

Massive Weight Loss with Bariatric Surgery and GLP-1 Receptor Agonist Therapy Predicts Postoperative Complications Following Abdominal Body Contouring Surgery

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BACKGROUND

- Interest in body contouring procedures has increased dramatically in recent years with the popularization of glucagon-like peptide-1 receptor agonists (GLP-1RAs).¹
- This study assessed abdominal contouring outcomes after the use of potent weight loss modalities like bariatric surgery and GLP-1RAs.

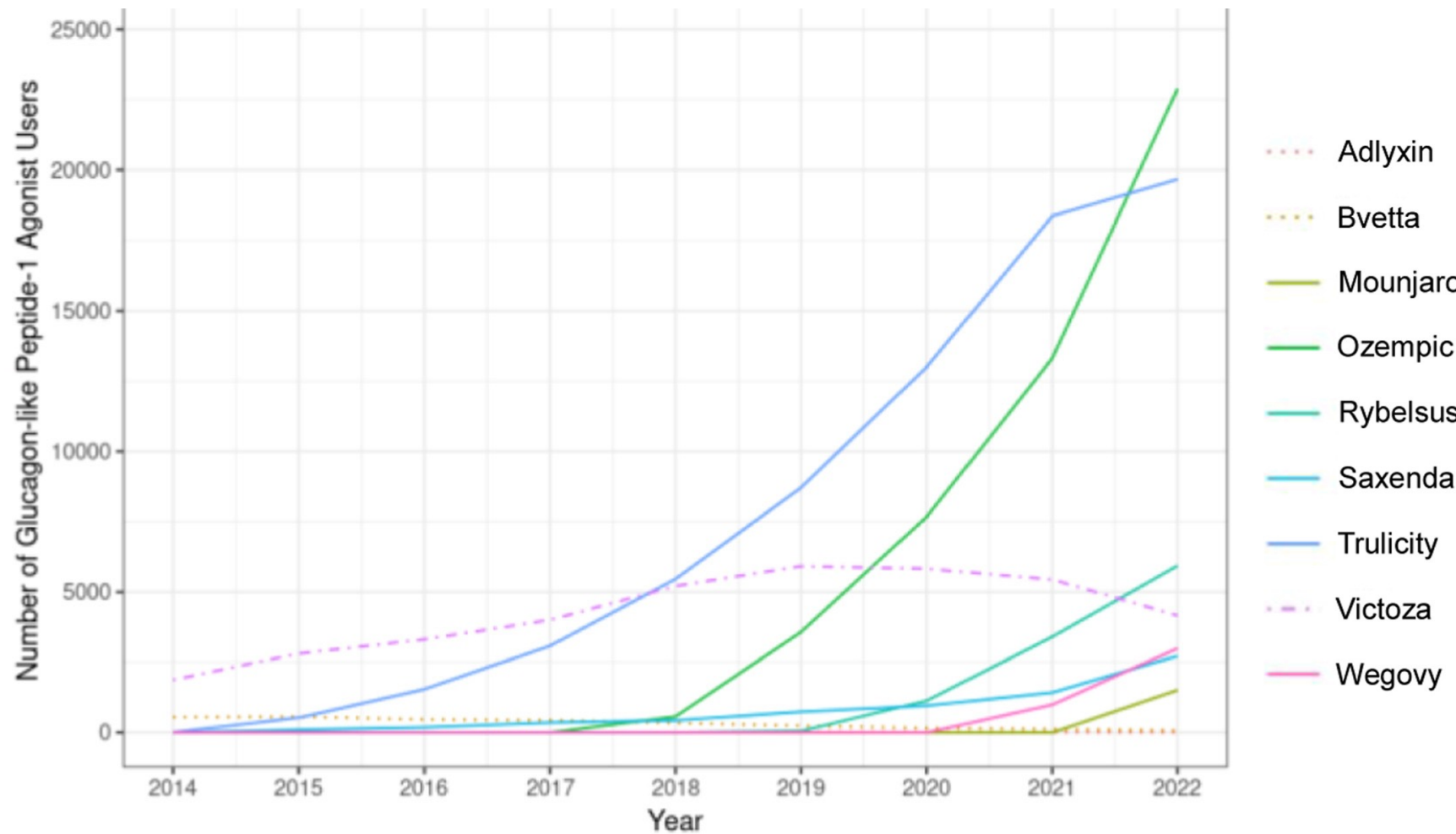


Figure 1. Annual number of GLP-1RA users, 2014-2022.²

METHODS

- Retrospective cohort study of patients who received abdominal body contouring at a large academic institution between May 2013 – May 2025.
- Patients were stratified by (1) bariatric surgery, (2) GLP-1RA therapy, (3) combined bariatric surgery/GLP-1RA, or (4) non-medical weight loss within 3 years prior to body contouring.
- Weights were extracted at defined 3-month and 6-month intervals within the 3 years prior to abdominal contouring.
- Weight loss magnitude (total body weight loss percentage – TBWL%) and linear rate of weight loss were calculated from patients' index weights.

Description	Code Type	Codes
Abdominal Body Contouring	CPT	15830, 15847
Bariatric Surgery	CPT	43842, 43845, 43644, 43645, 43846, 43847, 43775, 43770
Diabetes Mellitus	ICD-9	250.X
Diabetes Mellitus	ICD-10	E10.X, E11.X, E13.X, E14.X

Table 1. Current Procedural Terminology (CPT) and International Classification of Diseases (ICD) codes used in the study. All procedures were identified by CPT codes and confirmed by manual review of the electronic health record.

RESULTS

Preoperative Weight Loss Magnitude

- Among 552 included patients, combined bariatric surgery/GLP-1RA patients had the highest TBWL% (28.6%), followed by bariatric surgery (24.1%), GLP-1RAs (10.5%), and non-medical weight loss controls (3.49%) ($p < 0.001$).

