

Staged Bilateral Total Knee Replacement: Differing Results Comparing the First to Second Knees

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INTRODUCTION:

Patients often prefer one knee over the other following staged bilateral total knee arthroplasty (BTKA). Our study compared Patient-Reported Outcomes Scores (PROs) of each knee following BTKA and identified factors that may contribute to identified discrepancies.

METHODS:

All patients who underwent staged BTKA between July 2014 and August 2022 were identified. PROs were collected preoperatively, at 2-weeks, 6-weeks, 1-year, and 2-years postoperatively. Each knee's results were compared using paired t-tests and McNemar tests. Preoperative Kellgren-Lawrence Grade (KLG), postoperative range of motion (ROM), reoperation rates, and manipulations under anesthesia (MUA) were collected. Results were stratified based on time between TKAs (<3 months, 3-12 months, 1-2 years, and >2 years).

RESULTS:

A total of 911 patients (574 female, 337 male) underwent staged BTKA with mean 1.1-year follow up (range 28-days to 8-years). ROM, patient satisfaction, MUAs, and reoperations were not significantly different between knees. Comparing KLG of first versus second knees, there were 29 versus 48 KLG 2, 181 versus 278 KLG 3, and 697 versus 583 KLG 4 ($p < .0001$). In total, 71% had same KLG both knees, 21% had lower, and 7% of second knees had higher KLG. The first knee had greater pain reduction (-10.6 at 2-weeks, -27.4 at 6-weeks) compared to the second (9.3 at 2-weeks, -8.1 at 6-weeks) ($p < .0001$) and better improvement in KOOS JR score (8.5 at 2-weeks, 16.9 at 6-weeks) compared to the second (-5.8 at 2-weeks, 5.0 at 6-weeks) ($p < .0001$). One-year outcomes between first and second knees or recovery curves were not different when stratifying by time between TKAs.

DISCUSSION AND CONCLUSION:

The second knee in a staged BTKA has less delta improvement in KOOS JR and pain scores at early follow up, likely due to higher starting KOOS JR and PROMIS scores, despite similar final patient satisfaction and clinical outcome measures. Lower KLG in the second TKA may contribute to findings.