

# Preoperative GLP-1 RA Usage Decreases Risk of Complications Compared to Bariatric Surgery After THA

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## INTRODUCTION:

While weight loss in morbidly obese patients is encouraged prior to total hip arthroplasty (THA), the intervention used – whether bariatric surgery or glucagon-like peptide-1 receptor agonists (GLP-1 RAs), may carry their own differential risks. This study compares one-year postoperative outcomes in patients undergoing THA with preoperative GLP-1 RA use compared to bariatric surgery.

**METHODS:** The TriNetX research network was queried for patients who underwent THA between 2005 and 2025. Patients with GLP-1 RA use or bariatric surgery 6 months to 2 years prior to THA were identified and 1:1 propensity-score matched both to controls with no such exposure and to each other. Matching criteria included age, sex, race, BMI, diabetes, and obesity. One-year postoperative complication rates were compared using hazard ratios.

## RESULTS:

2,904 patients were matched to the bariatric surgery vs control group. Bariatric surgery patients had an increased risk of revision (3.9% vs 2.4%;  $pp= 0.001$ ), mortality (1.7% vs 1.0%;  $p= 0.039$ ) and periprosthetic joint infection (4.2% vs 2.8%;  $p= 0.004$ ). 4,301 GLP-1RA patients were matched to control patients, and there were no statistically significant differences in the risk of postoperative complications at 1 year. 2,078 patients were matched to the GLP-1 RA vs bariatric surgery groups. The GLP-1 RA cohort had a decreased risk of ED visits (11.6% vs 17.5%;  $p=0.001$ ), revision (2.3% vs 4.0%;  $p=0.003$ ), and periprosthetic joint infection (2.2% vs 4.4%;  $p<0.001$ ).

## DISCUSSION AND CONCLUSION:

Bariatric surgery prior to THA was associated with an increased risk of postoperative complications compared to both controls and GLP-1 RA use. GLP-1 RAs may offer a safer alternative for preoperative weight reduction compared to bariatric surgery in patients undergoing THA.

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	GLP-1RA group (% risk)	Control group (% risk)	P value
Readmission	1.4	1.5	0.681
ED visits	12.2	13.7	0.167
Revision	2.2	2.0	0.546
Mortality	1.4	1.4	0.833
PJI	2.0	2.3	0.429
Superficial infection	1.0	0.8	0.343
DVT	1.2	1.3	0.694
Pulmonary Embolism	1.0	0.9	0.792
Acute Renal Failure	5.0	4.9	0.849
Aspiration	0.4	0.4	0.997

	Bariatric sx group (% risk)	Control group (% risk)	P value
Readmission	2.2	1.8	0.302
ED visits	17.4	14.5	0.054
Revision	3.9	2.4	0.001
Mortality	1.7	1.0	0.039
PJI	4.2	2.8	0.004
Superficial infection	1.4	1.1	0.322
DVT	1.5	1.3	0.528
Pulmonary embolism	1.0	0.7	0.195
Acute renal failure	4.8	3.4	0.019
Aspiration	0.7	0.4	0.136

	GLP-1RA group (% risk)	Bariatric sx group (% risk)	P value
Readmission	1.4	2.2	0.065
ED visits	11.6	17.5	0.001
Revision	2.3	4.0	0.003
Mortality	1.0	1.6	0.110
PJI	2.2	4.4	<0.001
Superficial infection	1.0	1.5	0.117
DVT	1.2	1.8	0.105
Pulmonary embolism	1.0	0.9	0.306
Acute renal failure	4.0	5.0	0.186
Aspiration	0.5	0.8	0.221

GLP-1RA: Glucagon-like Peptide 1 Receptor Agonist  
Bariatric sx: Bariatric surgery