Return to Golf after Shoulder Arthroplasty: Golf Performance and Outcome Scores

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INTRODUCTION: Golf is an increasingly popular sport in the United States, especially amongst the age group of patients undergoing joint replacement. Return to golf after hip and knee arthroplasty has been previously studied. However, the quality and level of play following total shoulder arthroplasty is less defined, especially following reverse shoulder arthroplasty. We hypothesize that shoulder pain and performance will improve during golf similarly after both anatomic and reverse total shoulder arthroplasty.

METHODS: This is a retrospective cohort study of 69 patients identified as playing golf recreationally prior to undergoing either anatomic or reverse shoulder arthroplasty. All patients were cleared to return to golf activities 3 months following surgery. A golf-specific questionnaire was emailed to patients focusing on their experience returning to golf after shoulder arthroplasty. Results following total shoulder arthroplasty (TSA) were compared to reverse shoulder arthroplasty (RSA). Patient reported and functional outcome scores were evaluated.

RESULTS: The median age at surgery was 70 (62-73) years with 47 (68.1%) total shoulder replacements and 22 (31.9%) reverse shoulder replacements. Thirty-six (52.1%) patients returned to playing golf within 6 months and sixty (87.0%) patients returned to playing golf within 12 months following surgery. Enjoyment of golf either improved or stayed the same in 51 patients (91.0%). There was no significant change in handicap score after shoulder replacement. Pain experienced during golf improved significantly from a median VAS pain of 6 to 1 (p<0.001), with slightly greater improvement in pain for TSA patients (p=0.025). Driving distance improved for 52.2% of patients, with TSA patients reporting significantly greater improvements in distance (p=0.014). For all other questions, patients treated with anatomic and reverse shoulder arthroplasty reported similar experiences. ASES, SST, SANE, VAS function, active flexion and external rotation all significantly improved at most recent follow up (p<0.001).

DISCUSSION AND CONCLUSION: Return to golf following both reverse and anatomic total shoulder arthroplasty is a realistic expectation, with significant improvements in pain and function while playing golf. Enjoyment playing golf, golf performance, and average length of drive improve in approximately half of all patients. Patients treated with anatomic and reverse shoulder arthroplasty can expect similar golf experiences following surgery, with TSA patients experiencing a better improvement in driving distance.

Table II. Parients' experiences returning to gelf after shoulder arthroplasty (N=65)				
Variable	Patients (n=69) median (NOR) or n (NO			
	median (IQM) or e (III)			
Proquency playing golf in past year				
8+ times per month	23 (33.3)			
2-7 times per month	24 (34.8)			
I time per month	22 (31.5)			
Decreased in frequency of playing golf after surgery	15 (21.7)			
Reasons for less frequent golf play*				
Dis	3 (23.1)			
Insubility	1 (7.7)			
Limited range of motion	2 (15.4)			
Lack of confidence in abilities	11 (84.6)			
Physician restriction	2 (15.4)			
Saltin-Grintly Physical Activity Scale				
PA Level 5	14 (20.3)			
PA Level 4	21 (30.4)			
PA Level 3	16 (23.2)			
PA Level 2	11 (15.9)			
PA Level 1	4 (5.8)			
PA Level 0	3 (4.3)			
Preop golf handicap	20 (15-25)			
		0.497		
Incressed by 21+ yards				
Decreased				
Golf accuracy after surgery				
Improved	21 (32.3)			
Staved the same	38 (58.5)			
Westerned	6 (9.2)			
Overall colf performance after surgery	- (84)			
Improved	33 (50.0)			
Stand the same	21 (31.8)			
Watered	12 (18.2)			
Proce VAS pain playing gold	6(4-7.5)			
Poston VAS rain playing gots	1 (0-2)			
Change in VAS pain playing got! from proce to nostoe	4(4-3)	-0.001		
Enloyment playing got from proop to postop	-(-63)	-2,001		
increased	36 (53.7)			
Stand the same	38 (53.1) 25 (37.3)			
Staped the same	23 (37.3) 6 (9.0)			
-Rosenson were neverted only by national associate loss forward observed				

