



Reduced Knee Flexion Strength 18 Years After ACL Reconstruction With Hamstring Tendon Versus Patellar Tendon

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Investigation performed at Trondheim University Hospital, Trondheim, Norway



Purpose

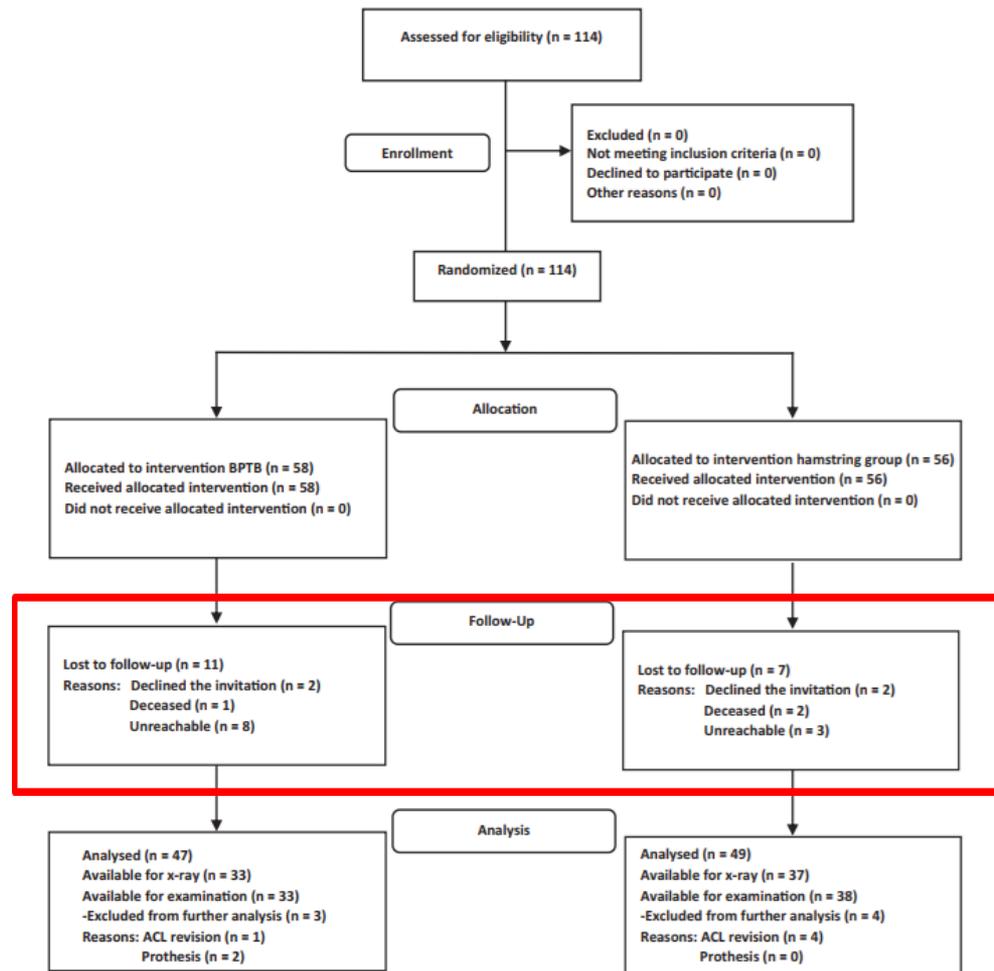
- RCT
- Comparing the results after using either BPTB or HT grafts 18 years after ACLR

