Patients Return to Sport at Similar Rates Following Reverse and Anatomic Total Shoulder Arthroplasty: A Matched Cohort Study in Active Patients Younger than 65 Years Old

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INTRODUCTION: Reverse total shoulder arthroplasty (rTSA) and anatomic total shoulder arthroplasty (aTSA) have become successful surgical treatments for patients with degenerative shoulder pathologies. Recent advancements have extended the use of rTSA to younger, more active populations, previously a domain reserved for aTSA due to concerns over the longevity and mechanical demands on the rTSA prosthesis. The dynamic landscape of shoulder arthroplasty continues to evolve, particularly concerning the ability of patients to return to sport and recreational activities postoperatively—a crucial measure of quality of life for many patients.

METHODS:

Patients aged ≤ 65 years old who underwent primary aTSA or rTSA for glenohumeral osteoarthritis between 2016 and 2021 were identified using an institutional registry. Patients with rotator cuff tear arthropathy were excluded from analysis. American Shoulder and Elbow Society (ASES) scores were documented as a component of the institutional registry. A custom postoperative survey assessed pre- and postoperative sport participation, timing and level of RTS, reasons for not returning to sport, and overall patient satisfaction. rTSA patients were matched in a 1:2 ratio with aTSA patients based on sex, BMI, age at surgery, and Charlson Comorbidity Index (CCI). Statistical comparisons for all outcomes were performed using t-tests and chi-square analysis.

RESULTS:

385 patients (335 aTSA, 50 rTSA) responded to the survey. After matching 2:1 (100 aTSA, 50 rTSA), there were no statistically significant differences in age, sex, dominant-sided surgery, and CCI between groups. The importance of RTS was rated a 4 or 5 out of 5 in 84.6% of aTSA patients and 80.9% of rTSA patients (p=0.12). Postoperatively, 76.9% of aTSA patients and 85.7% of rTSA were able to RTS (p=0.42), while 46.2% of the aTSA group and 57.1% of the rTSA group were able to RTS at the same level or higher (p=0.42). Median time to RTS was 176 days for the aTSA group and 154 days for the rTSA group (p=0.57). Both the aTSA and rTSA groups report being somewhat or very satisfied with their surgery postoperatively at similar rates (91.0% vs. 86.0%, p=0.35). Preoperative and 5-year ASES scores were not significantly different between groups.

DISCUSSION AND CONCLUSION:

In this matched cohort of patients aged 65 years and younger, return to sport following rTSA was comparable to, and in some metrics numerically higher than, return following aTSA, although none of the differences reached statistical significance. These findings challenge the traditional paradigm that aTSA is the preferred option for younger, active patients wishing to return to sports due to presumed superior functional outcomes in athletic activities. The similar rates of RTS, time to return, and postoperative satisfaction suggest that with the appropriate indications, rTSA may be a viable surgical option for select younger patients with glenohumeral osteoarthritis. As indications for rTSA continue to expand, these data provide early support for its ability to meet the demands of active patients seeking high-quality functional outcomes. Further prospective studies with sport-specific analyses and long-term follow-up are warranted to validate these findings and guide surgical decision-making in this emerging patient population.