Table III. Comparison of return to go Variable	TSA (n+47)	RSA (n=22) modern (RDR) or in (RD	P
Frequency playing golf in past year	recession trigging on in 12-th	attendings of the co	0.979
8+ times per menth	16 (34.0)	7 (31.8)	
2-7 times per month	16 (34.0)	8 (26.4)	
I time per month	15 (32.0)	7 (31.8)	
Decreased in frequency of playing golf			
ofter surgery	8 (19.1)	5 (27.3)	0.444
Reasons for loss frequent golf plays		- (
Dela	0.004	3 (50.0)	0.035
Inability	0.00	1 (20.0)	0.365
Limited range of motion	0.00	2 (40.0)	0.176
Lack of confidence in abilities	6 (75.0)	5 (100)	0.497
Physician restriction	2 (25.0)	0(0)	0.497
Saltin-Grimby Physical Autivity Scale			0.111
PA Level 5	12 (25.5)	2 (9.1)	
PA Level A	15 (31.9)	6 (27.3)	
PA Level 3	11 (22.4)	5 (22.7)	
PA Level 2	7.04.90	4 (18.2)	
PA Level 1	2(4.3)	2 (9.1)	
PA Level 0	0.00	103.6	
Proop golf handicap	19 (15-26)	21.5(17.20)	0.244
Postop golf handicap	19 (16-26)	24.5 (20-28)	0.125
Change in golf handlesp after support	0 (-2-3)	2.5 (-4-7)	0.183
Change in length of guilf drive			0.014
Increased by 0-20 yards	25 (55.6)	1 (23.8)	
Incremed by 21+ yards	2(4.4)	5 (23.8)	
Doorsand	18 (49.0)	11 (52.4)	
Golf accuracy after surgery			0.714
Improved	14 (33.4)	7 (36.5)	
Staved the same	28 (68.9)	10 (52.6)	
Wersened	4 (8.7)	2 (10.5)	
Overall golf performance after surgery			0.874
Improved	24 (52.2)	9 (45.0)	
Stared the same	14 (20.4)	7 (35.0)	
Wenered	8 (17.4)	4 (20.0)	
Proop VAS pain playing galf	6 (5-8)	5 (4-6)	0.00
Postop VAS pain playing galf	1 (9-2)	1 (0.7)	0.548
Change in VAS pain playing unif from			
proper to postup	-5 (-74)	4(3-45)	0.025
Enjoyment playing golf since surgery			0.85
Increased	25 (53.2)	11 (55.0)	
Staved the same	17 (36.2)	8 (40.0)	
		1 (5.0) for TSA patients, n=3 for ESA;	

Variable	TSA (n=47) modius (NOR)	RSA (n=22) median (IQR)	
PROMI	modian (IQV)	median (IQII)	- 1
Proof ASES	34 (25-44)	32 (23-50)	0.92
Mari Recent ASES	95 (85-100)	88 (65.95)	0.03
Prove to Most Recent Change in ASES	57 (45-68)	47 (79.65)	0.05
Price SST	5 (3-7)	4/3-0)	0.53
Mart Recent SST	12 (10-12)	10 (8-11)	0.53
Proon to Most Recent Change in SST	6.66-73	6 (6-7)	0.26
Prove SANE	30 (20.44)	38 (14-45)	0.93
Mart Recent SANE	90 (81,97)	87 (78-97)	0.51
Proce to Most Recent Change in	90 (61-91)	81 (18-91)	9.51
SANE	90 (81-97)	87 (78-97)	0.90
Proce VAS Function	3 (2-5)	3 (2-5)	0.51
Most Recent VAS Function	9 (8-10)	9 (7,10)	0.15
Prope to Most Recent Change in VAS	9 (8-10)	A (1-10)	9.10
Function	6.66-73	5 (3-7)	0.54
Proper VAS Pain	6 (5.7)	6.5 (5.7)	0.90
Mast Recent VAS Pain	0.03-13	0.00.0	0.11
Proce to Most Recent Change in VAS	0.60-1)	0 (0-3)	9.11
Price to Store Recent Change in VAS	-6 (-74)	-5 (-7 1.5)	0.14
POME .	-0 (-74)	-5 (-115)	0.14
Proce Florion*	115 (83-130)	90 (60-113)	0.01
	150 (135-155)	140 (129-146)	0.14
Most Recent Flories * Proce to Most Recent Change in	130 (133-133)	140 (129-146)	0.14
Precip to Most Recent Change in Elevine *	38 (10.55)	50 (23,73)	0.13
Preop External Rotation *	30 (10-40)	20 (0-43)	0.30
Mest Recent External Retation *	55 (35-60)	45 (30-60)	0.26
Preop to Most Recent Change in			
External Rotation *	28 (10-39)	25 (15-38)	0.94
Proce Internal Retation?"	4 (2-8)	4 (2-8)	0.71
Most Recent Internal Rotation*2	8 (8-8)	4 (4-5)	0.00
Proce to Most Recent Change in			
Internal Retations**	4 (0-6)	0 (-2-3) how Supposes, SST Simple	9.01

Variable	Prosperative	Most Recent	
	modes (IQR)	median (SQS)	P
TSA (p=47)			
ASES	34 (25-44)	95 (95-100)	< 0.00
SST	5 (3-7)	12 (10-12)	< 0.00
SANE	30 (20-44)	90 (81-97)	< 0.00
VAS Function	3 (2-5)	9 (8-10)	< 0.00
VAS Pain	6 (5-7)	0.00-13	< 0.00
Flexion *	115 (83-130)	150 (135-155)	< 0.00
Expernal Retation."	30 (10-40)	55 (35-60)	< 0.00
Internal Rotation**	4 (2.6)	8 (8-8)	< 0.00
RSA (1=22)			
ASES	32 (23-50)	88 (65-65)	< 0.00
SST	4 (3-6)	10 (8-11)	< 0.00
SANE	38 (14-49)	87 (78-97)	< 0.00
VAS Function	3 (2-5)	9 (7-16)	< 0.00
VAS Pain	6.5 (5-7)	0 (0-3)	< 0.00
Flexion *	90 (60-113)	140 (129-146)	< 0.00
Expernal Retation *	20 (9-43)	45 (30-60)	< 0.00
Internal Retation?*	4 (2-8)	4 (4-8)	0.344