

Does Bariatric Surgery (BS) prior to Total Knee Arthroplasty (TKA) for End-Stage Osteoarthritis Improve Outcomes in a Morbidly Obese Population? A Meta-Analysis.

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Background

- Obesity is a major risk factor for osteoarthritis.
- BMI of greater than 40 kg/m² is associated with 32 fold increase need for TKA. (1)
- Following TKA, morbidly obese patients are at higher risk of complications. (1)
- Bariatric surgery has established itself as a very effective treatment, achieving significant long-term weight loss. (2)

Question

- Is bariatric surgery an effective preoperative optimization strategy before TKA for morbidly obese patients?

The rationale for this systematic review:

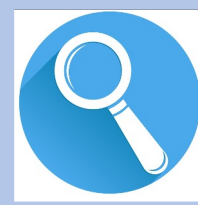
- The literature remains conflicted with some earlier studies showing that BS reduces complications and more recent studies showing no reduction in complications.

Aim: To synthesize available evidence to assess the effect of prior bariatric surgery (BS) before total knee arthroplasty (TKA) in morbidly obese patients.

Methods

Systematic review

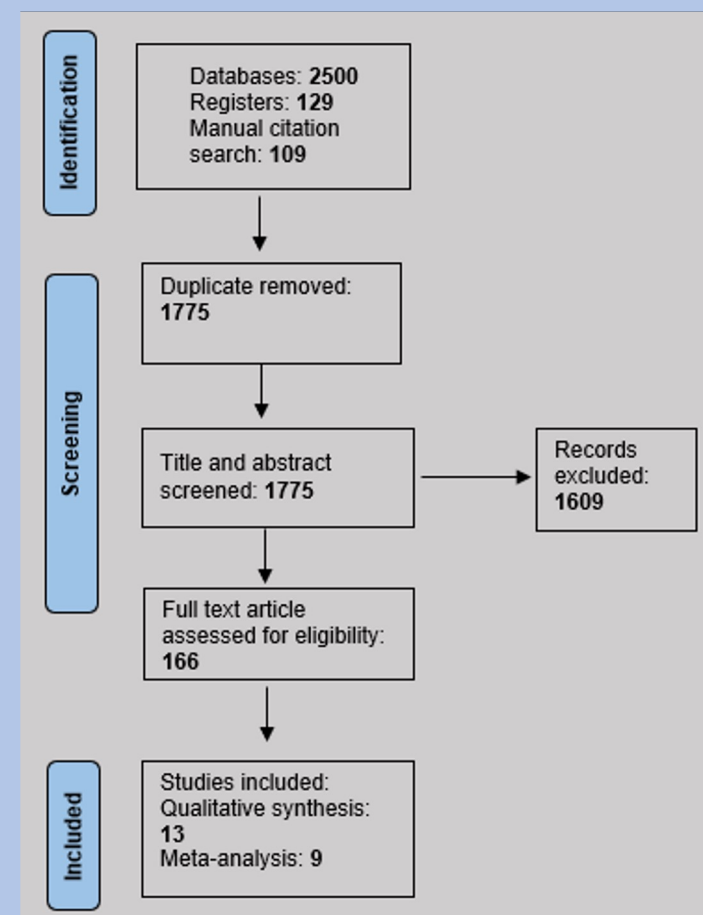
- Medline, Embase, Cochrane Library & Manual citation search until June 2023



