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Preoperative PROMIS Scores Predict Postoperative Improvements Following Rotator Cuff Repair

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**PREOPERATIVE PROMIS SCORES PREDICT
POSTOPERATIVE IMPROVEMENTS FOLLOWING
ROTATOR CUFF REPAIR**

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INTRODUCTION

- National Institute of Health developed the Patient Reported Outcomes Measurement Information System (PROMIS)¹
 - Utilizes computer adaptive testing to efficiently measure outcomes across multiple domains²
- Preoperative outcome measures are predictive of post-operative improvement in hip and knee arthroplasty³
- PROMIS validated in assessing rotator cuff pathology⁴



PURPOSE

- Lack of evidence regarding preoperative outcome measurements as predictor of post operative improvement
- Are we able to predict failure to achieve a minimal clinically important difference (MCID) following surgery?
- **Hypothesis:** Patients with lower preoperative physical function, more pain and worse depression scores would have a higher likelihood of achieving MCID following rotator cuff repair.

METHODS

- PROMIS forms administered pre-operatively and six months post-operatively following arthroscopic rotator cuff repair
 - Upper Extremity (PROMIS-UE), Pain Interference (PROMIS-PI) and Depression (PROMIS-D)
- Distribution based MCID
- Calculated thresholds predictive of achieving or failing to achieve MCID

RESULTS

- 80 patients included in final analysis
- Patients meeting MCID:
 - PROMIS-UE: 76.25%
 - PROMIS-PI: 88.75%
 - PROMIS-D: 53.75%

	Pre-operative	Post-operative	Change
Upper Extremity	29.88 ± 5.84	41.26 ± 10.14	+11.38
Pain	62.74 ± 4.51	50.34 ± 10.39	-12.40
Depression	47.25 ± 9.07	40.83 ± 10.63	-6.42

* Mean changes in each domain statistically significant (P<.01)

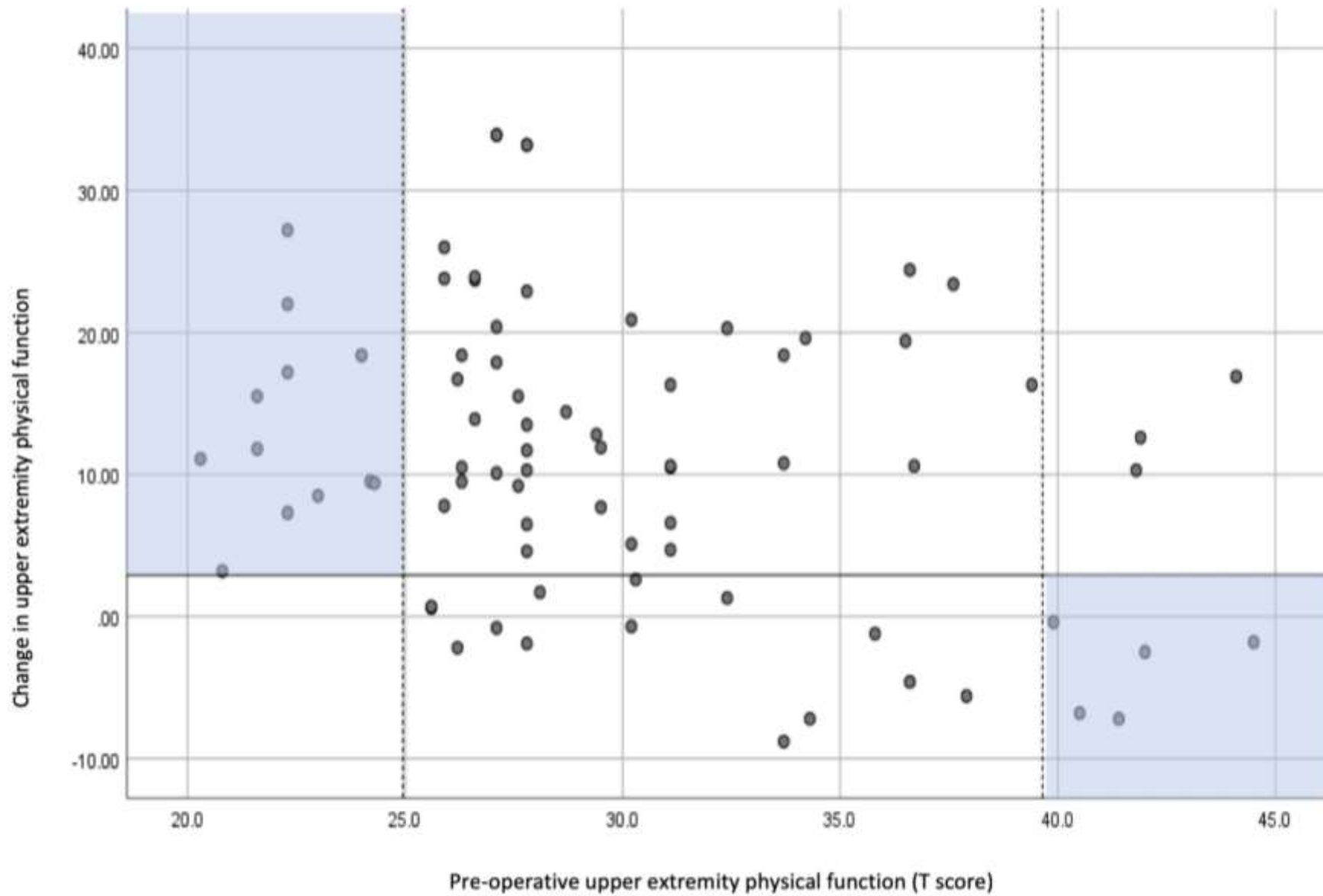
Prognostic cutoffs for those likely to achieve MCID