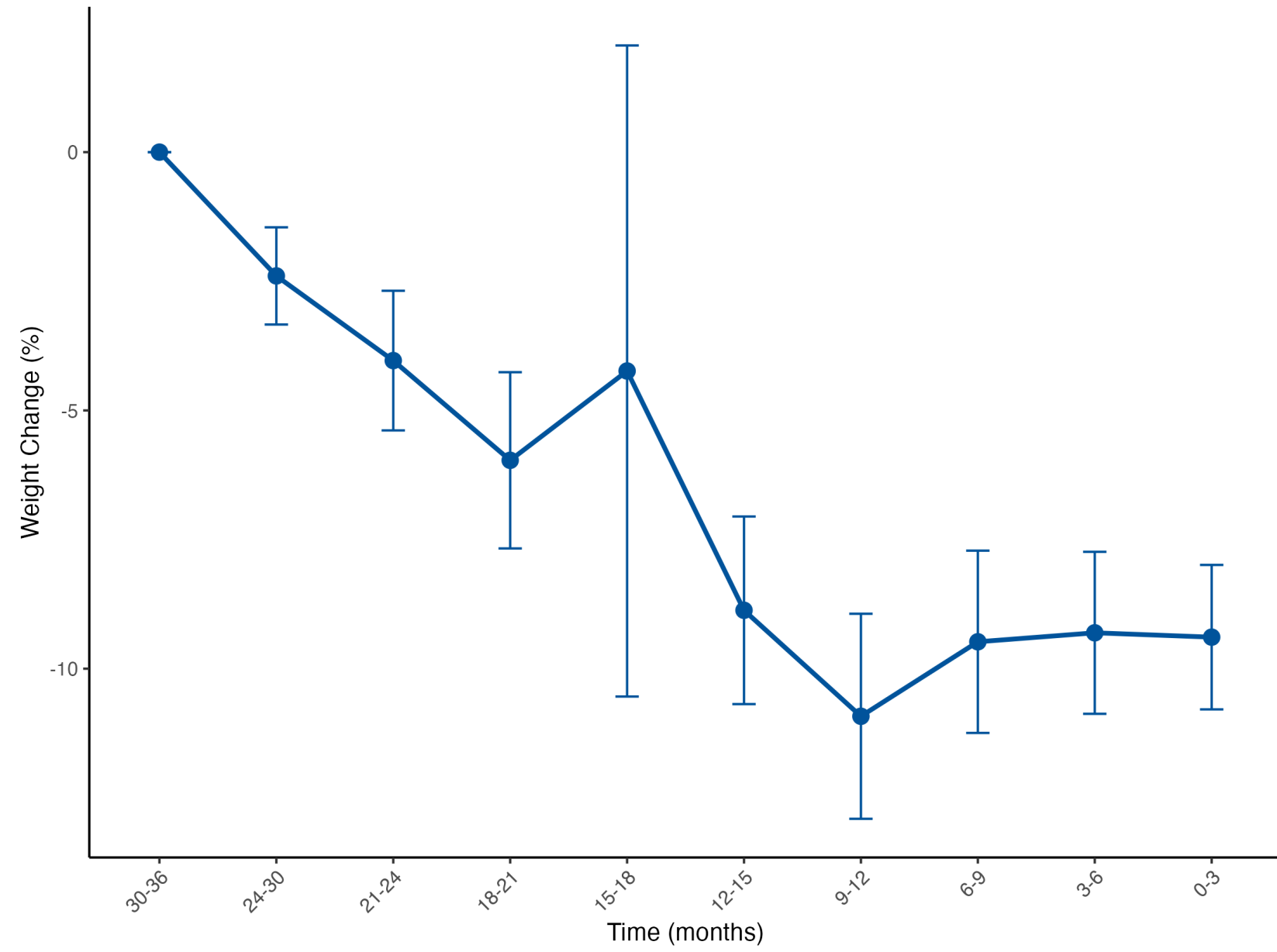


Figure 2. Preoperative weight loss among included abdominal body contouring patients.

Preoperative Weight Loss Rate

- Combined bariatric surgery/GLP-1RA patients had the fastest rate of weight loss (0.95% TBWL/month), followed by bariatric surgery (0.87% TBWL/month), GLP-1RAs (0.41% TBWL/month), and non-medical weight loss controls (0.13% TBWL/month) ($p < 0.001$).

