



Supplementary Material

Table i. Summary of patient-reported outcome scores between total knee arthroplasty and total hip arthroplasty stratified by interval between surgical procedures.

Variable	Interval between procedures, months			p value
	< 6	6 to 12	> 12	
Knee (n = 114)				
n	7	30	77	
Side 1				
Preop pain, median (IQR)	5 (5 to 5)	5 (4 to 5)	5 (3 to 5)	0.522
Postop pain, median (IQR)	2 (1 to 3)	2 (1 to 3)	2 (1 to 5)	0.300
Preop Oxford, mean (SD)	14.9 (8.1)	14.7 (8.6)	12.9 (5.4)	0.407
Postop Oxford, mean (SD)	36.7 (11.2)	36.5 (6.7)	32.7 (8.7)	0.077
Side 2				
Preop pain, median (IQR)	4 (2 to 5)	4 (1 to 5)	5 (4 to 5)	0.074
Postop pain, median (IQR)	3 (1 to 5)	2 (1 to 3)	2 (1 to 5)	0.600
Preop Oxford, mean (SD)	21.4 (5.6)	18.0 (9.3)	14.4 (6.3)	0.009*
Postop Oxford, mean (SD)	33.1 (11.6)	36.4 (11.3)	32.6 (9.7)	0.226
Hip (n = 122)				
n	27	40	55	
Side 1				
Preop pain, median (IQR)	5 (4 to 5)	5 (4 to 5)	5 (4 to 5)	0.303
Postop pain, median (IQR)	1 (1 to 4)	1 (1 to 5)	1 (1 to 5)	0.579
Preop Oxford, mean (SD)	12.0 (5.6)	13.2±5.2	11.9±5.6	0.496
Postop Oxford, mean (SD)	39.2±8.7	37.4±9.4	36.6!10.3	0.522
Side 2				
Preop pain, median (IQR)	5 (1 to 5)	5 (3 to 5)	5 (1 to 5)	0.935
Postop pain, median (IQR)	2 (1 to 3)	1 (1 to 3)	1 (1 to 3)	0.112
Preop Oxford, mean (SD)	14.0 (8.5)	14.3 (5.7)	15.6±8.0	0.609
Postop Oxford, mean (SD)	40.1 (8.0)	40.3 (6.7)	36.7±11.1	0.115

IQR, interquartile range; SD, standard deviation. Non parametric data calculated using Kruskal Wallis test. Parametric data analysed using one way ANOVA.

Table ii. Studies in the literature with trends in patients undergoing total knee arthroplasty and total hip arthroplasty.

Author	Year	n	Sex	Mean age, yrs	Interval	Conclusions	Functional outcomes
Knees							
Abram ³	2016	328	113 M / 215 F	65	23 months (2 to 74)	Worse outcomes in 22.8%. Poorer Oxford scores after second side. Lower mean improvement after second side.	Yes
Kim ³⁸	2014	30	5 M / 25 F	71	1 week	More pain after second side in first 48 hours.	No
Sun ⁵⁸	2015	87	31 M / 56 F	68.3	< 6 / 6-12 / > 12	More pain after second side in first 48 hours. Advise > 6/12 between surgeries.	No
Qutob ³²	2013	668	218 M / 450 F	68.5	< 12 vs > 12	MCID set at five points on Oxford score. 28.6% showed no improvement on second side.	Yes
Scott ¹¹	2014	70	29 M / 41 F	71.7	7.8 (2 to 25)	Second side is "not a repeat" of the first. Lesser improvement after second side. Approx. one in 11 unsatisfied with second side.	Yes
Gabr ⁵⁹	2011	64	26 M / 38 F	NP	< 6 vs > 12	Reduced length of stay, improved walking ability, less aids, and better SF-12 scores after second side.	Yes
Kumar ⁶⁰	2015	100	28 F / 72 F	66	6 to 12	No difference in outcomes at two years, regardless of time interval	Yes
Hooper* ⁶¹	2009	1360	unknown	69	Up to 5 years	No difference in complication rates, mortality or revision between single bilateral and staged intervention. Knees had higher Oxford scores at six months versus hips.	Yes
Wyatt* ⁶²	2019	13745	unknown	NP	< 3 vs 3 to 12 vs >12 months	Worse Oxford scores with all staged versus bilateral procedures; however, no difference in Oxford Scores between three staged groups.	Yes
Seol ⁶³	2016	315	25 M / 290 F	66	Mean 36.6 days	Longer cumulative LoS with staged procedures. Improvement in KSS and WOMAC scores, but no difference versus single stage bilateral.	Yes
Bohm* ¹⁰	2016	238,373	93,092 M / 145,281 F	NP	Between 3 and 12 months	Unilateral vs simultaneous vs staged surgery. Staged TKA less perioperative complications, longer LoS, higher 90-day infection risk. No functional outcomes.	No
Hips							

Hooper* 61	2009	1468	Unknown	61	Up to 5 years	ANZ registry. No difference in complication rates, mortality or revision between single bilateral and staged procedures. Hips had lower Oxford score vs knees at six months.	Yes
Tsidiris± 64	2008	482	Unknown	Unknown	Unknown	Similar functional outcomes and complication rates versus single bilateral procedures.	Yes
Parvizi 65	2006	196	46 M : 52 F	65	25 to 303 days	No difference in Harris hip scores between staged and simultaneous procedures.	Yes
Garland * 25	2015	42238	17,123M : 25,115 F	NP	≤ 6 vs 7 to 12 vs > 12 months	SHAR database. No difference in mortality between simultaneous and staged procedures.	No
Lindberg- Larsen* 12	2013	680	293 M : 387 F	65	< 6 vs 6 to 18 months	Danish registry. Shorter LoS and lower readmission rates with simultaneous procedures versus staged.	No
Jewett 66	2005	96	42 M : 54 F	60	4 to 6 days	Improved Iowa Hip score. Higher rate of PE versus unilateral procedure.	Yes
Houdek 67	2017	94	54 M: 44 F	52	< 1 year	Simultaneous surgery cost effective. No difference in re-operation, complications, or mortality.	No
Poulsides 27	2017	3785	1,746 M: 2,039 F	61 overall	Simultaneous vs 3, 6, 12 months	Higher incidence of major complications in 6 to 12 months group vs others.	No
Huang± 68	2019	59,257	Variable	Variable	Simultaneous vs 3, 6, 12 months	Higher incidence of VTE and respiratory complication in staged procedures.	No

*Registry study; ±meta-analysis.

LoS, length of stay; NP, not provided; VTE, venous thromboembolism (DVT and PE).

References

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