

## **Age Is Predictive of Lesser Tuberosity Osteotomy Nonunion Following Anatomic Total Shoulder Arthroplasty**

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**INTRODUCTION:** Lesser tuberosity osteotomy (LTO) is one method that can be utilized for subscapularis mobilization during anatomic total shoulder arthroplasty (aTSA) and has reported union rates of 83-97%. However, LTO nonunion remains a cause of aTSA failure, and the factors influencing LTO healing are not well understood. The goal of this study is to identify patient- and technique-specific factors affecting the incidence of LTO union following aTSA.

**METHODS:** We conducted a retrospective review of all patients who underwent aTSA with LTO between February 2019 and December 2021. Patients with at least 3 months of radiographic follow-up were included. LTO union was assessed using radiographs and classified as healed (H), nondisplaced nonunion (NN), or displaced nonunion (DN). Patients who underwent revision surgery for LTO failure prior to the 3 month time point were categorized in the displaced nonunion group. Patient demographics, surgical characteristics, and radiographic variables were analyzed to determine their influence on radiographic union.

**RESULTS:** Of the 449 included patients, 66.6% achieved LTO union, 26.7% were NN, and 6.7% were DN. Younger age was identified as a predictor of nonunion (OR = 0.98, p = 0.037). No significant differences in union rates were observed based on implant type or size, LTO thickness, change in the humeral head center of rotation, or any additional demographic variables. Despite a 33.4% nonunion rate, only 2.7% of patients with nonunion required revision surgery due to subscapularis-related complications.

**DISCUSSION AND CONCLUSION:** Younger age is a positive predictor of radiographic LTO nonunion following aTSA, while additional demographic, surgical, and radiographic factors do not significantly influence union rates. Despite the reported radiographic nonunion rate, the need for revision surgery remains low.