

# Title: Increasing Substance Use Trends and Post-Operative Complications Following Arthroscopic Rotator Cuff Repair: An Analysis of 77,708 Patients

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## Abstract

### Background

Arthroscopic rotator cuff repair (RCR) is one of the most common orthopedic procedures performed. Despite its ubiquity, the association between substance use and post-operative outcomes has not been well described. The purpose of the current study is to utilize a nationwide administrative-claims database to characterize the substance use trends of patients undergoing RCR. Additionally, the authors sought to evaluate the influence of pre-operative substance abuse on post-operative outcomes following RCR.

### Methods

From 2015-2019, the Mariner database was utilized to identify patients age 18-84 undergoing RCR using CPT codes. Patients were stratified by substance use, as defined by International Classification of Diseases (ICD) codes. Substance use trends were reported. Post-operative outcomes assessed included major complications, minor complications, infections, admission, and ED-visits within 90 days of surgery along with stiffness, revision surgery, and conversion to arthroplasty within 1 year. Multivariate logistic regression was used to adjust for demographic and comorbid factors.

### Results

Out of 77,708 included patients, reported substance use increased from 2015-2019. Individuals with a history of substance use had an increased risk of all reported adverse outcomes, notably major complications (OR: 1.63; 95%CI 1.44-1.86;  $p < 0.001$ ), revision surgery (OR: 1.43; 95%CI 1.30-1.56,  $p < 0.001$ ), and conversion to arthroplasty (OR: 1.40; 95%CI 1.08-1.80,  $p < 0.05$ ). Subgroup analysis demonstrated that cannabis users in particular were at higher risk for major complications (OR: 1.75; 95%CI 1.15-2.56,  $p < 0.001$ ), conversion to arthroplasty (OR: 3.54; 95%CI 1.77-6.4,  $p < 0.001$ ), and a revision (OR: 1.53; 95%CI 1.12-2.04,  $p < 0.05$ ) compared to controls.

### Conclusion

Substance use in this population has increased over the past five years. This study reports that patients with substance use disorders are at greater risk of complications following arthroscopic rotator cuff repair than those who abstain. Despite its legality, nicotine, alcohol, and cannabis place patients at risk for complications and treatment failure. Cannabis use was associated with the highest risk for conversion to arthroplasty within one year.