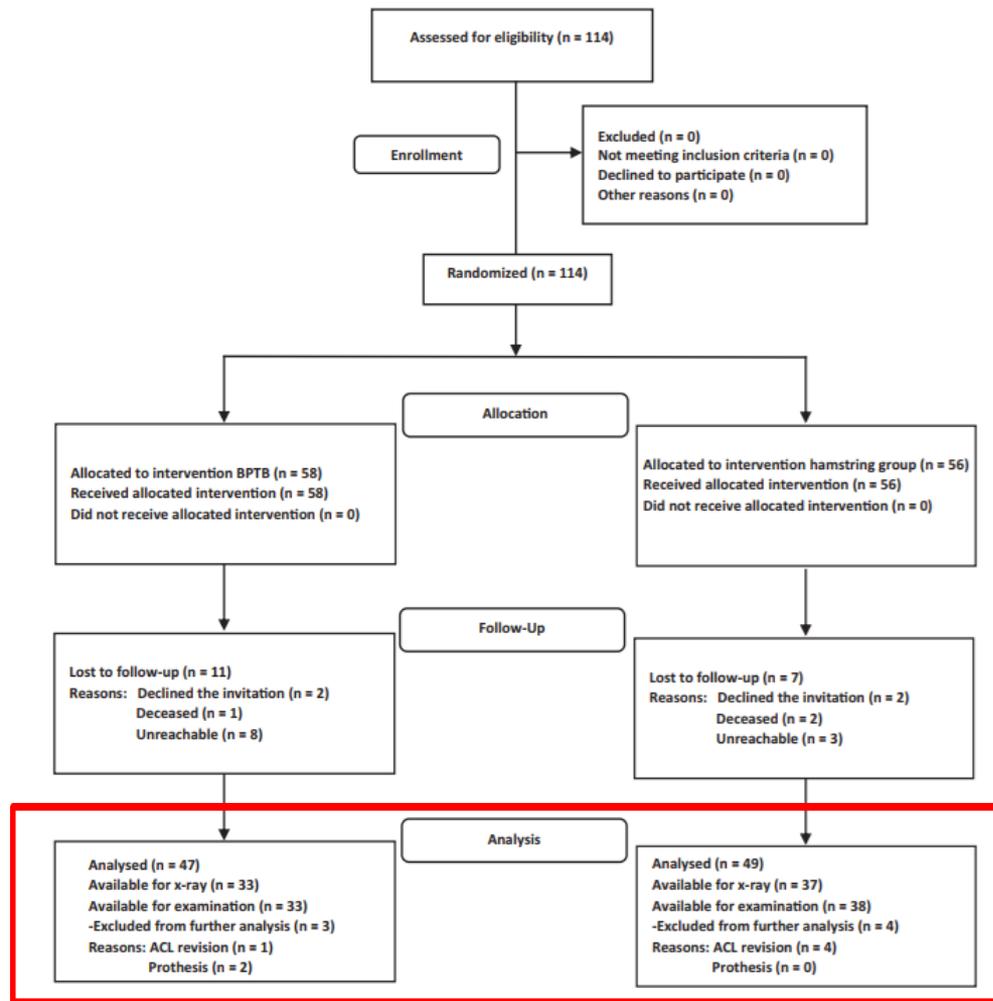


Methods

- 114 patients
 - 2001 and 2004
 - Randomized to
 - BPTB graft (n=58)
 - Hamstring tendon graft (DLSG) (n=56)
- At 4 major hospitals in Norway







Follow-up: 18 years

- 96 patients (84%) were available at the follow-up
- The mean age at follow-up was 48 years (range, 36-70 years)



Follow-up 18 years

- 2 independent observers at each hospital
 - Lysholm score, Tegner activity scale, KOOS score
 - Lachman test, pivot-shift test, range of motion
 - KT-1000
 - Radiographic imaging
 - Isokinetic testing of muscle strength (Biodex)
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- The ethics application (No. 391796) was approved on March 14, 2022. The study was registered in ClinicalTrials.gov (protocol ID, REK-Nr:#391796; NCT05876013). Trondheim



