Association Between Body Mass Index and Postoperative Pain Outcomes Following Total Joint Arthroplasty

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INTRODUCTION

Obesity affects about 52% of patients undergoing total knee arthroplasty (TKA) and 36% undergoing total hip arthroplasty (THA). It may alter inflammatory signaling, analgesic pharmacokinetics, and perioperative risk, but its relationship with postoperative pain remains unclear.

OBJECTIVE

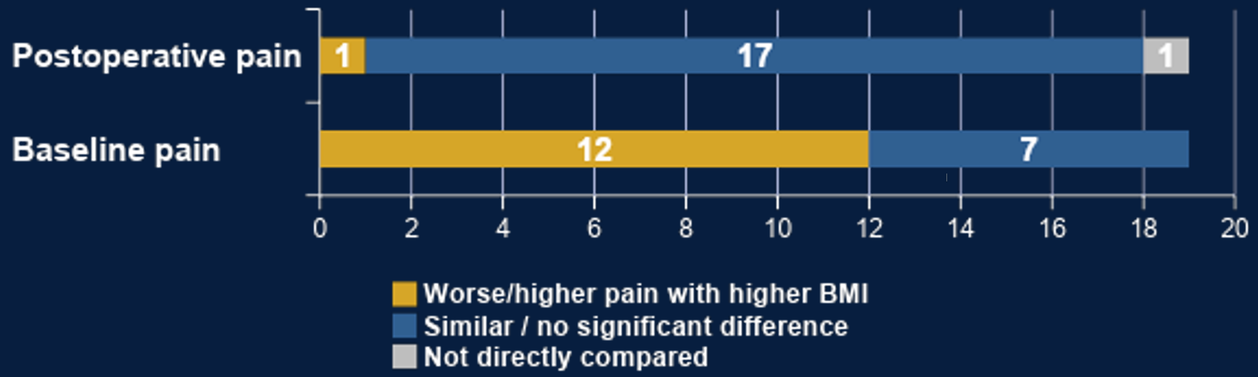
Evaluate evidence on the relationship between BMI and postoperative pain trajectories after primary THA and TKA.

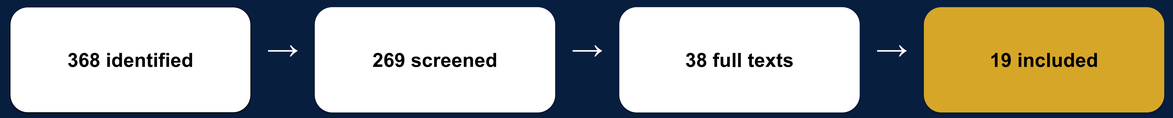
METHODS

Narrative review with systematic searches of PubMed, MEDLINE, and Embase (Oct 9, 2025). Adults ≥18 years undergoing primary THA/TKA were included when pain outcomes were stratified by WHO BMI class. Pain measures included VAS, NRS, WOMAC, HOOS, KOOS, Oxford scores, and EQ-5D.

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Higher BMI is linked to worse pain before arthroplasty, but postoperative pain is largely similar across BMI groups.





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RESULTS

Out of 19 studies, 12 studies reported worse preoperative pain with higher BMI. Postoperatively, 17 studies found similar pain across BMI groups; 1 study found higher pain in severe obesity. Across PROMs, 10 studies reported comparable final pain scores and 7 reported greater absolute improvement in patients with obesity.

DISCUSSION

Greater absolute improvement in patients who undergo primary THA/TKA with obesity likely reflects higher baseline pain. Significant between-BMI differences were generally small and often below thresholds for clinical significance.

TAKEAWAY

Elevated BMI alone may not predict worse postoperative pain following primary THA/TKA.

Key Findings

- 19 studies included
- 17 studies similar postoperative pain
- 7 studies greater absolute improvement with obesity
- Mechanisms remain incompletely understood