

Robotic-arm assisted vs conventional unicompartamental knee arthroplasty: the 2-year clinical outcomes of a randomized controlled trial

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Goal of study

To assess clinical outcomes for unicompartamental arthroplasty (UKA) comparing robotic-arm assisted with conventional surgery

Materials and methods

- Prospective, single-center, randomized controlled trial
- 139 patients randomly assigned to:
 - Mako UKA: received robotic-arm assisted medial UKA
 - Manual UKA: received manual procedure using Oxford
- The main outcome measures were the Oxford Knee Score, American Knee Society Score and revision rate
- At 2 year follow-up, collected outcome measures included:
 - Oxford Knee Score (OKS)
 - American Knee Society Score (AKSS)
 - Forgotten Joint Score (FJS)
 - Pain Catastrophizing Scale
 - Pain Visual Analogue Scale
 - Stiffness Visual Analogue Scale (SVAS)
 - Patient satisfaction
 - Range of motion (ROM)
 - University of California Los Angeles (UCLA) Activity Scale
 - Complications
 - Revision rate

Results

- 2 year follow-up completed for 58 Mako UKA and 54 manual UKA patients
- At 2 years, Mako UKA delivered equivalent outcomes to manual UKA, showing superiority in more active patients
- Sub-group analysis (n = 35) of participants with a preoperative University of California Los Angeles Activity Scale >5 (more active) was performed
 - Median OKS statistically significantly reduced for Mako UKA sub-group compared to manual UKA sub-group (p = 0.036) (**Fig. 1**)
 - Median AKSS statistically significantly reduced for Mako UKA sub-group compared to manual UKA sub-group (p = 0.17) (**Fig. 2**)
- Survivorship was 100% in robotic-arm-assisted group and 96.3% in the manual group

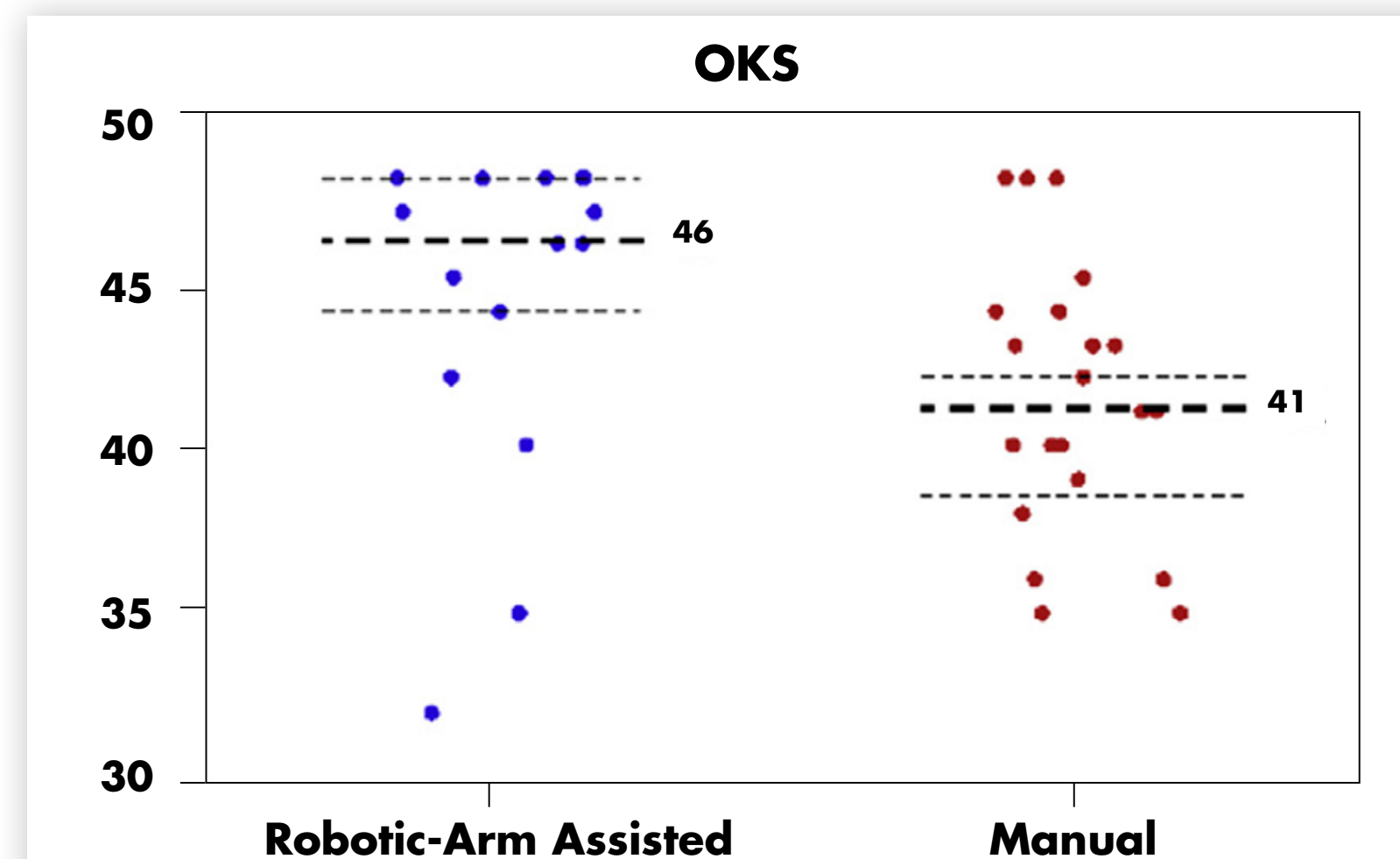


Fig. 1
Year 2 OKS median values and interquartile ranges for patients with preoperative UCLA Activity Scale >5

