



COMPARISON OF ATHEROSCLEROTIC CARDIOVASCULAR DISEASE (ASCVD) RISK SCORES BETWEEN DIFFERENT BARIATRIC SURGERIES

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BACKGROUND

- Metabolic and bariatric surgery (MBS) is the most effective and sustainable intervention for weight loss and resolution of obesity-related medical diseases.
- Three primary surgical types that differ in mechanism:

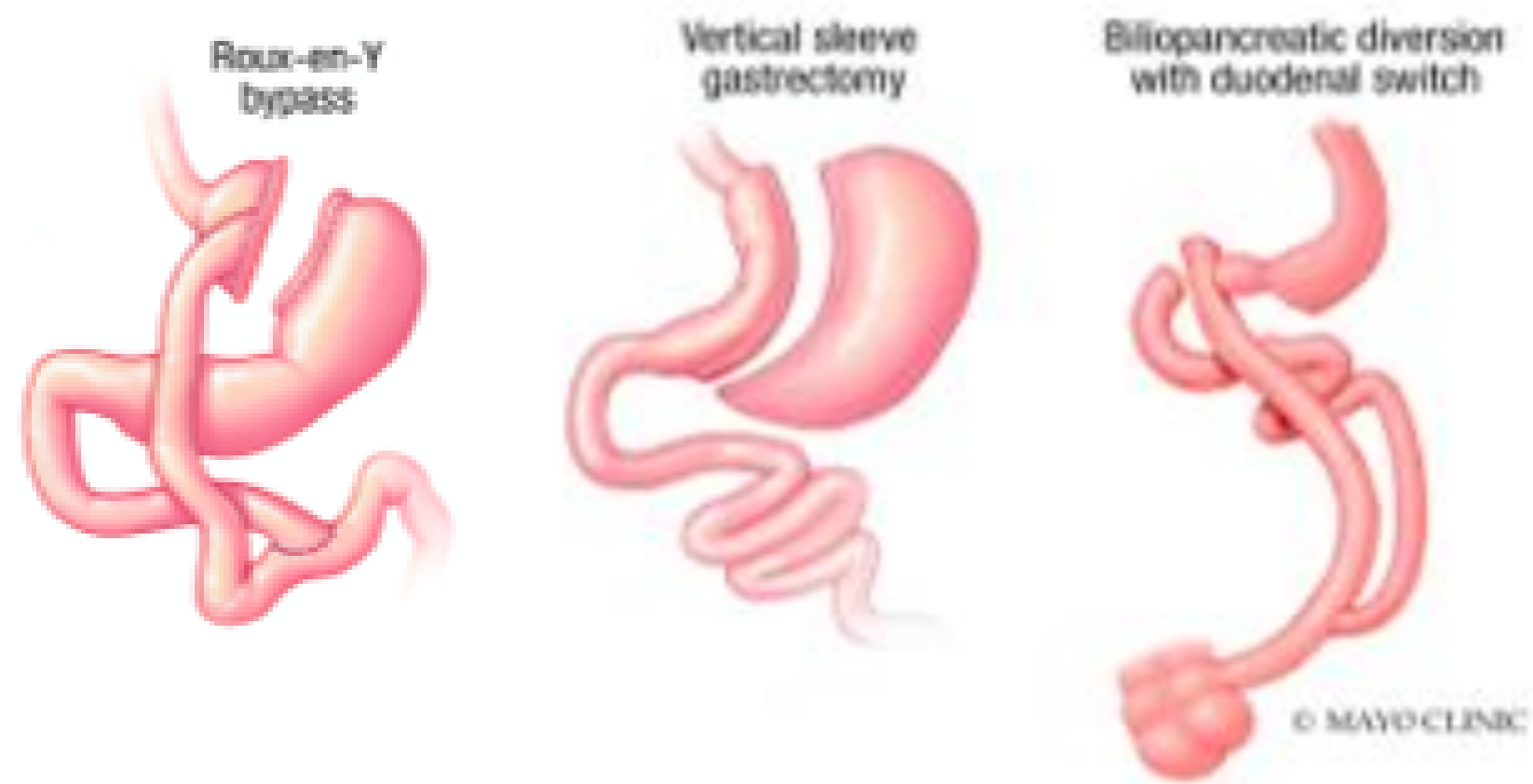


FIGURE 1. Metabolic and Bariatric (MBS) Surgery Types

Weight Loss Mechanisms

- Roux-en-Y Gastric Bypass (RYGB)*: Restrictive, hypo-absorbative, incretin and bile acid-mediated
- Sleeve Gastrectomy (SG)*: Restrictive and hormonal changes
- Biliopancreatic Diversion with Duodenal Switch (DS)*: Restrictive, hypo-absorbative, incretin and bile acid-mediated

KNOWLEDGE GAP

While all three surgical methods have proven effective in promoting weight loss, there remains a gap in investigating how it affects cardiovascular morbidity and mortality specifically. This study aims to compare the impact of each surgical technique on atherosclerotic cardiovascular disease (ASCVD) risk scores.

