



# COMPARING SAFETY AND PHYSICAL ACTIVITY PROFILES OF INSTITUTIONAL STANDARD OF CARE VERSUS ARTHROSCOPIC ELECTROCAUTERY APPROACHES FOR ACL RECONSTRUCTION

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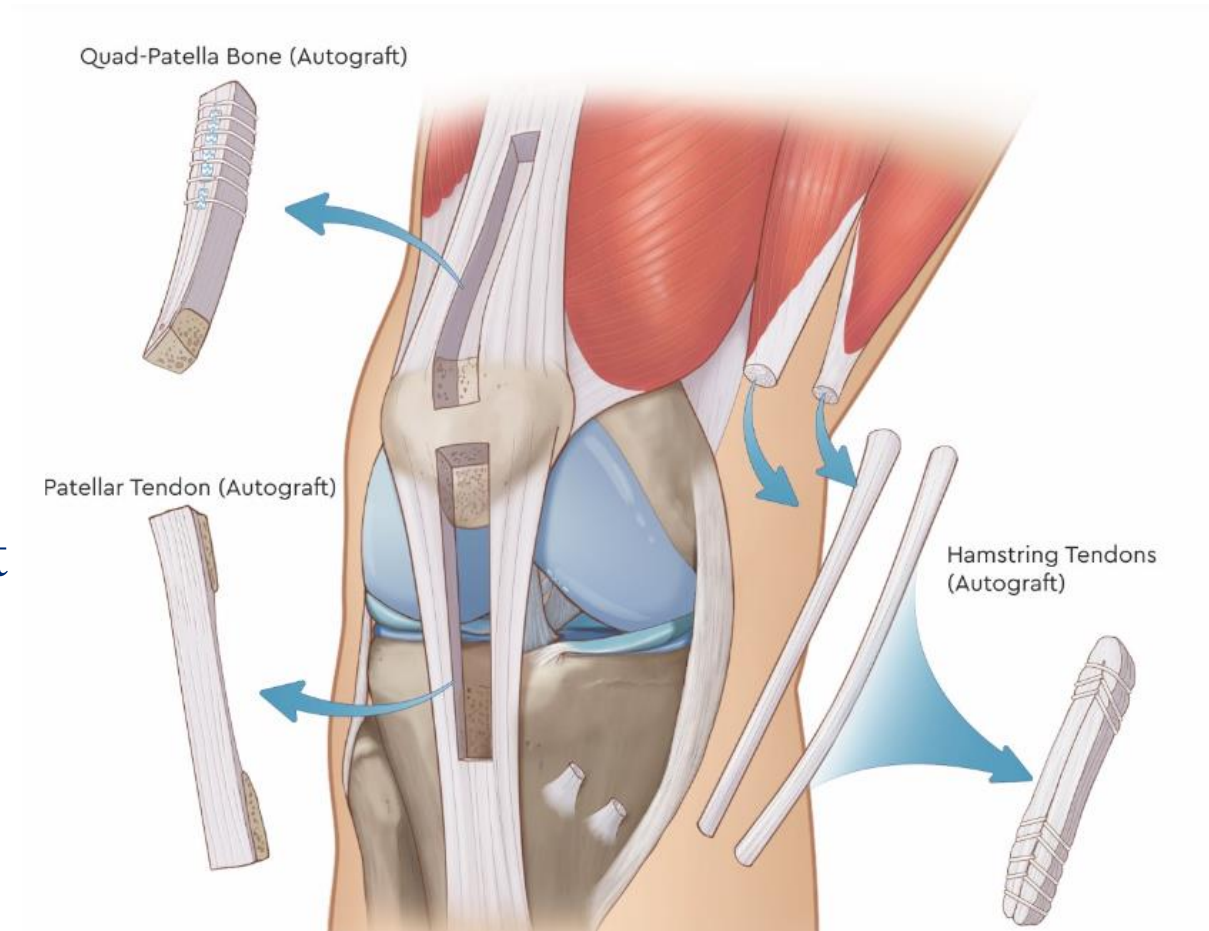
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# Smith & Nephew are funding the Werewolf FLOW50 device

# Background

- Good post-operative outcomes are widely achieved with ACL reconstruction in young patients
- Minimal research on efficiency, cost-effectiveness, safety, and outcomes of adolescent patients with ACL reconstruction using electrocautery devices
- Reported incidence of arthrofibrosis following ACL reconstruction has been as high as 26%





# Purpose

- Initial analysis examining safety profile and physical activity level of adolescents
- Randomized to an electrocautery device (Werewolf FLOW50) or institutional standard of care
- Hypothesis: Safety profiles will be similar, but physical activity scores 6-months post-surgery would differ on the presence of scar tissue



# METHODS

1

- Prospective randomized clinical trial
- Two surgical techniques
  - electrocautery
  - standard-of-care
- August 3, 2021 to December 7, 2021