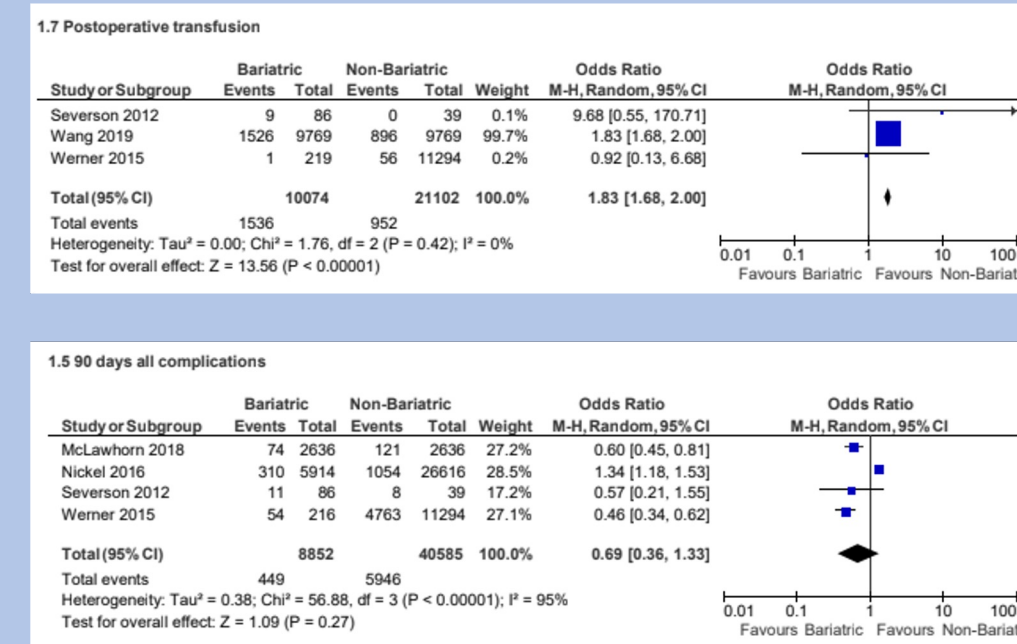
Inclusion criteria

- Study with cohorts prior BS vs without prior BS before TKA
- > 10 patients in each cohorts

- Quality of evidence assessed using the Newcastle Ottawa Scale & GRADE tool



