

The Impact Of Osseointegration And Nerve Reconstruction On Pain Interference In Amputees

Anna M. Vaeth, BS¹; Clara Choate, BS¹; Makayla Kochheiser, BA¹; Nancy Qin, BA¹; Lucy W. Wei, BS¹; Albert Y. Truong, MD¹; Jason S. Hoellwarth, MD²; Taylor J. Reif, MD²; S. Robert Rozbruch, MD²; David M. Otterburn, MD¹

¹Weill Cornell Medicine, New York, NY; ²Hospital for Special Surgery, New York, NY

Introduction

- **Osseointegrated (OI) prostheses** are a novel solution for amputees in which a titanium implant is inserted directly into the residual bone, shifting weight bearing to a more natural position
- Plastic surgeons are becoming increasingly responsible for soft tissue reconstruction and nerve reconstruction around OI prostheses



Aim: to analyze pain outcomes in patients with lower-limb OI prostheses using the Pain Interference Short-Form-8a

Methods

- Series of cross-sectional surveys in patients with single-stage lower-limb OI implants from 2019-2024
- Nerve reconstruction procedures:
 - targeted muscle reinnervation (TMR)
 - regenerative peripheral nerve interface (RPNI)
 - combined TMRpni
- Surveys collected pre-operatively and 1+ years post-operatively
- Higher scores indicate worse pain interference

Results

	Preop (n=9)	Postop (n=15)	<i>p-value</i>
Nerve reconstruction			
None	N/A	4 (26.5%)	N/A
TMR		4 (26.5%)	
TMRpni		7 (47%)	
Pain Score	67.3 (56.3-69.3)	52.2 (40.7-56.6)	<i>p=0.008</i>

Table 1: Nerve reconstruction information and the pain scores between preop and postop patients, pain scores are displayed as median (IQR). There was no difference in postop pain scores between patients with and without nerve reconstruction.

Pain interference scores

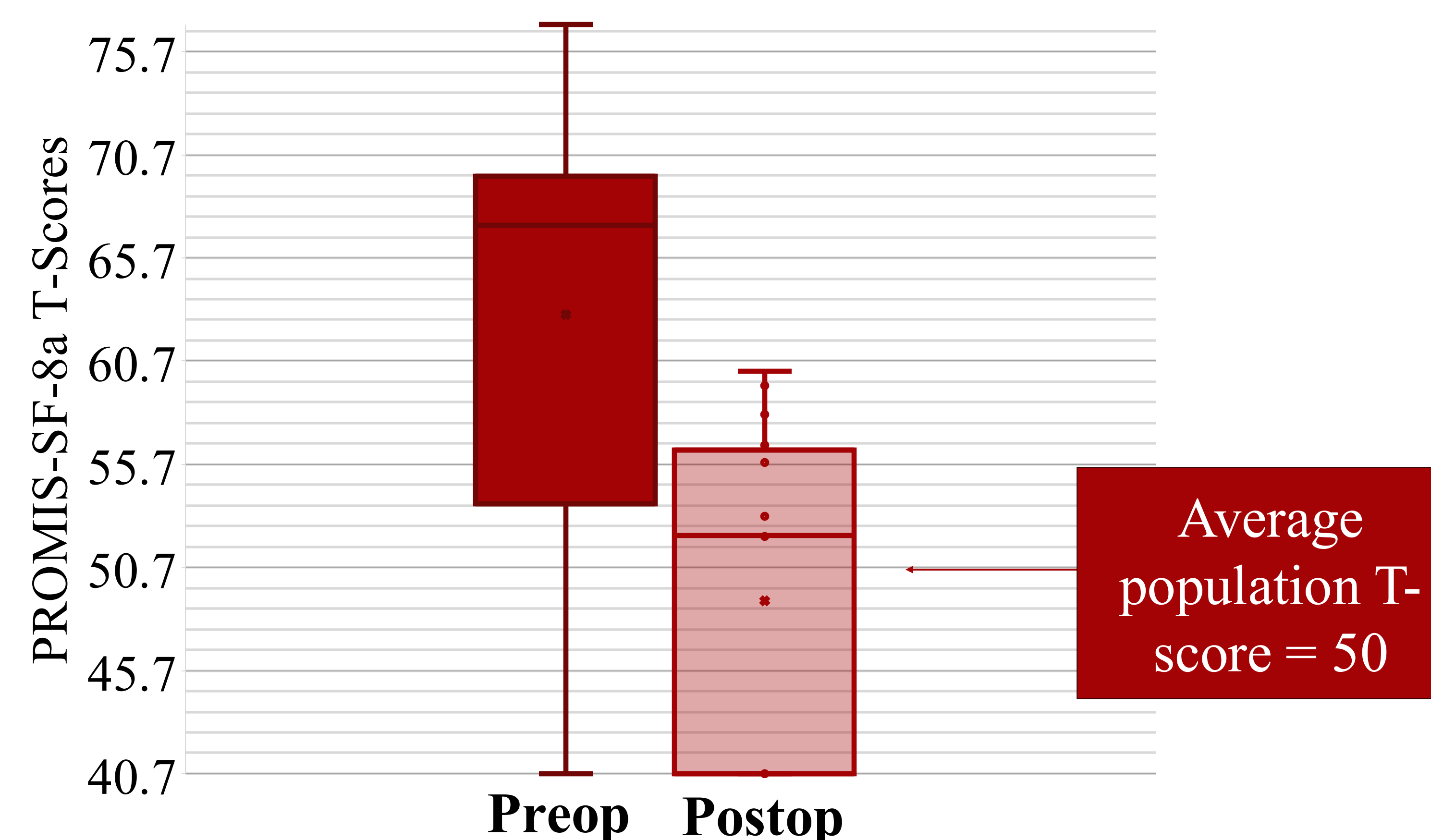


Figure 1: Box plot of pain interference scores between preop and postop patients.

Conclusions

- Our study suggests that osseointegration with and without concurrent nerve reconstruction reduced pain interference and improved patient outcomes
- Notably, the pain interference scores were lower post-operatively by over 5 points compared to the preoperative timepoint
- Future studies with longitudinal follow-up surveys will allow for a more comprehensive evaluation of long-term pain management following osseointegration

References

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Anna Vaeth
anv4002@med.cornell.edu