2

- Initial pre-operative evaluation
- Underwent surgery
- Follow-up approximately 6-months post-ACLR

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- Examined complications between surgery and 6-months post-ACLR
- Compared physical activity level at ~6-months post-ACLR using HSS-Pedi FABS scale

**Table 1.** Demographic and surgical characteristics of the two blinded groups.

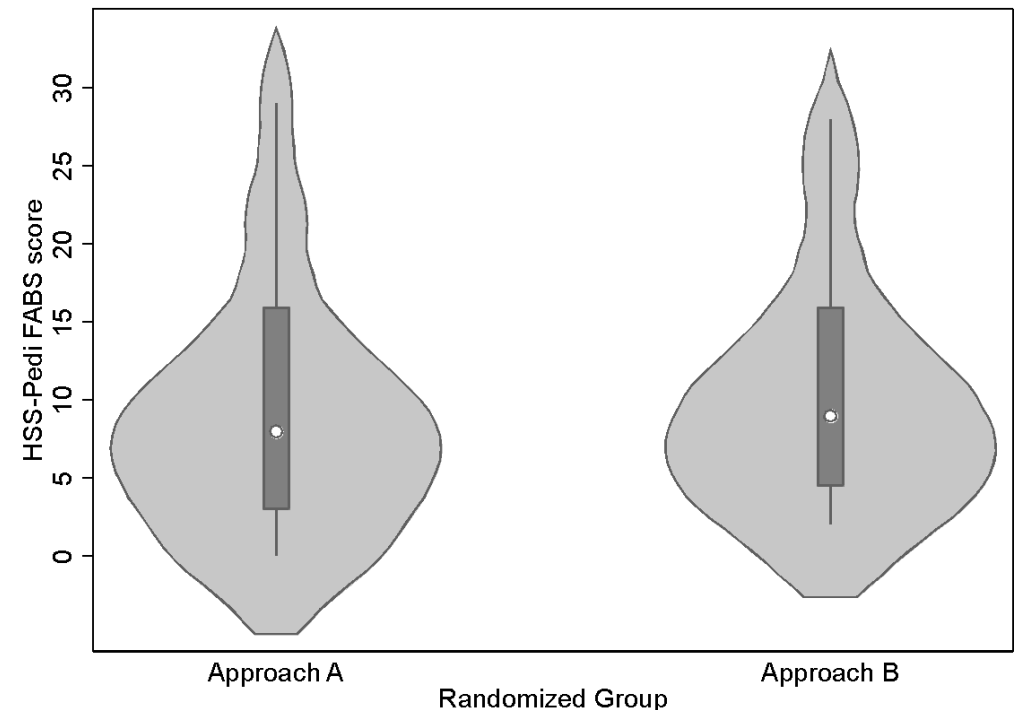
<b>Variable</b>	<b>Approach A (N=22)</b>	<b>Approach B (N=23)</b>	<b>P value</b>
Age (years)	15.7 (1.5)	16.2 (1.6)	0.25
Sex (female)	8 (35%)	8 (33%)	0.92
Insurance (public)	16 (33%)	18 (28%)	0.69
Pre-operative pain at rest (VAS rating)	1.0 (1.4)	0.9 (1.4)	0.92
Pre-operative pain during activities of daily living (VAS rating)	2.6 (1.8)	3.1 (2.4)	0.43
Pre-operative range of motion: Flexion (degrees)	117.5 (20.7)	117.1 (19.5)	0.96
Pre-operative range of motion: Extension (degrees)	1.4 (2.8)	3.0 (6.5)	0.32
Pre-operative effusion	20 (91%)	17 (74%)	0.21
ACL graft length (mm)	64.8 (2.2)	65.0 (0.2)	0.59
Concomitant cartilage procedure	10 (45%)	13 (57%)	0.31

- Compared characteristics between groups to ensure that randomization is effective
- No significant differences between the two groups

# RESULTS

- One complication was documented in each group:
  - infection of ACL graft (Approach A participant)
  - knee manipulation under anesthesia due to lack of mobility (Approach B participant)
- No significant between-group difference in physical activity level at 6-months post-ACLR

**Figure 1.** Comparison of 6-month outcomes between groups for physical activity level (HSS-Pedi FABS score). Violin plots are presented as median (center dot) and interquartile range (box around the median). The shaded area represents the probability density of data at each level of the scale, smoothed using a kernel density estimator.





# In Conclusion...



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- Electrocautery and standard-of-care approaches demonstrate a similar safety
- Future work includes evaluating the radiological presence of arthrofibrosis between approaches at 6-months post-ACLR



# References:

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2. Mayr HO, Weig TG, Plitz W. Arthrofibrosis following ACL reconstruction--reasons and outcome. Arch Orthop Trauma Surg. 2004 Oct;124(8):518-22. doi: 10.1007/s00402-004-0718-x. Epub 2004 Aug 3. PID: 15480713.