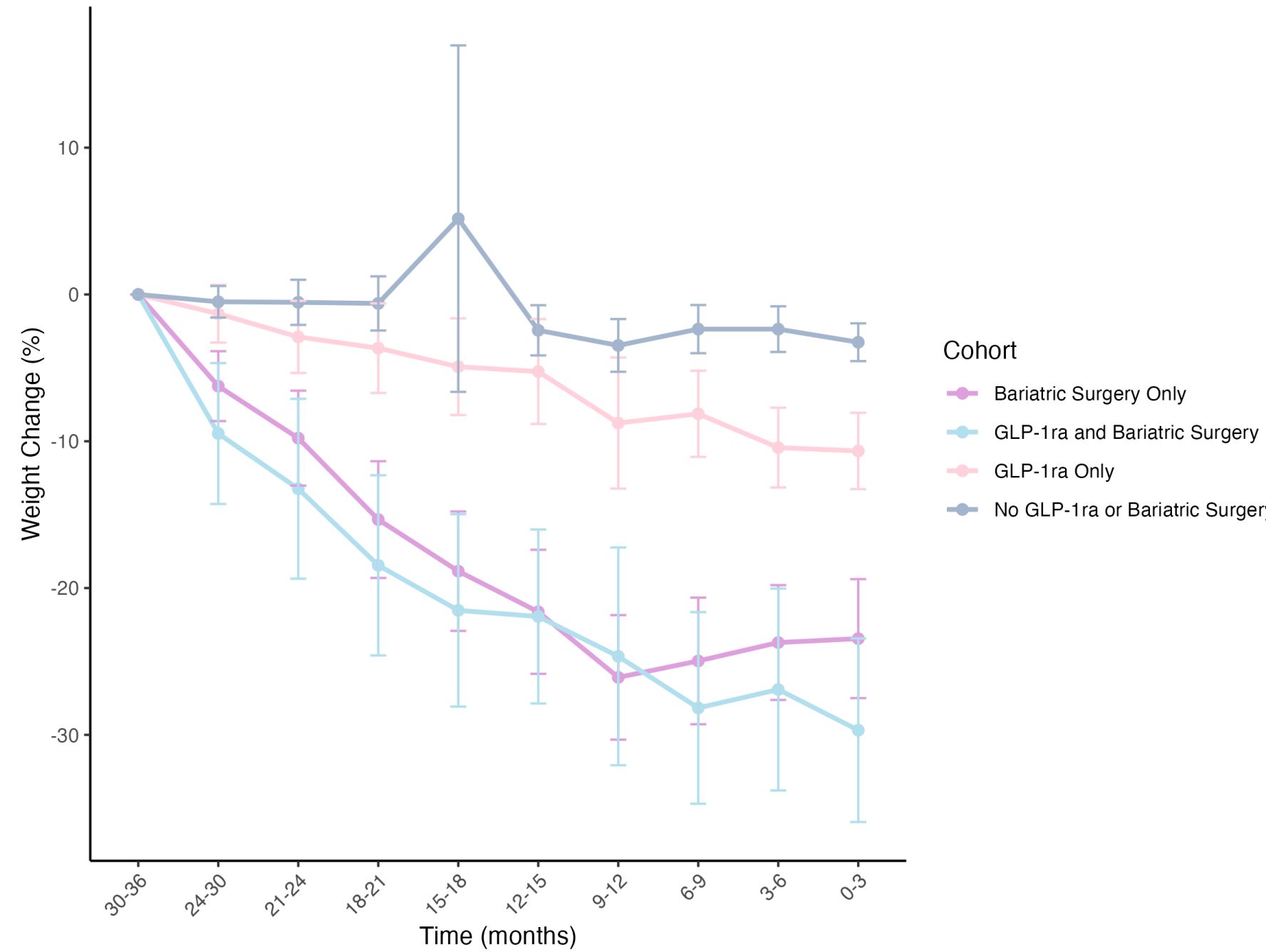


Figure 3. Preoperative weight loss, stratified by weight loss modality.

	GLP-1RA and Bariatric Surgery (n = 27)	Bariatric Surgery Only (n = 95)	GLP-1RA Only (n = 94)	No Medical Weight Loss (n = 336)	Overall (n = 552)	P-value
Mean Age (Years)	49.7	46.9	54.6	50.4	50.5	<0.001
Mean BMI at Surgery	30.4	32.1	32.7	31.4	31.7	0.28
Mean Index Weight (kg)	123.0	122.0	102.0	89.6	99.0	<0.001
Mean Procedure Weight (kg)	83.7	88.8	90.8	85.6	87.0	0.25
Mean Percent Weight Change (%)	-28.6%	-24.1%	-10.5%	-3.49%	-9.46%	<0.001

Table 2. Demographic characteristics and weight loss magnitudes, stratified by weight loss modality.

