

A five-year follow up of gait in robotic assisted vs conventional unicompartmental knee arthroplasty

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Goal of study

- Robotic-arm assisted UKA has previously been shown to have improvements in knee flexion during weight bearing acceptance when compared to conventional UKA at one year follow-up
- The purpose of this study was to determine if these improvements still persist at five year follow-up

Materials and methods

- 3D gait analysis performed on two groups:
 - Mako group: n = 25, robotic-arm assisted UKA performed with Mako System and Restoris MCK implants
 - Conventional group: n = 21, manual UKA performed with Oxford implants
- Lower-limb gait was captured as the patient walked 10 meters at a self-selected pace
- The primary outcome measure was total excursion of the knee in the sagittal plane during weight acceptance (WA)

Results

- On average, Mako patients achieved greater flexion during loading response and greater extension during mid stance at five-years (**Fig. 1**)
- The Mako group had significant improvement in knee excursion during WA over the conventional group (independent t-test; $\alpha=0.05$, $P = 0.008$) (**Table 1**)

Conclusion

- The Mako group, when compared to the conventional group:
 - Had significantly greater knee flexion in WA, which was consistent with results at one year
 - Provided improved accuracy, which could reduce ligamentous damage of the Mako group
- These advantages could result in a gait pattern which facilitates normal function of the knee more closely than the Oxford
- Outcomes should continue to be investigated at longer follow-up of 10-15 years to determine longevity of improved knee flexion in the Mako group

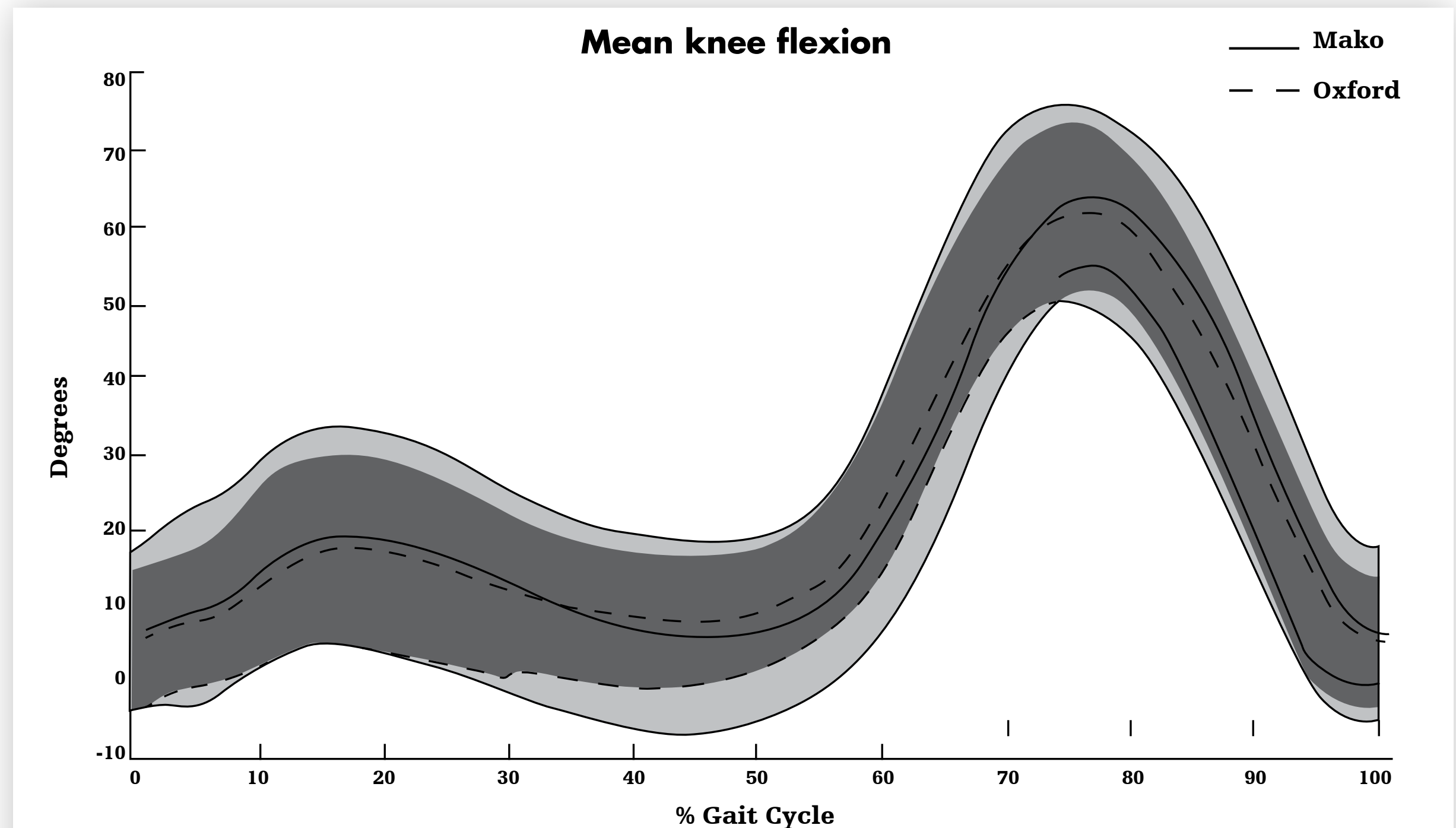


Fig. 1
 Mean ($\pm 2SD$) knee flexion for Mako (solid) and Oxford (dashed) patients

Patient Group	Mean (SD) Excursion during WA (°)
Mako	14.3 (6.4)
Oxford	9.9 (4.2)
<i>P</i>	0.008

Table 1
 Mean (SD) excursion during weight acceptance for each patient group

Reference:
 Millar LJ, Banger M, Rowe PJ, Blyth M, Jones B, Maclean A. A five-year follow up of gait in robotic assisted vs conventional unicompartmental knee arthroplasty. Gait & Posture. 2018; In press: <https://doi.org/10.1016/j.gaitpost.2018.06.035>
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