

Background: Rotator cuff injuries are the most common tendon injury in the adult population affecting nearly 30% of adults over the age of 60 years (Khatri 2019). Obstructive Sleep Apnea (OSA) is a similarly common condition that is characterized by repeated episodes of respiratory pathway obstruction throughout a period of sleep (Senaratna 2017). OSA has been shown to worsen patient reported outcomes post-surgery (Cancienne 2019, Gali 2007, Legler 2018, Bamgbade 2017, Schreiner 2020).

Purpose: The purpose of this study was to determine whether patients at high risk for OSA experience worse outcomes after surgical treatment for rotator cuff repair via a retrospective cohort study.

Methods: Included patients completed STOP-BANG surveys in which scores greater than 3 were considered high risk for OSA as per standard guidelines (Chung 2016). Five mixed model repeated measures ANCOVAs were performed for five different outcome measures: VAS pain scores, SANE scores, VR-12 mental and physical scores, and total ASES scores, measured pre-operatively, 3 months, 6 months, and 1 year post-operatively.

Results: There was a significant group by time interaction for the VR-12 mental scores ($F = 3.66, p = .0128$): scores consistently increased over time for patients at high risk of OSA, while patients at low risk of sleep apnea did not exhibit a significant difference post-operatively. There was a significant group effect, time effect ($F = 56.59, p < .0001$), group by time interaction, and effect of BMI on the VR-12 physical scores. Patients at high risk of OSA had on average lower scores by 3.35 points ($F = 7.27, p = .0076$). While scores increased on average over time for patients at low risk and high risk of OSA, patients at low risk showed a quicker and greater improvement overall ($F = 4.36, p = .005$), while patients with a higher BMI performed significantly worse ($F = 6.76, p = .01$).

Conclusions: Our findings suggest that RCR in patients at high-risk of OSA can expect similar improvements in PROs of shoulder function and shoulder pain; while in some cases, greater improvements in mental health at 1 year post-operatively, compared to their low-risk counterparts. However, in contrast to their low-risk counterparts, our results suggest that patients at high risk of OSA cannot expect similar improvements in physical health one-year post RCR. Hence, orthopedists should take into consideration that while high-risk OSA patients can anticipate achieving similar levels of recovery following RCR, their progress towards these results may be markedly slower for certain parameters of recovery.