

## The Influence of Obesity on Ankle Fracture Treatment: A Review of the National Surgical Quality Improvement Program (NSQIP)

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**Introduction/Purpose:** Obesity is a public health concern in the United States, with an overall prevalence of greater than one-third. From a surgical perspective, obesity may increase risk for postoperative complications, including delayed wound healing, infection or compromise of fixation/repair constructs. The purpose of this study was to retrospectively review outcomes data from the American College of Surgeons: National Surgical Quality Improvement Program (NSQIP) to delineate the impact that obesity has on operative treatment of ankle fractures.

**Methods:** Perioperative data was collected from patients undergoing operative intervention for distal fibular or bimalleolar ankle injuries. Patients were identified from the 2006-2015 NSQIP database using current procedural terminology (CPT) codes. Obese (body mass index >30 kg/m<sup>2</sup>) and non-obese (body mass index <30 kg/m<sup>2</sup>) cohorts were identified to elucidate the influence of obesity on perioperative /postoperative complications after undergoing operative treatment for distal fibular or bimalleolar ankle injuries. Univariate and multivariate logistic regression models were created to identify independent risk factors for complications.

**Results:** Our study identified a total of 8,377 patients including, 4,357 undergoing surgical bimalleolar ankle fracture repair and 4,020 patients undergoing surgical repair of distal fibular ankle fracture. Obese patients undergoing surgical repair of either distal fibular or bimalleolar ankle fractures were more likely to have a longer length of hospital stay ( $p < 0.05$ ). Patients undergoing distal fibular fixation were found have a longer operative time. Analysis using logistic regression demonstrated no significant association obesity and DVT/sepsis (bimalleolar ankle fracture fixation) and re-operation/deep incisional SSI/wound complication/UTI (distal fibular ankle fracture fixation) Obesity was not determined to be associated with postoperative complications following distal fibular nor bimalleolar ankle fracture repair. ankle fracture repair.

**Conclusion:** This study demonstrated that, after adjusting for potential confounders, obesity is not significantly associated with adverse outcomes following bimalleolar or distal fibular ankle fracture repair. Further analysis demonstrated that operative time and length of stay are lengthened in ankle fracture fixation in obese patients.

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