

Sleeve Gastrectomy Versus Gastric Bypass:  
Weight Loss & Type 2 Diabetes Outcomes  
Cara Rodriguez PA-S



Background & Purpose

Given the increasing prevalence of obesity, its comorbidities, and the growing need for substantial and sustainable weight loss techniques, comparing LRYGB & LSG helps patients make informed decisions about the most suitable bariatric surgery. Evidenced based comparisons of these procedures enhances patient empowerment and tailored medical care. The goal is to provide an evidence-based comparison of LRYGB and LSG in terms of excess weight loss and type 2 diabetes mellitus (T2DM) resolution. This research aims to empower patients with the knowledge to make informed decisions about which bariatric surgery aligns best with their health goals.

Design & Methods

**Keywords:** sleeve gastrectomy, gastric bypass, weight loss, meta-analysis  
**Inclusion:** studies published from 2018-2024, patients ages 16-65, published in English, and investigates excess weight loss or T2DM improvement or resolution.  
**Exclusion:** published before 2018, not published in English, studies without data comparing LRYGB or LSG (only discussing one or the other), patients <16 years of age or >65 years of age.

Summary of Evidence Search:

Database	Yielded	Reviewed	Included in Analysis
Valparaíso University Summon	4,684	30	3
Google Scholar	20,900	30	2
Total:	25,584	60	5

Synthesis of Evidence

Of the articles included included in this research, three of the five studies were meta-analyses and the two remaining studies were randomized controlled trials.

PICOT

In adults aged 16-65 who undergo bariatric surgery, what are the weight loss outcomes and rate of resolution of T2DM of sleeve gastrectomy compared to gastric bypass?

Results:

Weight Loss Outcomes

The studies revealed mixed results regarding excess weight loss outcomes for LRYGB versus LSG. One meta-analysis indicated no significant differences in excess, midterm, or long-term weight loss.<sup>1</sup> Other studies found a higher percentage of weight loss with LRYGB, but the differences were not statistically significant, and some results were limited by considerable heterogeneity.<sup>2,3,4</sup> Lastly, one study did report statistically significant differences favoring LRYGB, but noted that the actual clinical relevance of this difference may be minimal.<sup>4</sup>

Type 2 Diabetes Mellitus Resolution

The data suggests no significant difference in T2DM resolution between LRYGB and LSG. Data revealed no significant differences in overall, midterm, or long-term T2DM resolution.<sup>1,2,3,5</sup> One study found that non-randomized studies yielded significant differences in T2DM remission favoring LRYGB over LSG, but due to a limited number of studies the results may be biased.<sup>1</sup>

References:

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5. Sharples AJ, Mahawar K. Systematic Review and Meta-Analysis of Randomised Controlled Trials Comparing Long-Term Outcomes of Roux-En-Y Gastric Bypass and Sleeve Gastrectomy. *Obes Surg.* 2020;30(2):664-672. doi:10.1007/s11695-019-04235-2

Best Practice

Discussion:

Weight Loss Outcomes

Based on the current literature, although LRYGB tends to yield slightly greater excess weight loss than weight loss achieved via LSG, this difference has generally not been found to be statistically significant. Patients whose primary concern is excess weight loss should know the two procedures yield clinically similar results, and both LRYGB and LSG would be good options for them to achieve substantial weight loss.

Type 2 Diabetes Mellitus Resolution

Overall, the evidence suggests that both LRYGB and LSG are similarly effective in resolving T2DM in patients who undergo bariatric surgery. For the patients whose main goal after bariatric surgery is achieving glucose control, they should be aware that both surgical techniques are equally successful and either technique would be a good option.

Limitations and Further study:

Limitations in data include sample size variance, age discrepancies, and differing preoperative BMI, dropout rates, and duration of T2DM diagnosis. There was also potential patient selection bias causing challenges in generalizing results. These issues necessitate caution in broadly applying the studies’ findings. In the future, larger studies that organize results based on factors such as age and pre-op BMI are needed with strict follow up to make results more applicable to the general population.

Conclusion:

There is no significant difference between LRYGB and LSG in terms of T2DM resolution and excess weight loss. Some studies’ findings suggest that LRYGB yields greater excess weight loss with statistical significance, but the actual difference is not great enough to be clinically relevant for patients choosing which surgery to undergo. For patients with existing GERD or hypertension, LRYGB may be a better option. For those whose main goals are excess weight loss and T2DM resolution, they can be confident that both procedures yield similar long-term results.