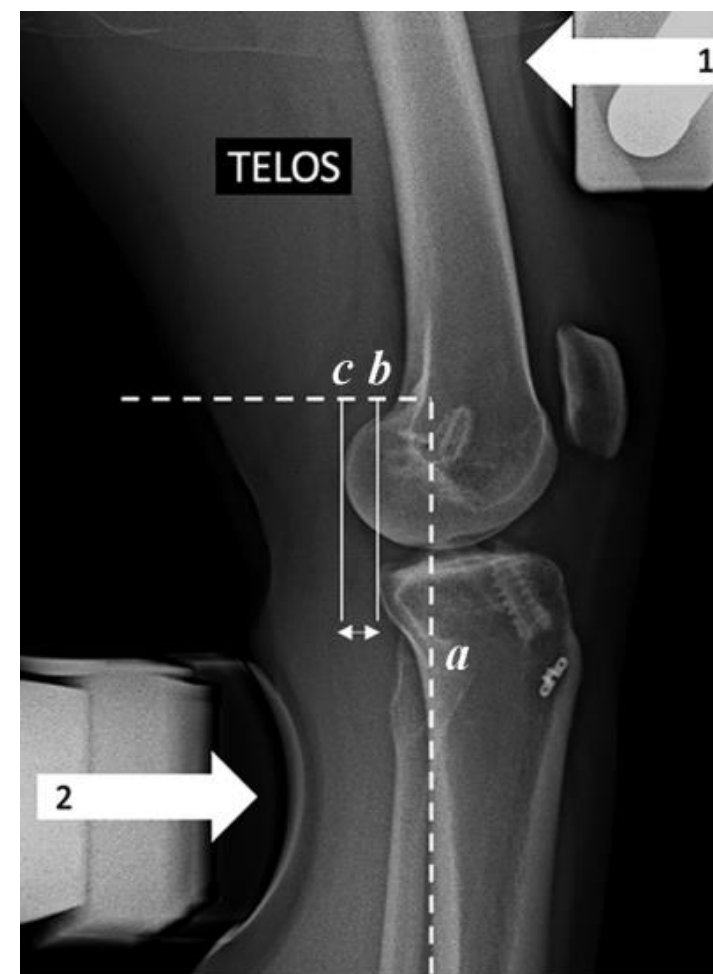
Methods

Measured;

- SATT



Telos



Slope



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Results

Variable	Isolated ACLR	ACLR + LET	<i>P</i>
Sex, % male	61	47.1	.24
Age, y	26.42 ± 8.27	25.24 ± 8.63	.56
Side affected, % right	61.1	67.6	.58
Tibial slope, deg	9.78 ± 2.44	9.41 ± 2.88	.57
Graft diameter, mm	8.56 ± 0.50	8.62 ± 0.41	.58
Radiographic data, mm			
SATT preop	2.60 ± 2.99	2.44 ± 2.90	.83
SATT postop	2.12 ± 2.74	2.44 ± 2.38	.60
Δside-to-side DATT			
Preop	5.03 ± 3.66	5.44 ± 4.65	.68
Postop	2 ± 3.12	1.13 ± 2.95	.24
Δ(postop – preop) SATT, mm	–0.48 ± 3.24	0 ± 2.82	.51
Δ(postop – preop) side-to-side DATT, mm	–3.02 ± 3.10	–4.31 ± 3.57	.66

Overall= reduction in pre to post op Telos in both groups, but no difference between groups for SATT or Telos



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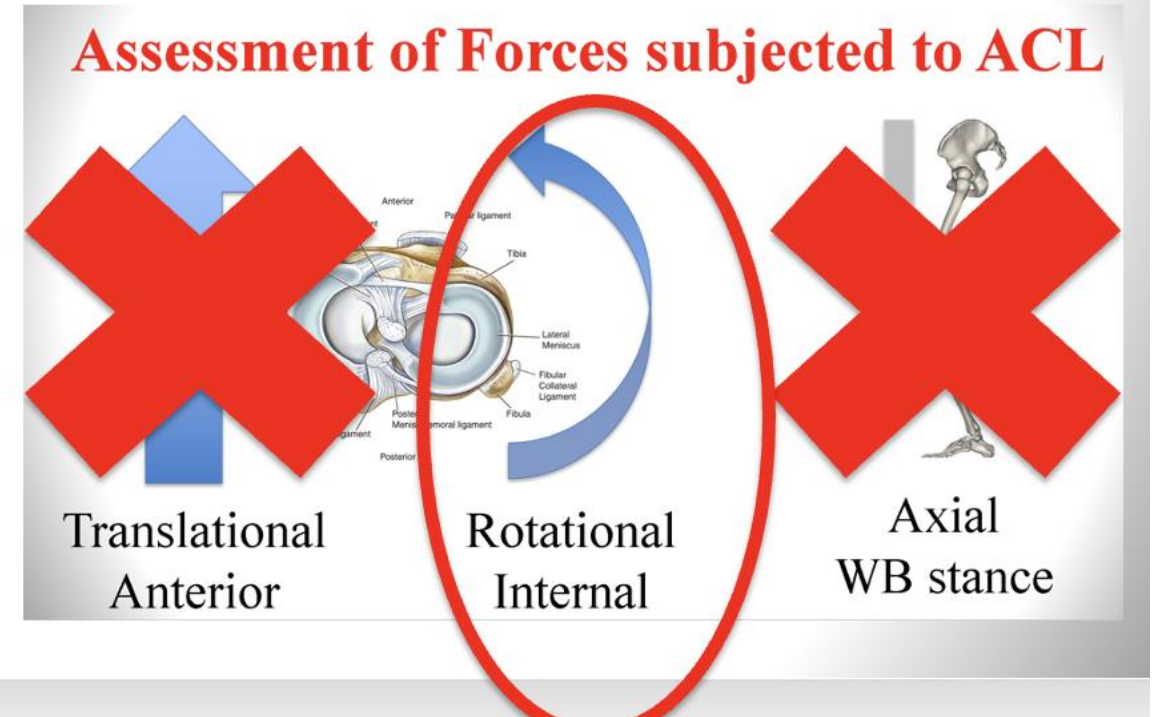