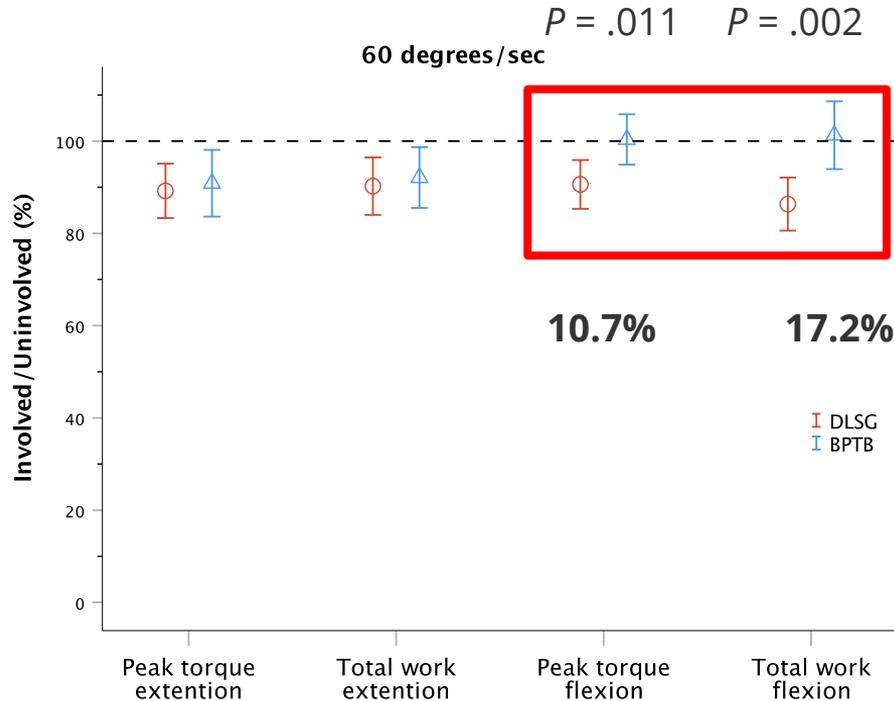
Biodex

- Peak extension torque, total extension work, peak flexion torque, and total flexion work
- Speeds of 60, 120, and 180 deg/s
- 5, 10, and 15 repetitions, respectively

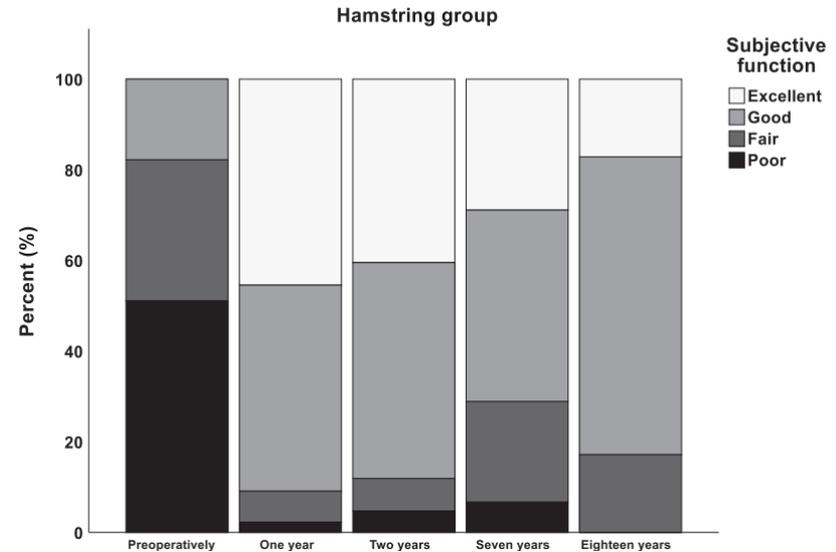
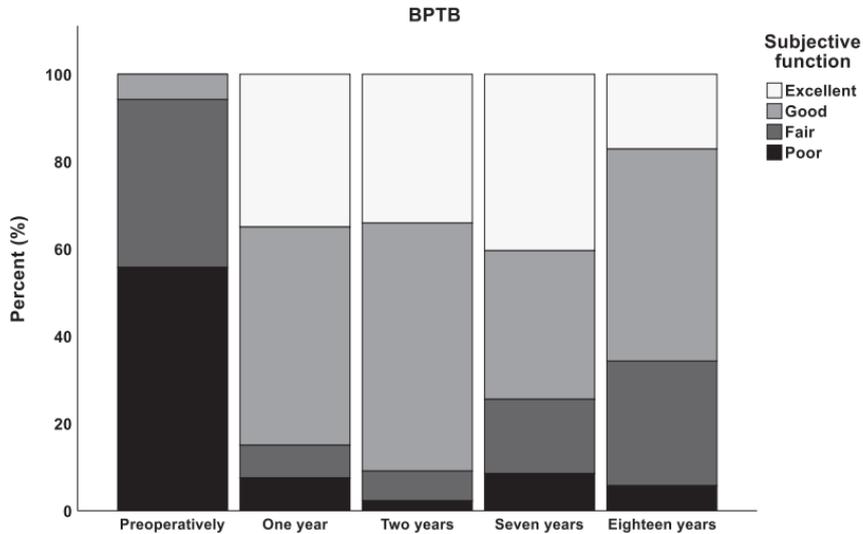
- Only **60 deg/s** was analysed in this study as it was presented in earlier publications and considered as standard examination