METHODS

A retrospective chart review retrieved patients undergoing MBS between 2008 and 2022. Clinical characteristics were collected at baseline and one year to calculate percent total weight loss (%TWL) and ASCVD 10-year and lifetime risk scores, according to the American College of Cardiology risk estimator. Categorical variables were summarized with frequencies and percentages, continuous ones with means and standard deviations. Statistical analyses included one-way ANOVA, paired sample t-tests and linear regression models.

RESULTS

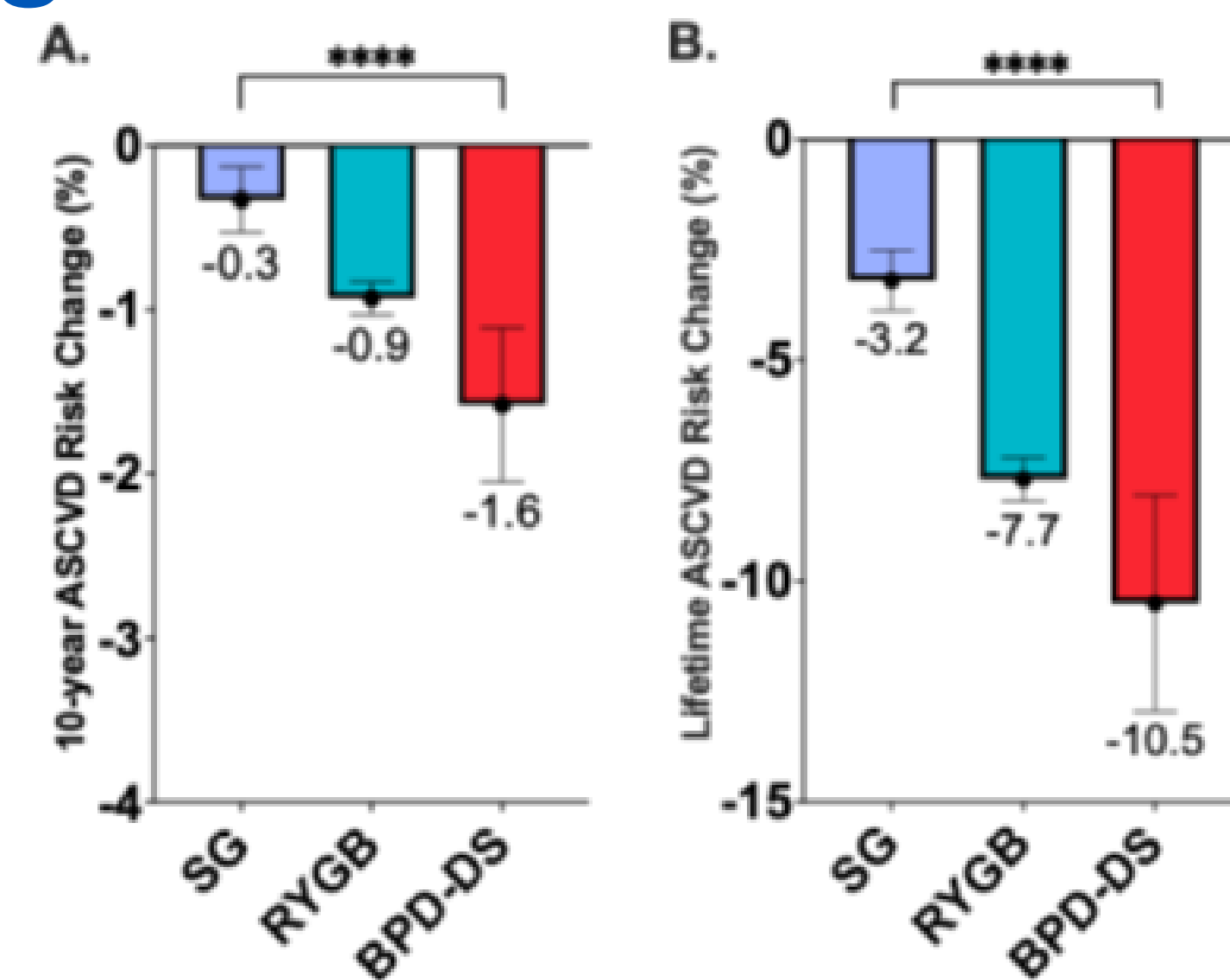


FIGURE 2. Procedure-Specific Reductions in Estimated 10-Year (A) and Lifetime (B) ASCVD Risk at 1 Year Following Bariatric Surgery.