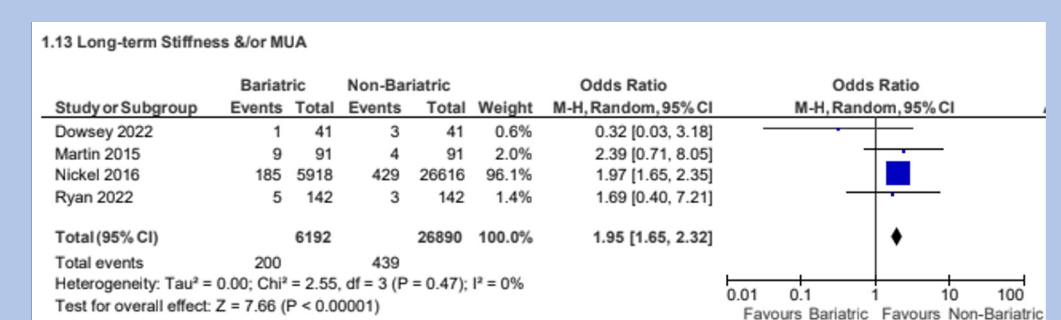
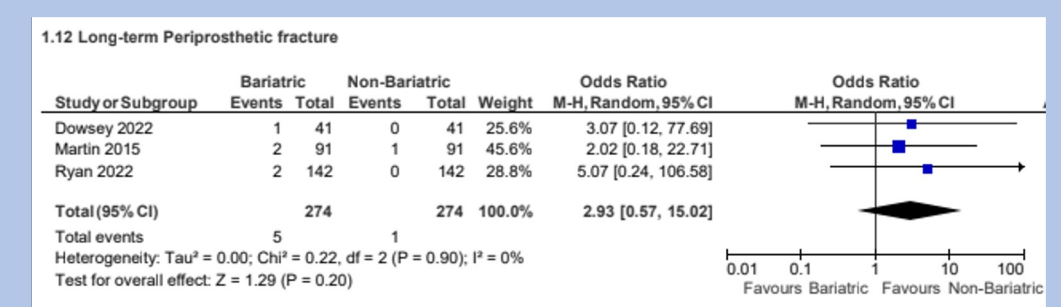
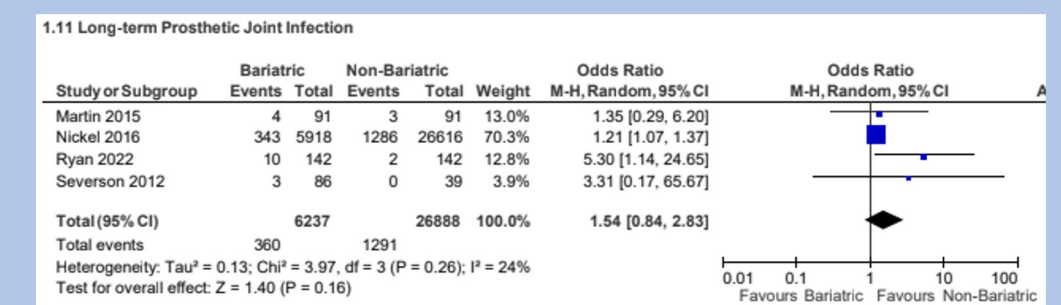
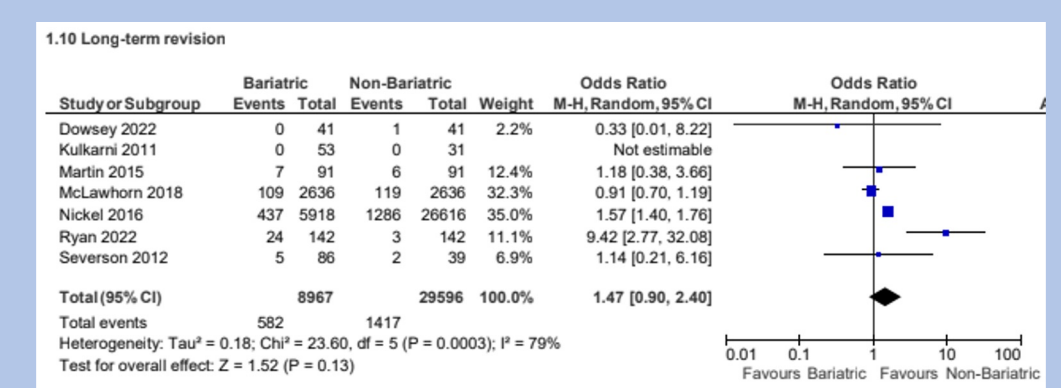
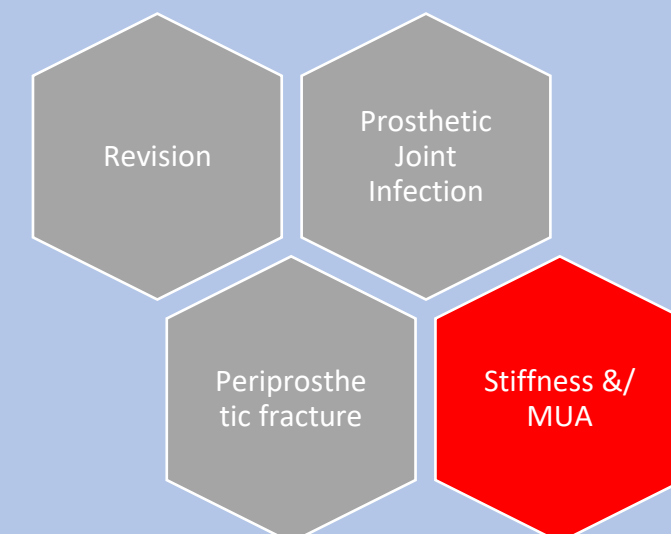
Results