Biodex at the 18-year follow-up



Results subjective knee function



Lachman and Pivot shift

Overview of Lachman Groups (none with grade 3)^a

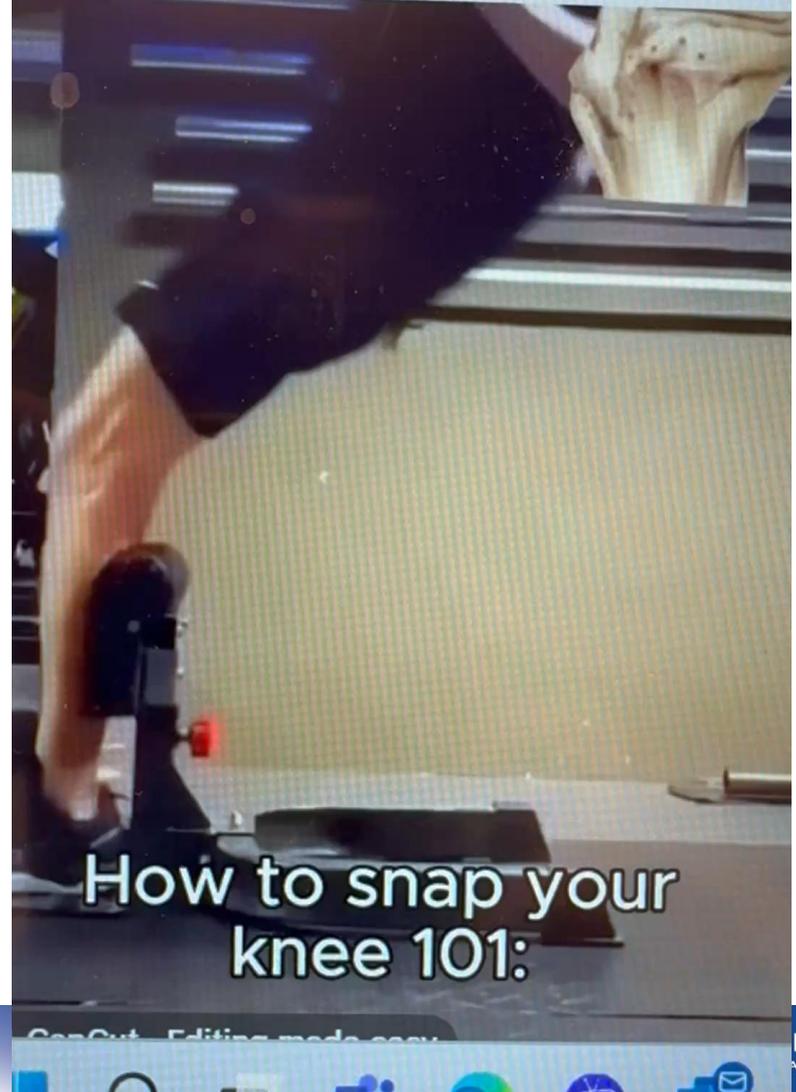
Lachman Grade	DLSG	BPTB	<i>P</i> Value
0 or 1	29 (85)	29 (100)	.056
2	5 (15)	0 (0)	
3	0 (0)	0 (0)	

^aData are presented as n (%). BPTB, bone-patellar tendon-bone, DLSG, double-looped semitendinosus and gracilis.