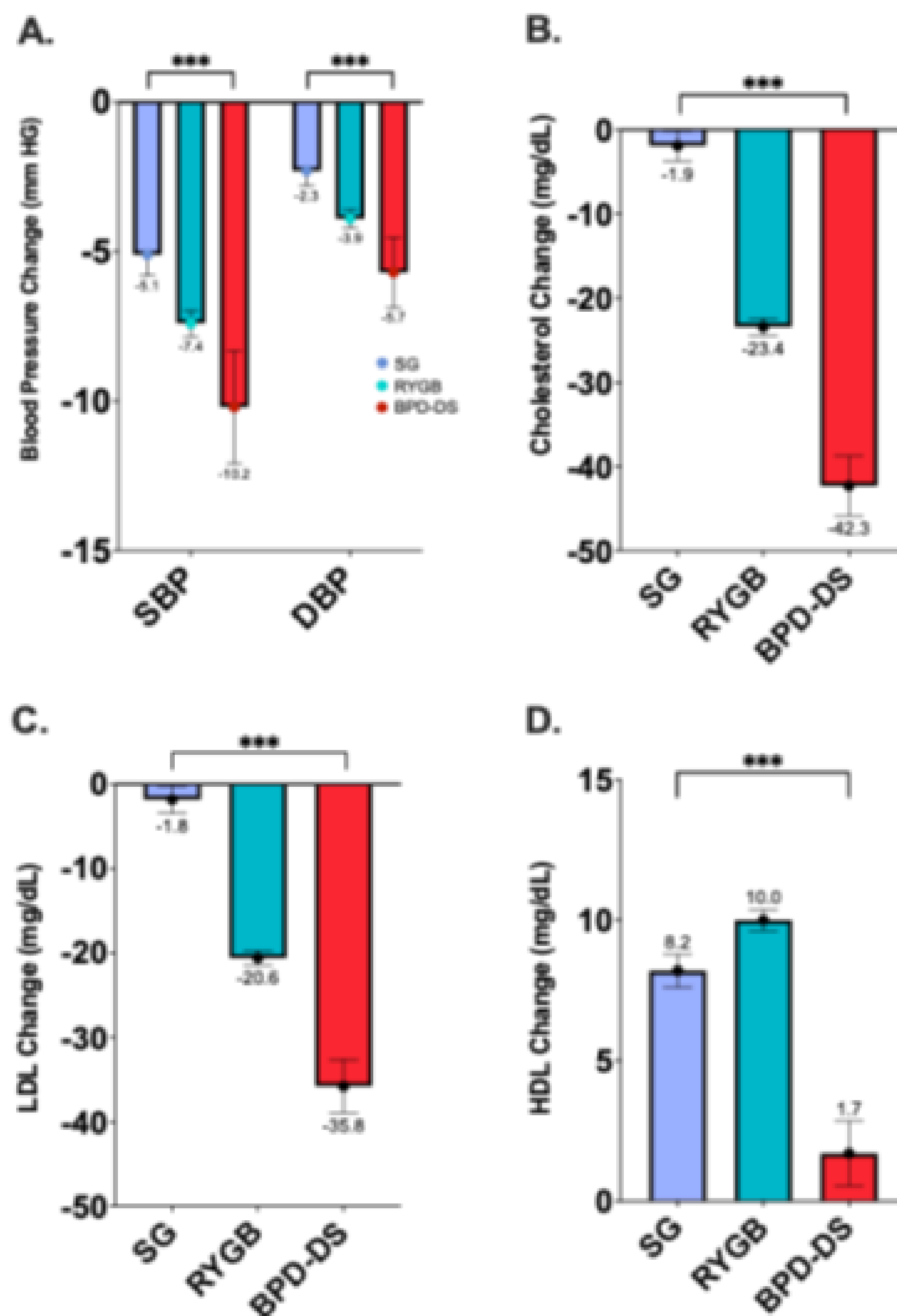


FIGURE 3. Procedure-Specific Changes in Blood Pressure (A), Total Cholesterol (B), LDL (C), and HDL (D) at 1 Year Following MBS.