	Clinical Cutoff	Pre-cutoff Probability	Post-Cutoff Probability
Upper Extremity	<24.95	76.25%	100%
Pain	>65.65	88.75%	100%
Depression	>56.45	53.75%	90.90%

Prognostic cutoffs for those unlikely to achieve MCID

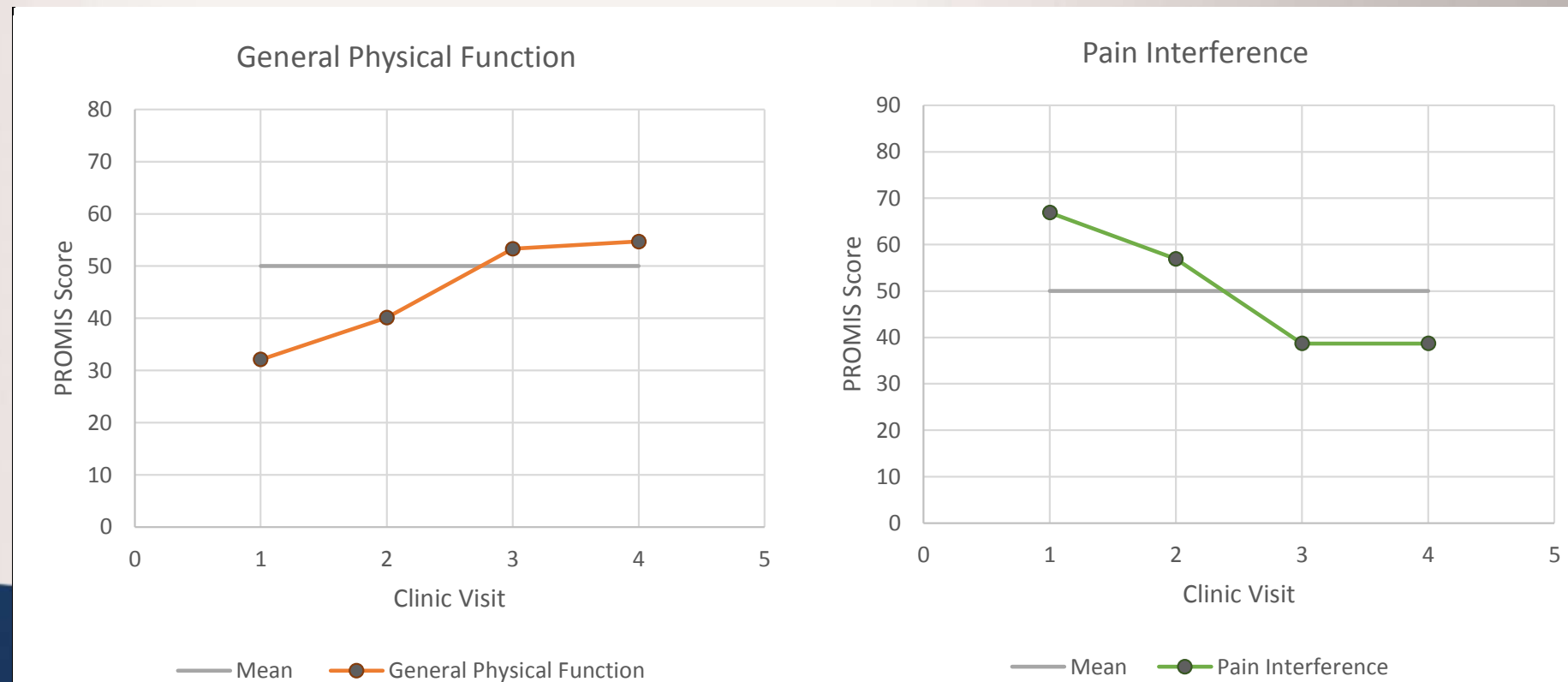
	Clinical Cutoff	Pre-cutoff Probability	Post-Cutoff Probability
Upper Extremity	>39.65	32.75%	37.50%
Pain	<54.35	11.25%	75.00%
Depression	<39.35	46.25%	56.78%





DISCUSSION

- Rotator cuff repair successful in improving physical function, pain and mental health
- Outcomes reporting adds to clinical decision making



CONCLUSIONS

- Patients undergoing rotator cuff repair showed significant improvements in all PROMIS domains exceeding MCID
- Applying cutoffs increased likelihood of achieving MCID
- PROMIS is an additional assessment tool for clinical decision making



REFERENCES

