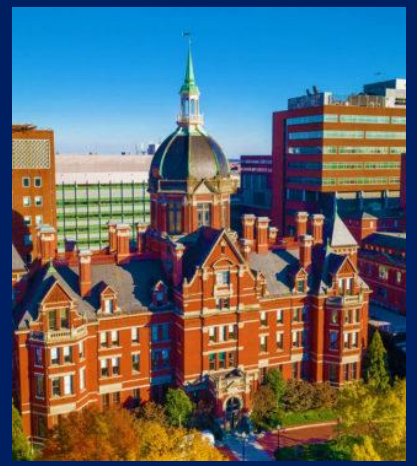
Preoperative Weight Loss Before Total Shoulder Arthroplasty Does Not Impact Postoperative Outcomes



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Disclosures

- Dr. Weber:
  - Paid Consultant for ProPharma, NDA Partners
  - Editorial or Governing board of Archives of Orthopaedic And Trauma Surgery, Arthroscopy, Journal of Shoulder and Elbow Surgery, SLACK Incorporated
  - Board of Directors member for AAOS, Arthroscopy Association of North America, International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine
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- Dr. McFarland
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Introduction

- Obesity is a recognized risk factor in total shoulder arthroplasty (TSA), and has been associated with increased rates of dislocation, fracture, and revision.[1]

- To mitigate complications associated with high BMI following total hip arthroplasty (THA) or total knee arthroplasty (TKA), BMI-based eligibility cutoffs have been implemented.[2,3]

- However, no standardized preoperative criteria for TSA exists.

Introduction

- To help patients meet surgical eligibility cutoffs in THA and TKA, bariatric surgery, glucagon-like peptide-1 (GLP-1) drugs, and weight loss programs have been promoted.

- However, it remains unclear whether significant weight loss before THA, TKA, or TSA reduces postoperative complications.

Study Objectives

- Investigate the impact of rapid, 6-month preoperative weight loss on postoperative outcomes in TSA patients of all BMIs

- Determine the effect of preoperative weight loss on TSA outcomes in patients with obesity (BMI ≥ 30 kg/m^2)

Materials and Methods

- **Study Design**: Retrospective American College of Surgeons National Surgical Quality Improvement Program (NSQIP) data (2011-2020)

- **Patients:** 29,481 TSA patients
  - Weight loss group (preoperative weight loss of >10% within 6 months of surgery): 61
  - No weight loss group: 29,420

Materials and Methods

- **Subanalysis:** 15,112 TSA patients with obesity (BMI ≥ 30)
  - Weight loss group: 28
  - No weight loss group: 15,084

- **Data:** Demographics, comorbidities, outcomes (length of stay, discharge destination, 30-day complications)

- **Analysis:** Univariate (t-test, chi-squared, Fisher's exact test) and multivariate (logistic and linear regression)

Association of preoperative weight loss with postoperative outcomes in patients undergoing TSA

Variable	Total Sample N = 29,841	No Weight Loss n = 29,420	Weight Loss n = 61	P value[a]
Length of total hospital stay	1.66 ± 1.92	1.66 ± 1.91	2.21 ± 3.69	0.248
Discharge to non-home setting				**0.047**
No	26,620 (90.3)	26,570 (90.3)	50 (82.0)	
Yes	2861 (9.7)	2850 (9.7)	11 (18.0)	
Any readmission				0.266[b]
No	28,521 (97.0)	28,464 (97.0)	57 (95.0)	
Yes	877 (3.0)	874 (3.0)	3 (5.0)	
Any minor complication				0.158[b]
No	28,466 (96.6)	28,409 (96.6)	57 (93.4)	
Yes	1,015 (3.4)	1,011 (3.4)	4 (6.6)	
Any major complication				0.587[b]
No	29,057 (98.6)	28,997 (98.6)	60 (98.4)	
Yes	424 (1.4)	423 (1.4)	1 (1.6)	

Univariate Analysis

Outcome	Odds Ratio/ Coefficient	95% CI	P value[a]
Length of total hospital stay	β = −0.13	−0.63 to 0.37	0.61
Discharge to non-home setting	OR = 0.83	0.39–1.76	0.62
Any readmission	OR = 0.67	0.16–2.82	0.59
Any minor complication	OR = 0.61	0.19–1.88	0.39
Any major complication	OR = 0.63	0.08–4.68	0.65

[a]Significant values in **bold**
[b]Indicates Fisher's exact test used

Multivariate Analysis

- Controlling for significant covariates (BMI, functional status, history of severe COPD, heart failure in the 30 days before surgery, ASA classification, bleeding disorder, preoperative pRBC transfusion <72 hours before surgery, and presence of sepsis)

Association of preoperative weight loss with postoperative outcomes in patients with BMI ≥ 30 undergoing TSA

Variable	Total Sample N = 15,112	No Weight Loss n = 15,084	Weight Loss n = 28	P value[a]
Length of total hospital stay	1.68 ± 2.06	1.68 ± 2.06	1.86 ± 1.27	0.464[b]
Discharge to non-home setting				0.751
No	13,633 (90.2)	13,608 (90.2)	25 (89.3)	
Yes	1,479 (9.8)	1,476 (9.8)	3 (10.7)	
Any readmission				0.209[b]
No	14,594 (96.8)	14,569 (96.8)	25 (92.6)	
Yes	476 (3.2)	474 (3.2)	2 (7.4)	
Any minor complication				0.577[b]
No	14,655 (97.0)	14,628 (97.0)	27 (96.4)	
Yes	457 (3.0)	456 (3.0)	1 (3.6)	
Any major complication				1[b]
No	14,873 (98.4)	14,845 (98.4)	28 (100.0)	
Yes	239 (1.6)	239 (1.6)	0 (0.0)	

Univariate Analysis

Outcome	Odds Ratio/ Coefficient	95% CI	P value[a]
Length of total hospital stay	β = −0.16	−0.96 to 0.63	0.69
Discharge to non-home setting	OR = 0.77	0.21–2.83	0.70
Any readmission	OR = 1.78	0.41–7.80	0.44
Any minor complication	OR = 0.66	0.08–5.52	0.70

[a]Significant values in **bold**
[b]Indicates Fisher's exact test used

Multivariate Analysis

- Controlling for significant covariates (race, bleeding disorder, preoperative pRBC transfusion <72 hours before surgery, BUN/creatinine ratio)

Conclusion/Discussion

- Preoperative weight loss is not significantly associated with 30-day postoperative outcomes following TSA in the overall population or patients with obesity.

- Further research is needed to develop preoperative guidelines that consider BMI and other relevant comorbidities for patients undergoing primary TSA.

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