TABLE 1. Parameter Estimates for Change in Lifetime ASCVD Risk at 1 Year Post-MBS.

Parameter	Parameter Estimate	Standard Error	P-Value
Intercept	-6.21	2.89	0.032
Procedure type (overall)			<0.001
RYGB vs SG	-0.52	0.85	0.54
BPD-DS vs SG	-3.47	1.54	0.025
Age at procedure (per year)	0.231	0.047	<0.001
Female sex	-2.34	0.58	<0.001
Race (overall)			0.40
Asian	6.34	4.97	0.20
Black	2.07	3.12	0.51
Other	2.25	3.78	0.55
BMI at procedure (kg/m²)	0.057	0.053	0.28
Baseline lifetime ASCVD risk	-0.356	0.036	<0.001

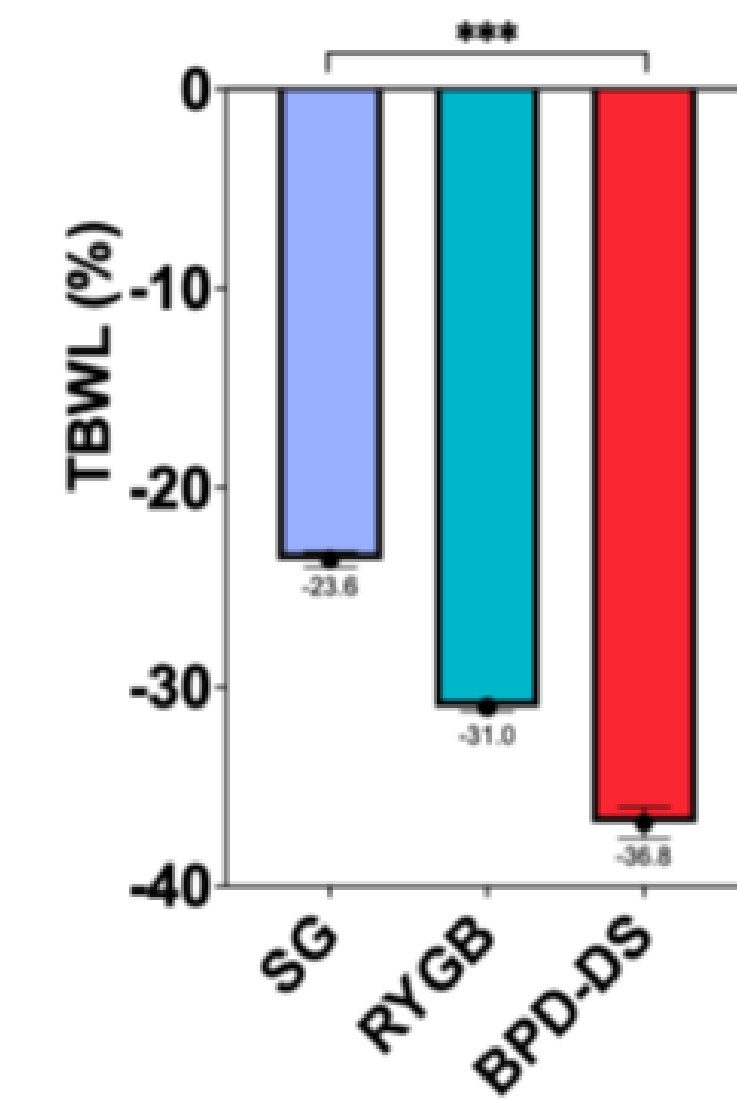


FIGURE 4. Procedure-Specific Percent Total Body Weight Loss at 1 Year Following MBS.

SUMMARY OF RESULTS

- Percent total weight loss was greatest in DS , followed by RYGB, then SG.
- MBS improved both 1-year and 10-year ASCVD risks, with the greatest benefits seen after DS (greatest risk reduction), followed by RYGB then SG

CONCLUSIONS

This study is among a few to compare cardiovascular morbidity and mortality between three MBS procedures. Patients undergoing any surgery showed substantial improvements in cardiac risks, but DS further demonstrated the greatest benefit in ASCVD lifetime and 10-year risks. Such findings highlight MBS's potential role in improving cardiac morbidity and mortality.