Preoperative Weight Loss Rate

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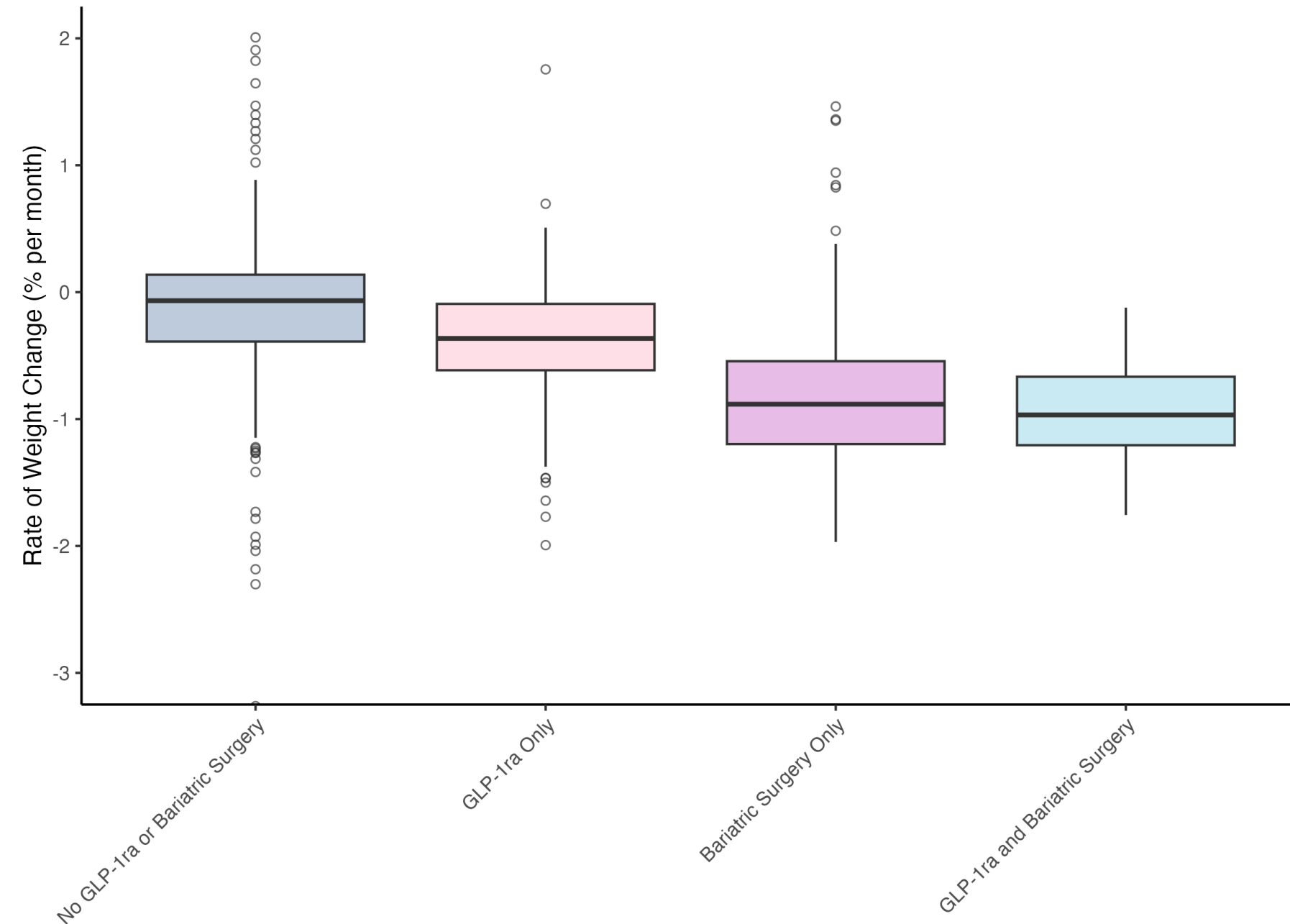


Figure 4. Linear rate of weight loss from index weight, stratified by weight loss modality.

Postoperative Complications by Weight Loss Characteristics

- Higher TBWL% predicted seroma (OR 1.05 [1.02-1.08], $p = 0.004$) and composite complications (OR 1.03 [1.01-1.05], $p = 0.017$) on multivariable regression.
- Faster weight loss rate predicted postoperative seroma (OR 2.64 [1.26-5.60], $p = 0.010$).
- Combined bariatric surgery/GLP-1RA use was predictive of postoperative seroma (OR 3.05 [1.02-8.08], $p = 0.032$), hematoma (OR 3.74 [1.02-13.76], $p = 0.047$), and unplanned return to the operating room (OR 6.78 [2.42-17.99], $p < 0.001$).

CONCLUSIONS

- Irrespective of weight loss modality, higher magnitude and faster rate of weight loss predicted postoperative seroma following abdominal body contouring surgery.
- Higher TBWL% also predicted composite complications.
- Combined bariatric surgery/GLP-1RA patients lost the most weight at the fastest rate and subsequently had an increased risk of seroma, hematoma, and unplanned reoperation.
- These complications may be due to excess skin laxity or nutritional deficits from massive weight loss, as well as preferential skeletal muscle loss from rapid weight loss.
- Surgeons should discuss these increased risks with abdominal contouring candidates with recent massive or rapid weight loss.

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