

## **Anabolic Steroid Use Association with Increased Complications and Revision Rates Following Rotator Cuff Repair: A Retrospective Cohort Study**

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**INTRODUCTION:** Testosterone and other anabolic steroids are increasingly used for both clinical and non-clinical purposes. While they may enhance muscle mass and physical performance, their effects on tendon integrity, immune modulation, and tissue healing remain concerning. This study evaluates the association between anabolic steroid use—specifically testosterone—and postoperative outcomes following rotator cuff repair.

**METHODS:** A retrospective cohort analysis was performed using a multi-institutional electronic health record (EHR) database. Adult patients undergoing rotator cuff repair were stratified based on documented preoperative testosterone or anabolic steroid use. Propensity score matching was applied to balance demographics, comorbidities, and surgical factors between steroid users and non-users. Postoperative outcomes were assessed at 90 days and two years, including wound disruption, infection, sepsis, thromboembolic events (DVT/PE), reoperation, revision surgery, and conversion to total shoulder arthroplasty (TSA). Risk ratios (RRs) with 95% confidence intervals (CIs) were calculated. Significance is set to  $p < 0.05$ .

**RESULTS:** At 90 days, anabolic steroid users had a significantly increased risk of postoperative stiffness (RR: 1.270, 95% CI: 1.065–1.514;  $p = 0.008$ ), while wound disruption and infection rates were not significantly different. At 2-year follow-up, steroid use was associated with a higher risk of infection (RR: 1.613, 95% CI: 1.033–2.517;  $p = 0.034$ ), postoperative stiffness (RR: 1.258, 95% CI: 1.082–1.463;  $p = 0.003$ ), and revision surgery (RR: 1.383, 95% CI: 1.127–1.696;  $p = 0.002$ ). No significant differences were observed in TSA conversion rates at either timepoint.

**DISCUSSION AND CONCLUSION:** Testosterone and anabolic steroid use is associated with increased risk of certain postoperative complications following rotator cuff repair, particularly infection and systemic inflammatory complications. These findings suggest that preoperative screening for anabolic steroid use may be warranted, and perioperative care may need to be adjusted to mitigate these risks. Further research is necessary to clarify the pathophysiologic mechanisms and develop tailored perioperative strategies for this growing patient population.