

## Role of pre-operative PROMIS scores in predicting post-operative outcomes and likelihood of achieving MCID following arthroscopic meniscus surgery

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**Objectives:** The minimum clinically important difference (MCID) for Patient Reported Outcomes Measurement and Information System computer-adaptive test (PROMIS-CAT) forms in patients undergoing meniscus surgery remains unknown. Therefore, the purpose of this study was to examine changes of PROMIS t-scores in meniscus surgery patients, as well as to determine the MCID in PROMIS scores for these patients. Secondly, we sought to determine factors that predicted achievement of this MCID.

**Methods:** Patients undergoing meniscal surgery (medial and/or lateral meniscectomy or meniscus repair) by one of two orthopaedic surgeons were asked to complete three PROMIS-CAT forms preoperatively, and at various postoperative visits. The three administered forms were as follows: PROMIS Physical Function (PROMIS-PF), PROMIS Pain Interference (PROMIS-PI), and PROMIS Depression (PROMIS-D). Average t-scores were analyzed across the time points within each domain. Additionally, the MCID for each PROMIS domain was calculated. Finally, predictive preoperative score cutoffs were determined for each domain with respect to MCID.

**Results:** Average PROMIS t-score improved significantly in each domain from the preoperative to 6 weeks postoperative timepoint ( $38.6 \pm 6.9$  v  $44.0 \pm 3.5$ ,  $63.3 \pm 6.1$  v  $55.3 \pm 3.0$ , and  $48.2 \pm 9.6$  v  $44.2 \pm 4.8$ ) for PROMIS PF, PI, and D, respectively (Figure 1). MCID values were calculated following a distribution-based methodology. These values were 3.48, 3.09, and 4.82, respectively. Of patients undergoing meniscus surgeries, 71.0%, 80.2% and 58.8% of patients achieved MCID respectively. After construction of prognostic preoperative score cutoffs in each PROMIS domain, 96.3%, 94.7% and 91.7% of patients meeting the prognostic cutoff scores achieved MCID, respectively (Table 1).

**Conclusion:** With respect to PROMIS CAT forms, significant improvement was detected at 6 weeks postoperatively in each of three domains, suggesting these surgeries are effective. Additionally, our results suggest that preoperative PROMIS scores can predict operative success in the form of achieving MCID.

Figure 1.

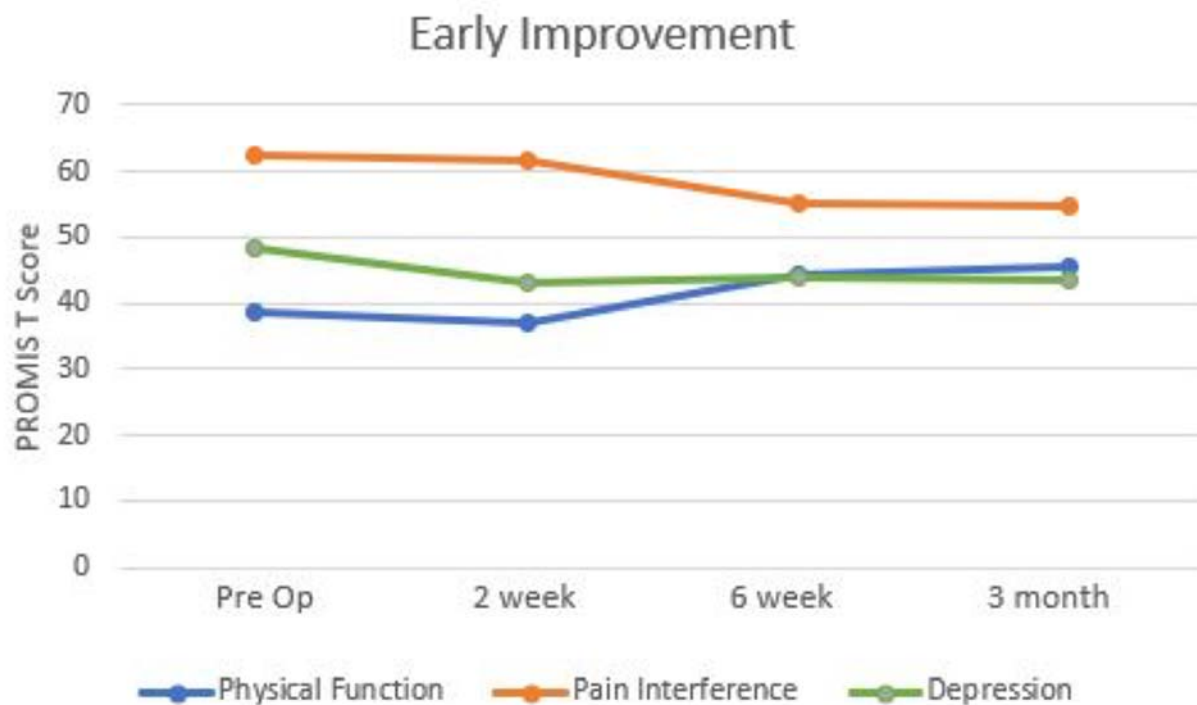


Table 1. PROMIS Prognostic Cutoffs That Predict Operative Patients Who Will Achieve MCID.

	Positive Test if Preoperative Score	LR	Pretest Probability (Percent)	Posttest Probability (Percent)
Physical function	<33.70	10.5	71.0%	96.3%
Pain interference	>70.05	4.3	80.2%	94.7%
Depression	>55.45	36.3	58.8%	91.7%