

# The Impact of Obesity on Hand Surgery Complication Rates

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## OBJECTIVES

- Over 36% of United States adults are obese, a categorization linked to both general and orthopedic health problems
- In lower extremity surgery, numerous studies have demonstrated heightened complication rates in obese patients, yet similar research in hand surgery is lacking
- We compared the rates of postoperative complications experienced by obese and non-obese hand surgical patients

## METHODS

- From 2009-2013, 436 patients that received one type of hand surgery (bony, soft tissue, or nerve) with a BMI>35 were identified (cases)
- Controls were patients (n=433) with a BMI<30 who also had hand surgery over the same period, and they were frequency matched by age, gender, and type of surgery
- Post-operative complications (i.e. the need for antibiotics post-operatively, infection, poor incision healing, nerve injury, wound dehiscence, hematoma, and reoperations) and medical comorbidities (i.e., hypertension, diabetes, stroke, vascular disease, kidney disease, and liver disease) were recorded
- Chi-square analyses assessed associations between being obese (BMI>35) and post-operative complications before and after stratification by surgery type
- Logistic regression modeling for the entire population identified predictors of post-operative complications accounting for surgery type, BMI, comorbidities, age, and sex
- The same model was also run separately for case and control patients

## RESULTS

- The overall complication rate was 8.7% with similar rates between obese and non-obese patients (8.5% vs. 9.0%, p=0.79)
- Complications occurred more frequently following bony surgery in both obese and non-obese patients (p<0.02)

BMI	Surgery type	Percent of patients with complications
<30	Bony	15.3%
	Nerve	4.0%
	Soft tissue	9.9%
>35	Bony	14.8%
	Nerve	6.1%
	Soft tissue	6.6%

- Multivariate analysis revealed surgery type as the only significant predictor of complications for non-obese patients (p<0.01)
- For obese patients, both bony surgery (p=0.02) and increasing BMI (p=0.03) were associated with greater complication rates

## CONCLUSION

- Obese patients do not appear to be at any higher risk for post-operative complications after hand surgery
- However, there does appear to be a dose-response effect of BMI in obese patients such that greater obesity leads to greater risk of complications