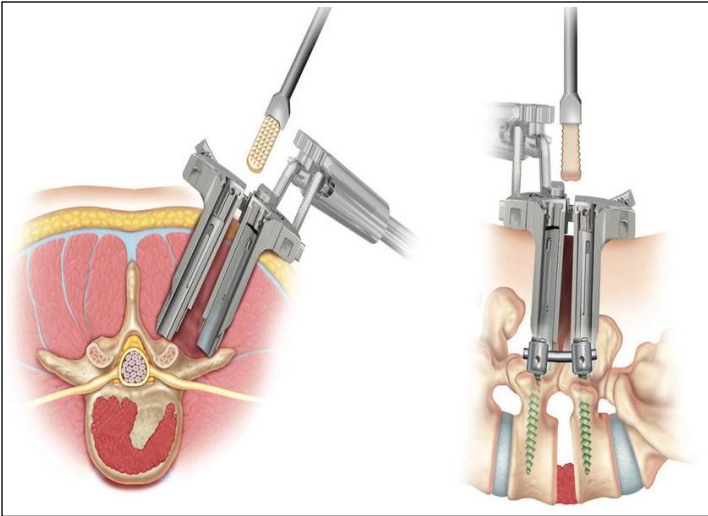


**Introduction**

The influence of obesity on spine surgery outcomes is highly controversial with a current clinical equipoise. Several studies suggest higher perioperative morbidity with obesity while some studies suggest otherwise. To address this gap in the literature, we conducted a systematic review and meta-analysis with the objective of better defining the impact of obesity on outcomes following lumbar spine surgery.

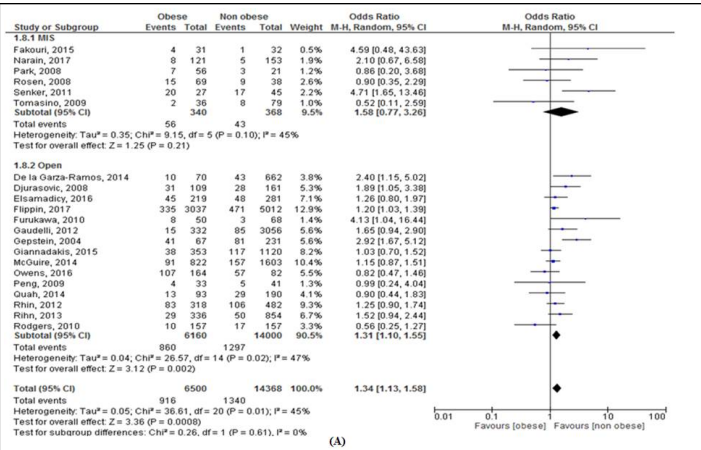
**Methods**

- Systematic review and meta-analysis in accordance with PRISMA guidelines to compare surgical outcomes between obese and non obese patients following elective lumbar spine surgery for degenerative lumbar spine disease.
- Subgroup analysis performed to characterize outcomes in patients undergoing Minimally invasive (MIS) and open spine surgery.
- Primary outcomes included complications and reoperations while EBL, length of stay and operative time constituted secondary outcomes.
- Study quality was evaluated using the Newcastle-Ottawa scale
- Strength of evidence assessed using the Grades of Recommendation, Assessment, Development and Evaluation (GRADE) Working Group system.

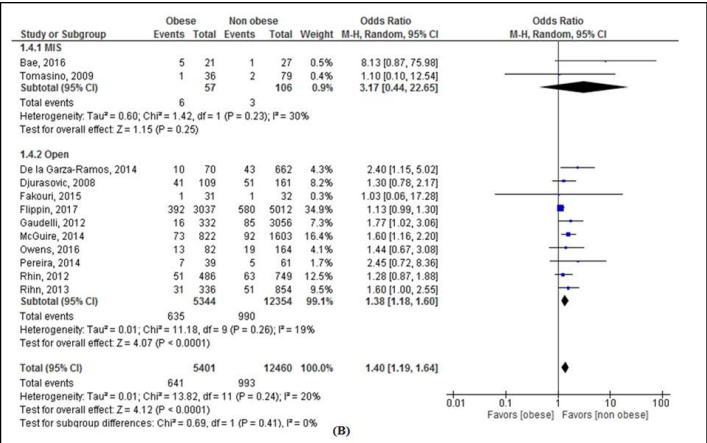


**Results**

- A total of 32 studies with 23,530 patients were analyzed.
- Obese patients had slightly higher surgical blood loss (Mean Difference [MD]: 49.99 ml, CI: 23.69-76.29, p-value< .001, I2=86%) and longer operative times (MD: 16.66 min, CI: 9.27-24.05, p-value< .001, I2=92%), but similar length of stay as compared to non-obese patients.
- Higher complication (OR=1.32, C.I.=1.13-1.54, p=0.01, I2=39%) and reoperation rates(OR=1.40, C.I.=1.19-1.64, p<0.001, I2=20) were observed in obese patients.
- The differences, however, were not significant for obese patients undergoing MIS surgery.
- Functional outcomes (change in ODI and VAS-BP) were similar between the two groups.
- Overall confidence in GRADE estimates was either low or very low for all outcomes.



Complication rates between obese and non obese patients



Reoperation rates between obese and non obese patients

**Conclusion**

- In summary, obese patients had slightly longer operative time, higher blood loss, complications and reoperations with lumbar spine surgery but similar functional outcomes as compared to non-obese patients.
- However, the adverse influence of obesity on surgical outcomes seems to be offset by minimally invasive spine surgery, suggesting that it may represent a potentially superior alternative to open surgery in obese patients.
- Larger prospective studies and trials are needed to further validate these findings and provide insights into essential elements of preoperative counseling and tailoring of decision making.