# Paper #31

## Potential Effects of Imposing Body Mass Index Thresholds on Patient Reported Outcome Measures in TKAs

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**Introduction:** Obese patients can benefit from total knee arthroplasty (TKA), however surgeons often impose operative thresholds using body mass index (BMI) that may deprive obese patients of improvements in pain/function. The purpose of this study was to 1) investigate the relationship between BMI and improvements in patient reported outcome measures (PROMs), and 2) evaluate the trade-off in enforcing BMI-based eligibility criteria.

**Methods:** Data were prospectively collected on a cohort of orthopaedic patients from 2015-2018 in a single healthcare system, yielding 4,126 TKAs of which 3,214 had 1-year follow-up. Demographic data and preoperative and postoperative Knee Injury and Osteoarthritis Outcome Scores (KOOS) pain, Physical Function Shortform (PS), and knee-related Quality-of-Life (KRQOL) scores were collected. Clinically meaningful improvement was defined as a 15-point change for Pain and PS, and 14-point for KRQOL. Median BMI-stratified scores were obtained for the aforementioned PROMs and, using various BMI thresholds, the number of surgeries denied to avoid failed improvements were calculated.

**Results:** An increasing BMI was associated with increases in median improvements in PROMs. For KOOS pain scores, improvements were greater for a BMI ≥40 kg/m2 compared to those with a BMI of 30-34.9 kg/m2 (47.44 vs. 44.44). Similar findings were seen for KOOS PS (28.4 vs. 26.1) and KRQOL (50 vs. 48.96). With a BMI cut-off of 30kg/m2, for every patient that failed to improve their KOOS pain score after surgery, 9 patients would have improved, while with a BMI cut-off of 40 kg/m2, 11 patients would have improved. For both for KOOS-PS, (3.2 vs 3.6) and for KOOS-KRQOL (6.8 vs. 7.4) there were similar findings.

**Conclusions:** As BMI increases, there is also an increase in median PROM improvement. There appears to be little effect on PROMs by enforcing a BMI threshold for surgery as patients improve more as their BMI increases.

**Notes**