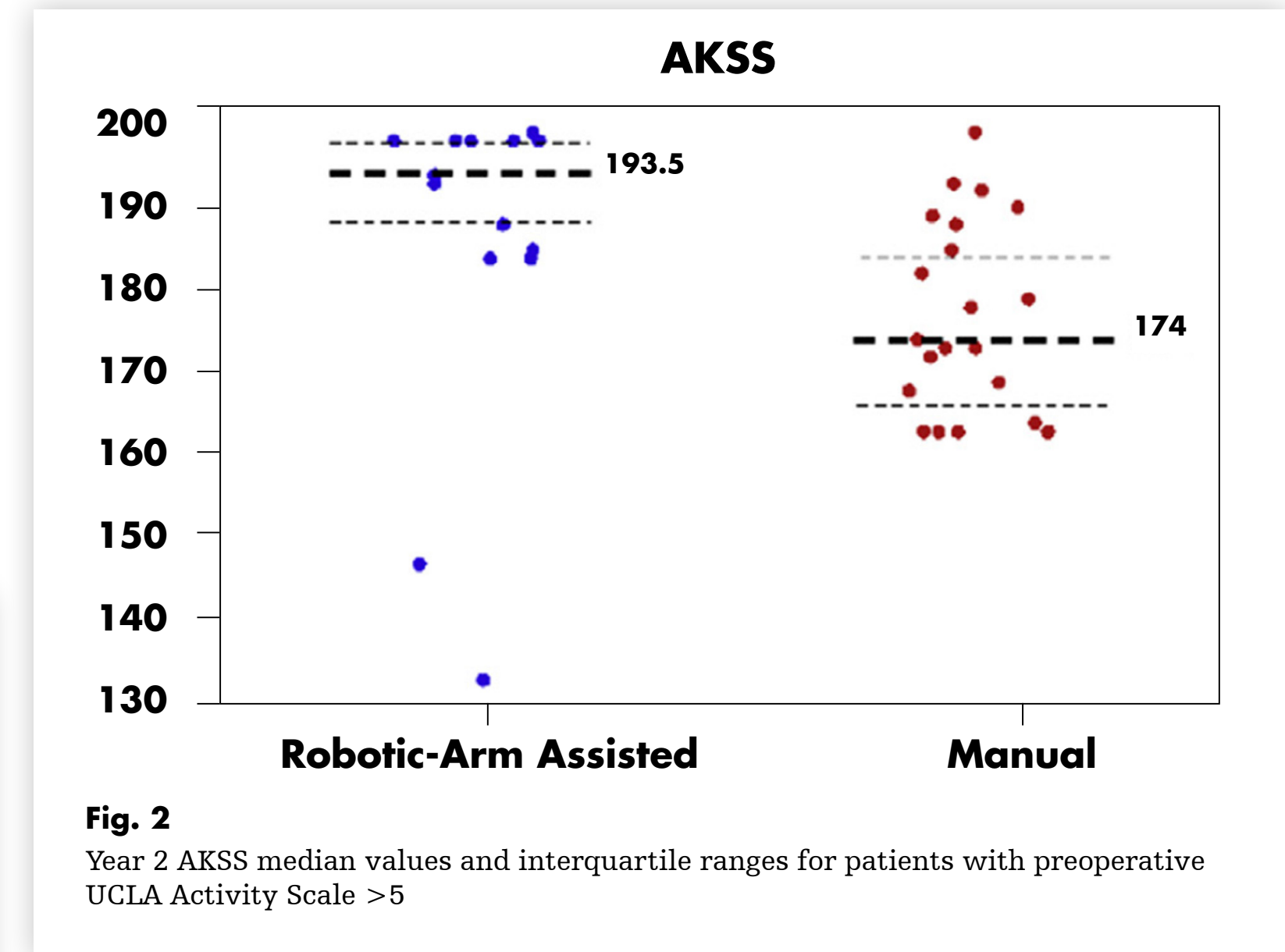


Fig. 2
Year 2 AKSS median values and interquartile ranges for patients with preoperative UCLA Activity Scale >5

Conclusion

- Overall, participants achieved an outcome equivalent to the most widely implanted UKA in the United Kingdom (Oxford)
- Sub-group analysis suggests that more active patients may benefit from robotic-arm assisted surgery
- Long term follow-up is required to evaluate differences in survivorship

References:
 Gilmour A, MacLean AD, Rowe PJ, Banger MS, Donnelly I, Jones BG, Blyth MJG. Robotic-Arm-Assisted vs Conventional Unicompartamental Knee Arthroplasty: The 2-Year Clinical Outcomes of a Randomized Controlled Trial. The Journal of Arthroplasty. 2018;33: S109-S115.
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