

## Bariatric Surgery versus Medical and Lifestyle Therapy for Diabetes Mellitus: A Systematic Review and Meta-analysis

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### Objectives

To estimate the effects of bariatric surgery on type 2 diabetes mellitus (T2DM) remission and changes in BMI, fasting blood sugar, glycated hemoglobin, blood pressure, and cardiovascular outcomes

### Methods

We searched MEDLINE, CENTRAL, Clinicaltrials.gov and grey literature until April 2016. We included RCTs comparing bariatric surgery versus medical and lifestyle intervention that enrolled adult T2DM patients with a BMI of at least 27 kg/m<sup>2</sup>. Two authors independently abstracted data, assessed studies for risk of bias, and calculated pooled estimate of treatment effects.

### Results

Out of 745 studies from our initial search, 14 studies, including 1056 patients, met our inclusion criteria. The studies were assessed to have high risk of performance bias due to the open label nature of the studies. Pooled analysis significantly favored surgery (RR 13.38; 95% CI 4.68, 38.27). In the subgroup analysis, only roux-en-Y gastric bypass (RYGB) was more effective in achieving complete diabetes remission (RR 13.32; 95% CI 4.25, 41.7). At 3 years, surgery still showed significant benefit in achieving remission (RR 18.79; 95% CI 3.80 to 92.9). RYGB also exhibited higher chance of achieving an HBA1c <7% (RR 2.54; 95% CI 1.35, 4.76) and greater reduction in BMI and FBS (MD -8.50; 95% CI -9.64, -7.36, MD -28.12; 95% CI -47.71, -8.54, respectively). Adverse events, however, were more frequent in RYGB.

### Conclusions

Bariatric surgery is effective in achieving diabetes remission and improving some of the metabolic and glycemic parameters among obese diabetic patients, mostly among those who underwent RYGB albeit with more adverse events.