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### The Association of Season of Surgery and Patient Reported Outcomes Following Total Hip Arthroplasty

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# Season of index surgery is not associated with differences in complications, function, or satisfaction following Total Hip Arthroplasty.

## The Association of Season of Surgery and Patient Reported Outcomes Following Total Hip Arthroplasty

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### Introduction

- Understanding the impact of situational variables on surgical recovery can improve outcomes in total hip arthroplasty (THA).
- Literature examining hospital outcomes by season remains inconclusive, with limited focus on patient experience.
- The aim of this study was to investigate if there were differences in hospital and patient-reported outcomes measures (PROMS) after THA depending on the season in an area with 4 distinct seasons.

### Methods

- A retrospective chart review was performed of patients undergoing primary THA at institution from Jan 2013 - Aug 2020.
- A total of 6,418 patients were included.
- Demographics, hospital outcomes, and patient-reported outcome measures (PROMs) were compared between season of index surgery.
- Q-values were reported in outcomes tables to adjust for the False Discovery Rate for multiple testing.

### Results

- Of this patient population, 1,636 underwent surgery in winter, 1,543 in spring, 1,811 in summer, and 1,428 in fall.
- PROMs were equivalent across seasons at nearly all time points.
- The average age of patients was 65 (+/- 10) years, with an average BMI of 29.3 (+/- 6).
- Rates of complications including ED visits within 30 days, readmission within 90 days, unplanned readmission, dislocation, fracture, or joint or wound infection were not significantly different by season (q<.05).

### Discussion

- Investigating forms of preoperative optimization and surgical planning are essential for maximizing patient outcomes.
- Patients can be counseled that they have similar rates of complications and postoperative recovery regardless of season of THA.

Table 1: Demographics

	Overall, N=6,418	Winter, N=1,636	Spring, N=1,543	Summer, N=1,811	Fall, N=1,428
Cemented (Yes)	246 (3.8%)	59 (3.6%)	81 (5.2%)	62 (3.4%)	44 (3.1%)
Laterality (Right)	3,426 (53%)	878 (54%)	799 (52%)	993 (55%)	756 (53%)
Both Hips Replaced	1,670 (26%)	419 (26%)	381 (25%)	466 (26%)	404 (28%)
Sex (Female)	3,532 (55%)	903 (55%)	831 (54%)	1,042 (58%)	756 (53%)
Age at Discharge	65 (10)	65 (10)	65 (10)	66 (10)	65 (10)
BMI	29.3 (6.1)	29.3 (5.7)	29.4 (6.2)	29.4 (6.4)	29.0 (5.8)
BMI Category					
Underweight	64 (1.0%)	12 (0.7%)	22 (1.4%)	19 (1.0%)	11 (0.8%)
Healthy Weight	1,531 (24%)	375 (23%)	345 (22%)	450 (25%)	361 (25%)
Overweight	2,268 (35%)	588 (36%)	560 (36%)	604 (33%)	516 (36%)
Obese	2,555 (40%)	661 (40%)	616 (40%)	738 (41%)	540 (38%)
Pre-Op Diagnosis					
DJD/OA	6,182 (97%)	1,574 (97%)	1,489 (97%)	1,740 (97%)	1,379 (97%)
AVN	94 (1.5%)	24 (1.5%)	21 (1.4%)	32 (1.8%)	17 (1.2%)
Fracture	102 (1.6%)	29 (1.8%)	25 (1.6%)	29 (1.6%)	19 (1.3%)
Unknown	40	9	8	10	13

Table 2: Hospital Outcomes

	Overall, N=6,418	Winter, N=1,636	Spring, N=1,543	Summer, N=1,811	Fall, N=1,428	q-value
ED visit (30 d)	122 (1.9%)	35 (2.1%)	27 (1.7%)	37 (2.0%)	23 (1.6%)	>0.9
Readmission (90 d)	192 (3.0%)	48 (2.9%)	37 (2.4%)	58 (3.2%)	49 (3.4%)	>0.9
Readmission unplanned	192 (3.0%)	48 (2.9%)	37 (2.4%)	58 (3.2%)	49 (3.4%)	>0.9
Fracture (90 d)	25 (0.4%)	7 (0.4%)	4 (0.3%)	7 (0.4%)	7 (0.5%)	>0.9
Dislocation (90 d)	10 (0.2%)	3 (0.2%)	4 (0.3%)	3 (0.2%)	0 (0%)	>0.9
Mechanical complication (90 d)	4 (<0.1%)	2 (0.1%)	1 (<0.1%)	1 (<0.1%)	0 (0%)	>0.9
Joint infection (90 d)	12 (0.2%)	0 (0%)	2 (0.1%)	5 (0.3%)	5 (0.4%)	0.8
Wound infection (90 d)	11 (0.2%)	3 (0.2%)	3 (0.2%)	2 (0.1%)	3 (0.2%)	>0.9

Table 3: PROMs

	Overall, N=6,418	Winter, N=1,636	Spring, N=1,543	Summer, N=1,811	Fall, N=1,428	q-value
Mean 6 wk. post-op						
Pain	1 (0, 2)	1 (0, 2)	1 (0, 2)	1 (0, 2)	1 (0, 2)	0.4
UCLA	5 (4, 6)	4 (4, 6)	5 (4, 6)	5 (4, 6)	4 (4, 6)	0.087
HOOS, JR	77 (68, 85)	73 (68, 85)	77 (68, 85)	77 (68, 85)	77 (68, 85)	0.5
PROMIS physical	45 (42, 49)	45 (42, 49)	45 (42, 49)	45 (42, 49)	45 (42, 47)	0.4
PROMIS mental	51 (47, 58)	51 (48, 57)	51 (47, 58)	51 (47, 58)	51 (47, 58)	>0.9
Mean 6 wk. satisfaction						
Pain relief	10 (8, 10)	10 (8, 10)	10 (8, 10)	10 (8, 10)	10 (8, 10)	0.6
Improved function	9 (8, 10)	9 (8, 10)	9 (8, 10)	9 (8, 10)	9 (8, 10)	0.3
Met expectations	10 (9, 10)	10 (9, 10)	10 (9, 10)	10 (9, 10)	10 (9, 10)	0.4
Surgeon	10 (10, 10)	10 (10, 10)	10 (10, 10)	10 (10, 10)	10 (10, 10)	0.7
Mean 1 yr. post-op						
Pain	0 (0, 1)	0 (0, 1)	0 (0, 1)	0 (0, 1)	0 (0, 1)	0.087
UCLA	6 (5, 8)	6 (5, 8)	6 (5, 8)	6 (5, 8)	6 (5, 8)	0.4
HOOS, JR	92 (81, 100)	92 (81, 100)	92 (81, 100)	92 (77, 100)	92 (77, 100)	0.11
PROMIS physical	48 (42, 52)	48 (44, 50)	48 (43, 51)	47 (42, 50)	48 (43, 53)	0.087
PROMIS mental	51 (48, 58)	51 (48, 58)	51 (47, 58)	51 (46, 58)	51 (48, 58)	0.7
Mean 1 yr. satisfaction						
Pain relief	10 (9, 10)	10 (9, 10)	10 (9, 10)	10 (9, 10)	10 (9, 10)	>0.9
Improved function	10 (9, 10)	10 (9, 10)	10 (9, 10)	10 (9, 10)	10 (9, 10)	0.4
Met expectations	10 (9, 10)	10 (10, 10)	10 (10, 10)	10 (9, 10)	10 (10, 10)	0.4
Surgeon	10 (10, 10)	10 (10, 10)	10 (10, 10)	10 (10, 10)	10 (10, 10)	0.6



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