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Discussion

Lemaire does not improve SATT

LEAP for rotational control



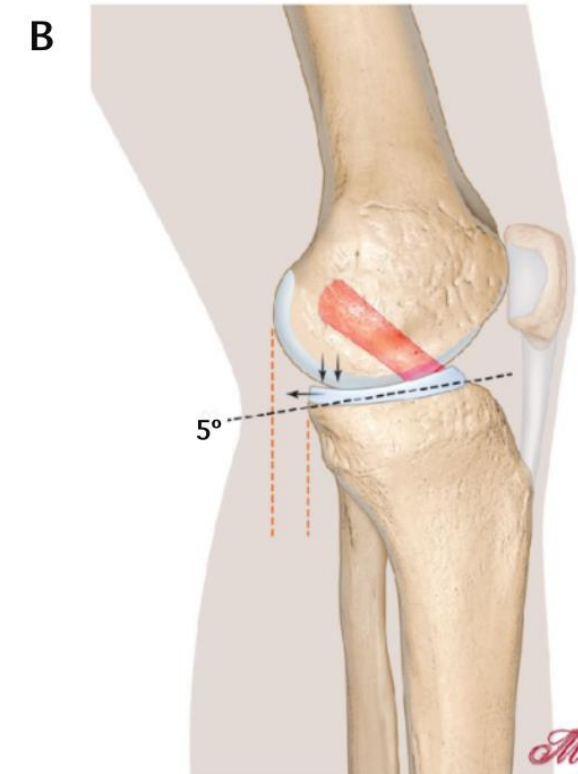
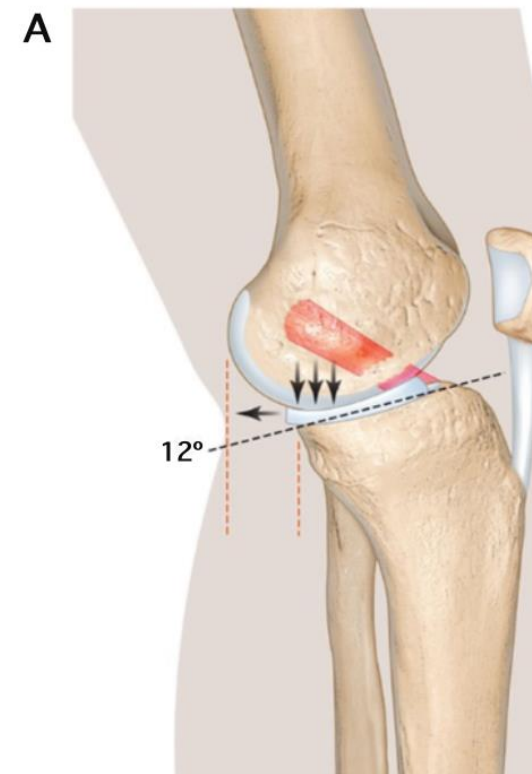
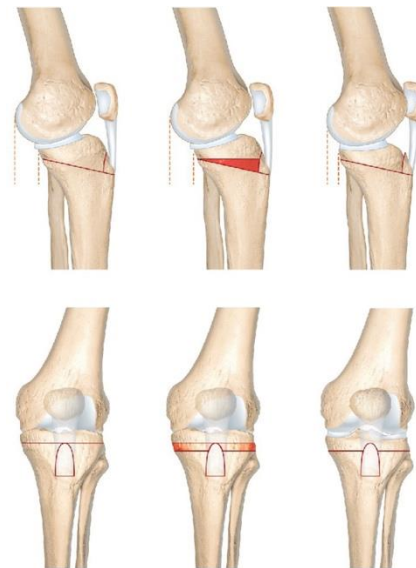
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Discussion

In patients with increased SATT and tibial slope, to reduce SATT in ACL reconstruction consider deflexion tibial osteotomy to decrease posterior tibial slope



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Conclusion

The findings of our study suggest that including a LEAP in patients undergoing ACLR does not reduce SATT.

It is crucial to consider the evaluation of this parameter before recommending an associated LEAP in ACLR, particularly in patients with an increased tibial slope.

Adding a tibial slope osteotomy may be more appropriate to reduce the SATT in patients with increased tibial slope and associated increased static anterior tibial translation.



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