Forest plots depicting short-term outcomes.

- 1.2 Deep vein thrombosis (DVT)
- 1.3 Pulmonary Embolism (PE)
- 1.4 Superficial and deep infection
- 1.5 90 days All-complication
- 1.7 Post-operative transfusion

Long-term Outcomes (> 1yr)



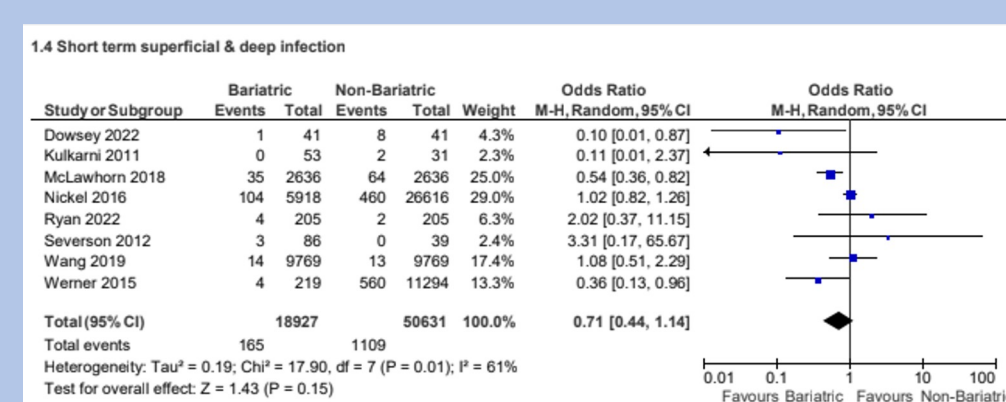
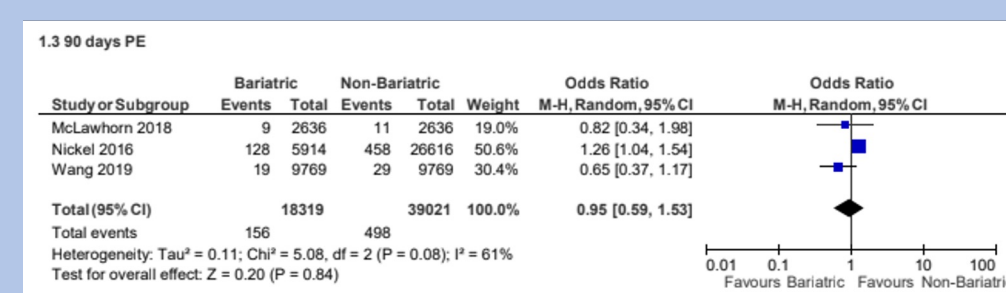
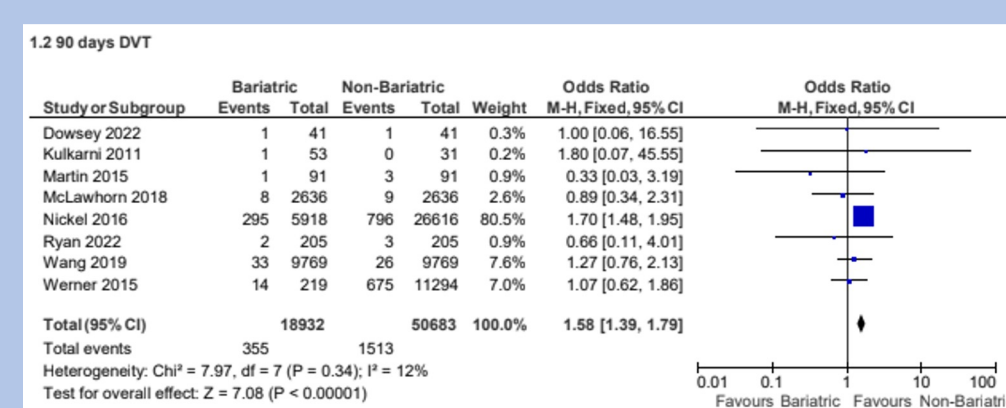
Forest plots depicting long-term outcomes:

- 1.10 Revision
- 1.11 Prosthetic joint infection
- 1.12 Peri-prosthetic fractures
- 1.13 Stiffness &/or Manipulation under anaesthesia (MUA)

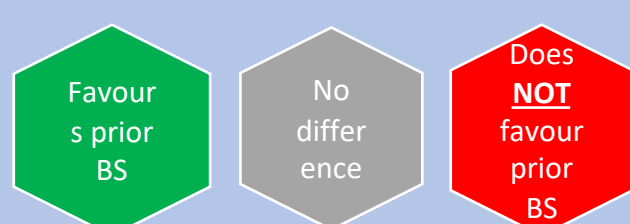
Results

Total number of patients: 69412
 Prior BS before TKA: 18690
 Without prior BS before TKA: 50722

Short-term Outcomes (90 days)



Colour key:



Conclusion

- Prior BS before TKA was not associated with reduced complication rates or improved clinical outcomes.
- This questions the belief that prior bariatric surgery to TKA may improve outcomes for patients with morbid obesity. (2)
- These findings are based on low quality of evidence with most studies being retrospective & differing in BS techniques within and across included studies.
- More randomised matched studies are required to ascertain the current evidence, compare different BS techniques and investigate the appropriate timing between BS and TKA by studying the post-bariatric metabolic state.

References

- [1] J.R. Martin, J.M. Jennings, D.A. Dennis, Morbid obesity and total knee arthroplasty: a growing problem, J. Am. Acad. Orthop. Surg. 25 (2017) 188–194.
- [2] A. Kulkarni, S.S. Jameson, P. James, S. Woodcock, S. Muller, M.R. Reed, Does bariatric surgery prior to lower limb joint replacement reduce complications? Surgeon 9 (2011) 18–21.