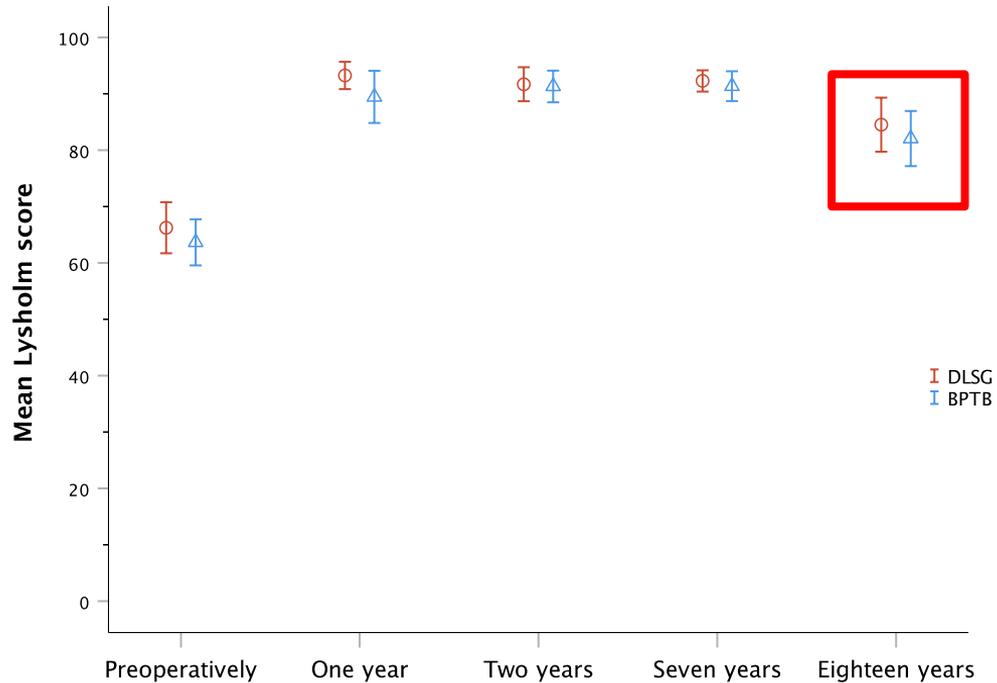
Overview of Pivot-Shift Groups (none with grade 3)^a

Pivot-Shift Grade	DLSG	BPTB	<i>P</i> Value
0 or 1	31 (91)	27 (96)	.62
2	3 (9)	1 (4)	
3	0 (0)	0 (0)	

