

No Difference in Outcomes, Complications, or Revision Rate, for Obese vs. Non-obese Patients Following Hip Resurfacing Arthroplasty: A Systematic Review and Meta-Analysis

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INTRODUCTION: Hip resurfacing arthroplasty (HRA) has evolved significantly since its inception, now providing long-term outcomes comparable to total hip replacements (THRs) for certain patients, particularly young, active individuals. HRA offers benefits such as preservation of natural bone, improved range of motion, and lower dislocation risks. However, patient selection is crucial, with factors such as bone quality, activity level, and body mass index (BMI) playing significant roles. Obesity in particular poses challenges, potentially increasing mechanical load on the joint, complicating surgical techniques, and impacting both immediate and long-term outcomes. This systematic review aims to evaluate the outcomes of HRA in obese versus non-obese patients to determine if obesity should be considered a contraindication to HRA or if similar treatment approaches can be applied.

METHODS: A literature search was conducted using PubMed, Embase, and Scopus databases with specific search terms related to HRA and obesity. Articles were screened by title and abstract, followed by full-text review to ensure inclusion criteria were met. Data extraction focused on demographic and study variables such as sex, age, BMI, complication and revision rates, and patient-reported outcomes (PROMs). The risk of bias was assessed using the Methodological Index for Non-randomized Studies (MINORS) score. A meta-analysis was performed using a random effects model to compare UCLA scores, Harris Hip scores, and revision rates between obese and non-obese patients, with significance set at $p < 0.05$.

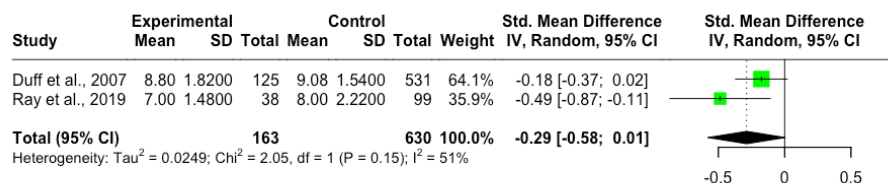
RESULTS: From an initial pool of 39 articles, 4 met inclusion criteria, encompassing 1,385 patients. Studies ranged from 2007 to 2013 and included one prospective and three retrospective designs, all with moderate risk of bias. Analysis revealed a pooled mean age of 50.92 years and a complication rate of 9.83% in obese versus 4.7% in non-obese patients. Revision rates were 1.15% for obese and 3.70% for non-obese patients. The difference in postoperative UCLA scores, complication rates, and revision rates were deemed not statistically significant.

DISCUSSION: This systematic review suggests that obesity does not significantly impact long-term outcomes following Hip Resurfacing Arthroplasty (HRA) when compared to non-obese patients. Patient-reported outcomes such as the UCLA score showed no significant differences between obese and non-obese cohorts postoperatively, despite obese patients generally having lower preoperative scores. Complication rates were also comparable, with some studies even reporting lower overall complication and revision rates in obese patients, potentially due to factors like decreased postoperative activity and higher bone quality. However, the review acknowledges limitations such as study heterogeneity and reliance on BMI as the sole metric for obesity. Future HRA research is necessary to focus on long-term follow-up and larger cohort studies to further validate these results.

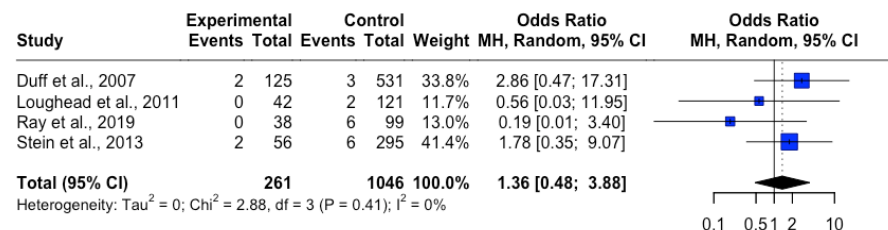
SIGNIFICANCE/CLINICAL RELEVANCE: The comparability in patient-reported outcomes, complication rates, and revision rates between obese and non-obese cohorts suggest that although heightened vigilance and tailored approaches may be warranted in obese patients, obesity alone should not preclude patients from undergoing HRA. These findings advocate for a more nuanced approach to patient selection, emphasizing individualized assessment over generalized BMI cutoffs.

IMAGES AND TABLES:

a. Forest plot of mean postoperative UCLA Scores



b. Forest plot of the revision rates odds ratios



c. Forest plot of the complication rates odds ratio

