# Patient-Reported Outcomes in Robotic-Assisted Versus Manual Cementless Total Knee Arthroplasty

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INTRODUCTION:
Robotic-Assisted Total Knee Arthroplasty (RA-TKA) was introduced to provide intraoperative tools to help achieve accurate bone cuts, symmetric gap balancing, implant positioning, and limb alignment. This study compares clinical outcomes and patient-reported outcome measures (PROMs) following primary TKA using RA-TKA versus manual instrumentation.
METHODS:
We retrospectively reviewed 500 consecutive primary manual and RA-TKAs. Thirty-two RA-TKAs and 73 manual TKAs were lost to follow up. A total of 468 RA-TKAs and 427 manual TKAs were compared with a minimum 2-year follow up. There were no significant differences in age or gender between groups. BMI was significantly greater in the manual group (34.94 vs. 32.3 $p<0.001$). Outcome measures included range-of-motion (ROM), Knee Society Scores (KSS), WOMAC score, Forgotten Joint Score (FJS-12), KOOS JR score, overall satisfaction, complications, and survivorship.
RESULTS:
The RA-TKA group had clinically significant higher postoperative KSS Function and Knee scores, and statistically significant improvement in WOMAC and KOOS JR scores ($p<0.001$). There was no significant difference in FJS-12 scores between the two groups ($p=0.580$). In total, 94.0% of RA-TKA versus 87.4% of manual TKAs were very satisfied or satisfied ($p=0.001$). The RA-TKA group had fewer revisions compared to the manual group (15 vs. 25 $p=0.07$). Survivorship with all-cause failure as the endpoint at 3 years was 96.8% in the RA-TKA group compared to 94.2% in the manual group ($p=0.07$).
DISCUSSION AND CONCLUSION:
There has been a greater impetus to improve patient satisfaction following primary TKA. RA-TKA was introduced to provide surgeons with intraoperative information to help achieve accurate bone cuts, symmetric gap balancing, implant positioning, and the desired 3 dimensional limb alignment. RA-TKA demonstrated clinically significant improvement over manual instruments in KSS Function, KSS Knee score, WOMAC, KOOS JR, and patient satisfaction following TKA. Additional follow up is required to determine if improved survivorship can be demonstrated over a longer period of time with RA-TKA.