1. Cella D, Yount S, Rothrock N, et al. The Patient-Reported Outcomes Measurement Information System (PROMIS): progress of an NIH Roadmap cooperative group during its first two years. *Med Care*. 2007;45(5 Suppl 1):S3–S11. doi:10.1097/01.mlr.0000258615.42478.55
2. Kadri O, Jildeh TR, Meldau JE, et al. How Long Does It Take for Patients to Complete PROMIS Scores?: An Assessment of PROMIS CAT Questionnaires Administered at an Ambulatory Sports Medicine Clinic. *Orthop J Sports Med*. 2018;6(8):2325967118791180. Published 2018 Aug 14. doi:10.1177/2325967118791180
3. Berliner JL, Brodke DJ, Chan V, SooHoo NF, Bozic KJ. John Charnley Award: Preoperative Patient-reported Outcome Measures Predict Clinically Meaningful Improvement in Function After THA. *Clin Orthop Relat Res*. 2015;474(2):321–329. doi:10.1007/s11999-015-4350-6
4. Anthony CA, Glass N, Hancock K, Bollier M, Hettrich CM, Wolf BR. Preoperative Performance of the Patient-Reported Outcomes Measurement Information System in Patients with Rotator Cuff Pathology. *Arthroscopy*. 2017;33(10):1770-1774. doi:10.1016/j.arthro.2017.04.018.