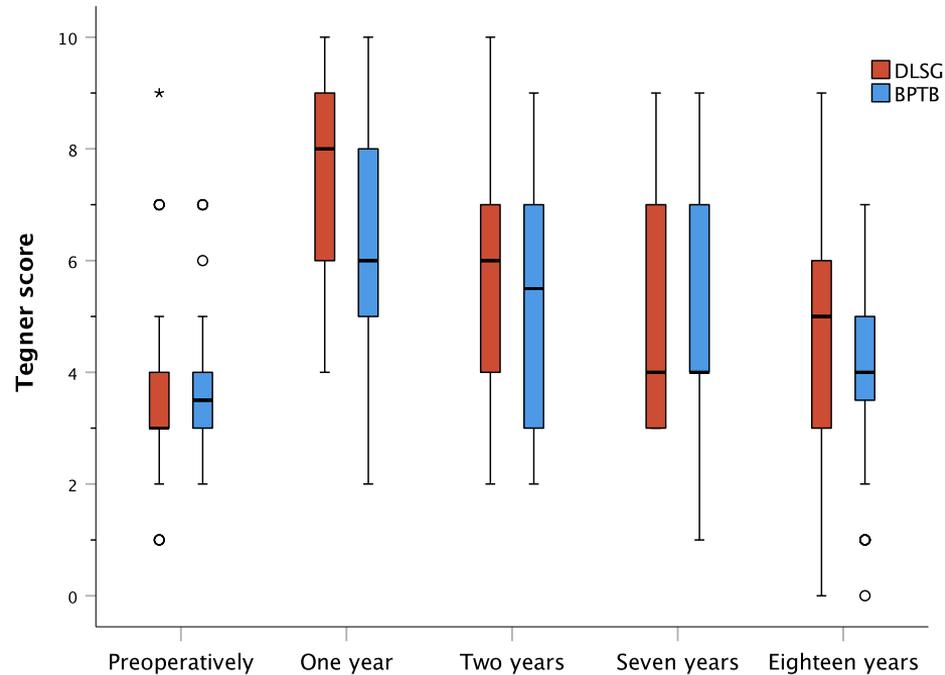
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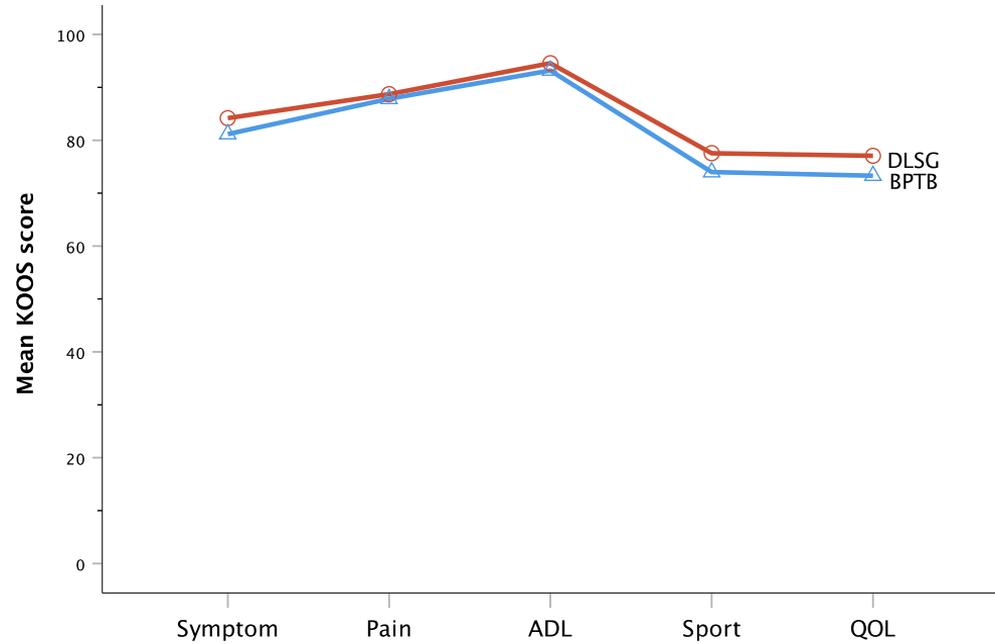
Results – Lysholm score



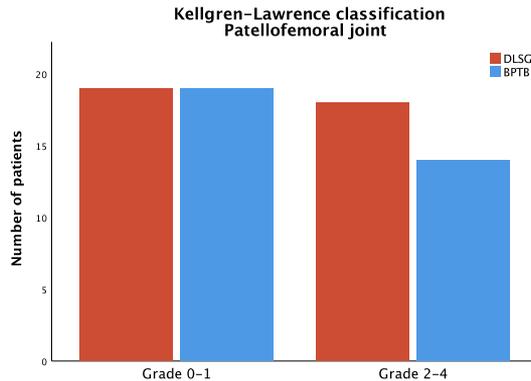
Results – Tegner score



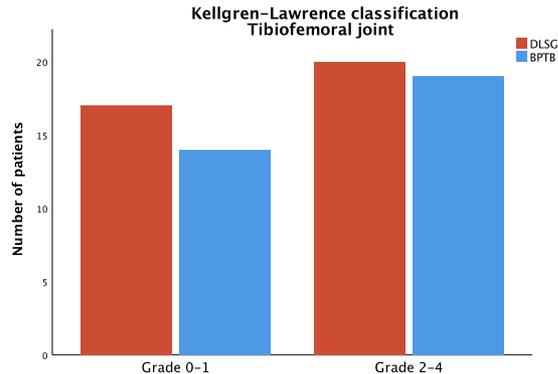
Results – KOOS



Radiographic imaging



49% grade ≥ 2 Hamstring group
42% grade ≥ 2 BPTB-group



54% grade ≥ 2 Hamstring group
58% grade ≥ 2 BPTB-group

Conclusion

- **The flexion strength in the hamstring group remained significantly reduced in the operated knee at the 18-year follow-up**
 - This may indicate a permanent reduction in knee flexion strength

- We found no significant differences between the hamstring group and the BPTB group regarding other variables

Thank you!

