

Return to Weightlifting Following Anatomic and Reverse Shoulder Arthroplasty

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INTRODUCTION: Weightlifting is a common form of recreational activity that places considerable stress on the shoulder joint and is of particular interest to patients undergoing shoulder arthroplasty. Despite the growing number of individuals receiving anatomic total shoulder arthroplasty (aTSA) and reverse total shoulder arthroplasty (rTSA), recommendations regarding return to weightlifting remain unclear. The purpose of this study was to report the rate of return to weightlifting following primary shoulder arthroplasty and to evaluate postoperative function and performance outcomes.

METHODS: A retrospective review of a single institution’s shoulder and elbow surgery repository identified patients who underwent aTSA, hemiarthroplasty (HA), or rTSA by a single fellowship-trained shoulder and elbow surgeon between February 2009 and August 2023. Patients who self-identified “weights” or “weight training” as a usual sport on the American Shoulder and Elbow Surgeons (ASES) questionnaire at a minimum two-year follow-up were included. Demographics, surgical indications, range of motion (ROM), patient-reported outcome measures (ASES, SANE, SST, VAS pain/function), and return-to-weightlifting status were analyzed and compared between anatomic (aTSA/HA) and reverse (rTSA) cohorts.

RESULTS SECTION: Of the 200 shoulder arthroplasty patients self-identified as weightlifters, 184 patients (92%) met inclusion criteria with a mean follow-up of 66.6 ± 34.7 months. The mean age was 64.8 ± 8.1 years, and 76.6% were male. Overall, 70.1% of patients reported no difficulty performing their usual weightlifting activities, 21.7% reported some difficulty, 7.6% reported great difficulty, and only one patient (0.5%) was unable to participate. Patients treated with aTSA or HA demonstrated higher rates of full return compared with rTSA (74.3% vs 56.8%, P = .10), as well as greater external (50° vs 45°, P = .02) and internal rotation (8 vs 4, P = .001). Both cohorts achieved substantial postoperative improvements in ASES (mean 86.1 ± 16.8), SANE (83.4 ± 21.6), SST (10.3 ± 2.0), and VAS pain (1.3 ± 2.2) scores.

DISCUSSION: Shoulder arthroplasty patients can expect a high likelihood of returning to weight training without difficulty, with excellent pain relief and functional improvement at early to mid-term follow-up. Although anatomic procedures demonstrated a numerical trend toward easier return than reverse arthroplasty, this difference was not statistically significant.

SIGNIFICANCE/CLINICAL RELEVANCE: These findings support that motivated patients may safely resume weight training after shoulder arthroplasty under standard postoperative guidance, helping inform rehabilitation expectations and counseling for active individuals.

Table I — Overall postoperative functional outcomes and return to weightlifting (N=184)		Table II — Demographic characteristics of patients undergoing anatomic-based (aTSA + HA) vs reverse-based (rTSA + revisions) shoulder arthroplasty			Table III — Outcomes and return to weightlifting difficulty in patients undergoing anatomic-based (aTSA + HA) versus reverse-based (rTSA + revisions) shoulder arthroplasty				
Variable	All patients (N = 184) Mean ± SD or n (%)	Variable	aTSA (n=140) median(IQR) or Mean ± SD or n (%)	rTSA (n=44) median (IQR) or Mean ± SD or n (%)	p value	Variable	aTSA (n=140) median(IQR) or n (%)	rTSA (n=44) median(IQR) or n (%)	p value
ASES	86.1 ± 16.8	Age	65.5 ± 8.3	69.0 ± 5.9	.001	ASES	95 (81.7–98.3)	88.3 (76.7-95.0)	.065
SST	10.3 ± 2.0	BMI (kg/m ²)	26.6 (23.4-29.6)	27.8 (24.4-32.0)	.1	SST	11 (9-12)	10 (8-12)	.106
SANE	83.4 ± 21.6	Sex			.1	SANE	90 (80-97)	90 (82.5-95)	.929
VAS function	8.4 ± 1.7	Male	112 (80%)	29 (65.9%)		VAS function	9 (8-10)	9 (8-9.8)	.847
VAS Pain	1.3 ± 2.2	Female	28 (20%)	15 (34.1%)		VAS Pain	0 (0-2)	0 (0-1)	.597
Range of motion		Follow-up time (months)	71.4 (37.3-92.5)	48.1 (34.1-70.1)	.01	Range of motion			
Elevation	140.1 ± 20.8	Surgery on Dominant Arm	60 (46.2%)	27 (67.5%)	.02	Elevation	145 (130-155)	140 (120-150)	.076
External rotation	47.1 ± 14.3	Indication			.001	External rotation	50 (40-60)	45 (40-50)	.020
Internal rotation	6.9 ± 2.1	Osteoarthritis	133 (95%)	15 (34.1%)		Internal rotation	8 (6-8)	4 (4-8)	.001
Return to Weights		Inflammatory arthritis	1 (0.7%)	0 (0)		Return to Weights			.1
3	129 (70.1%)	Cuff tear arthropathy	0 (0)	12 (27.3%)		3	104 (74.3%)	25 (56.8%)	
2	40 (21.7%)	Fracture sequelae	2 (1.4%)	4 (9.1%)		2	26 (18.6%)	14 (31.8%)	
1	14 (7.6%)	Massive cuff tear with minimal OA	0 (0)	9 (20.5%)		1	9 (6.4%)	5 (11.4%)	
0	1 (0.5%)	AVN	1 (0.7%)	0 (0)		0	1 (0.7%)	0 (0)	
		Infection	2 (1.4%)	0 (0)					
		Revision Failed	1 (0.7%)	4 (9.1%)					

ASES, American Shoulder and Elbow Surgeons Standardized Shoulder Assessment Form; SST, Simple Shoulder Test; SANE, Single Assessment Numeric Evaluation; VAS, visual analog scale. Internal rotation was scored on a 10-point scale using the following conversions: buttock/greater trochanter = 2; sacrum-L4 = 4; L1-L3 = 6; T8-T12 = 8; T1-T7 = 10. Data are expressed as mean ± standard deviation or n (%).

aTSA, anatomic total shoulder arthroplasty; HA, hemiarthroplasty; rTSA, reverse total shoulder arthroplasty; ASES, American Shoulder and Elbow Surgeons Standardized Shoulder Assessment Form; SST, Simple Shoulder Test; SANE, Single Assessment Numeric Evaluation; VAS, visual analog scale; SD, standard deviation; IQR, interquartile range. Internal rotation was scored on a 10-point scale using the following conversions: buttock/greater trochanter = 2; sacrum-L4 = 4; L1-L3 = 6; T8-T12 = 8; T1-T7 = 10. Data are expressed as median (interquartile range), or n (%). Boldface indicates statistical significance (P ≤ .05).

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