

A comparison of gait one year post operation in an RCT of robotic UKA versus traditional Oxford UKA

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Goal of study

To determine the functional gait performance of unicompartmental arthroplasty (UKA) patients, comparing use of robotic-arm assisted with manual surgery

Materials and methods

- Study groups included:
 - Mako UKA group: 31 received robotic-arm assisted UKA
 - Manual UKA group: 39 received Oxford manual UKA
 - Control group: 50 healthy adult subjects undergoing gait analysis
- The 70 knees assessed for this study were taken from a larger randomized group of 129 participants
- UKA surgery was performed at Glasgow Royal Infirmary from 2010 to 2013
- Patients were assessed one year postoperatively

Results

- Statistically significant kinematic differences were seen between the two surgical groups from foot-strike to mid-stance (**Fig. 1**)
- The Mako UKA group achieved a higher knee excursion (18.0°, SD 4.9°) compared to the manual group (15.7°, SD 4.1°) (**Table 1**)
- There was no significant difference between the healthy and Mako UKA groups however there was a significant difference between the healthy and manual UKA groups (p < 0.001)

Conclusion

Robotic-arm assisted knee replacement with Mako Restoris MCK implants appears to lead not only to better implant alignment but also some kinematic benefits to the user during gait

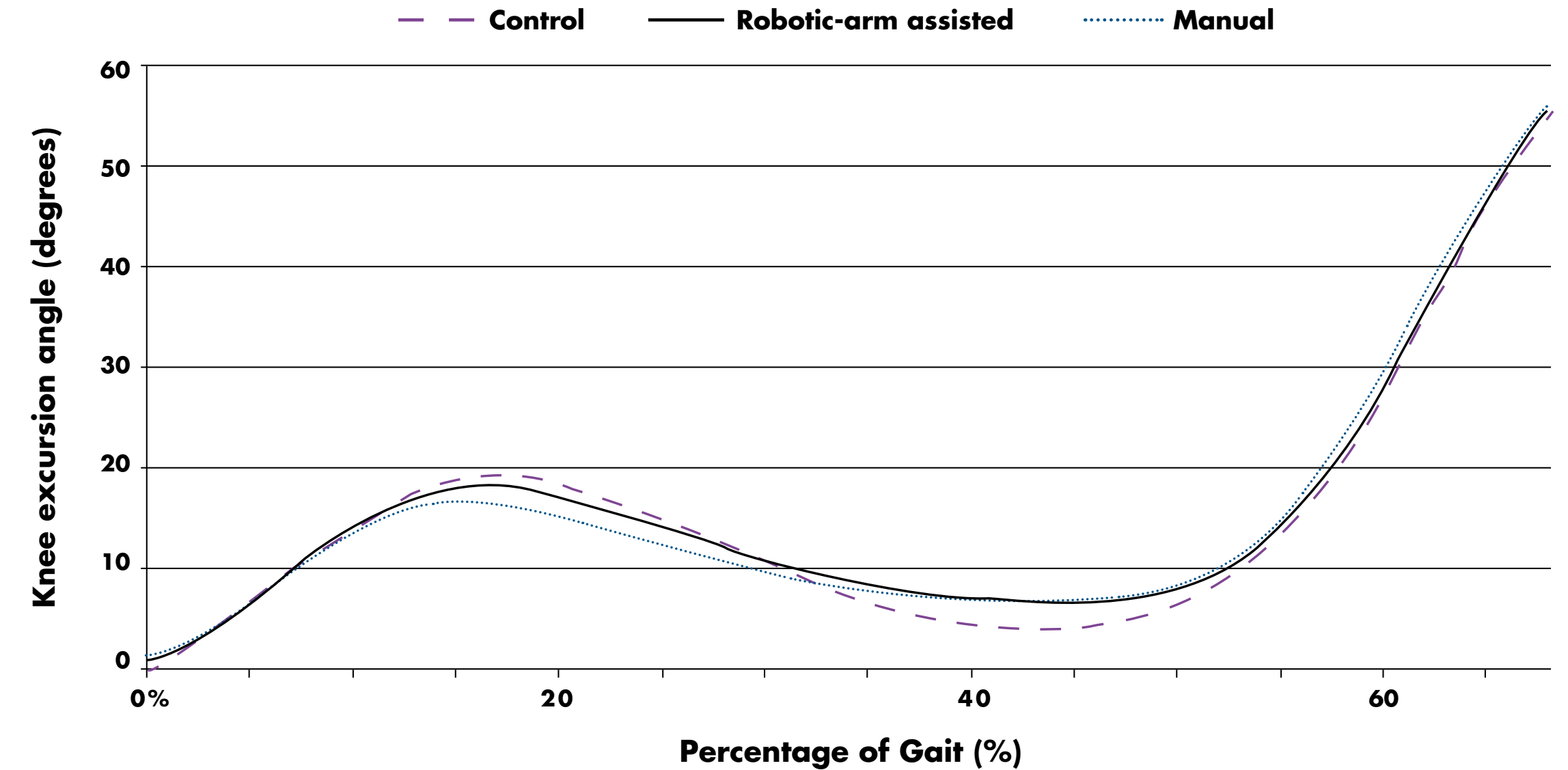


Fig. 1 Mean knee excursion angles of the control group, the robotic-arm assisted and manual UKA groups during the stance phase of gait

Mean gait characteristics for the groups during walking			
	Control (n=50)	Mako UKA group (n=31)	Mako UKA group (n=39)
Knee excursion from foot-strike to mid-stance (degrees)	19.5 (4.0)	18.0 (4.9)	15.7 (4.1)*, †
Knee excursion from mid-stance to terminal-stance (degrees)	15.8 (4.3)	12.9 (6.1)*	10.8 (4.7)*
Total knee excursion (degrees)	65.6 (5.1)	64.1 (6.6)	63.1 (7.2)
Average speed (metres per second)	1.17 (0.20)	1.16 (0.16)	1.11 (0.17)
Tibial coronal	1.6 (0.8, 3.0)	2.7 (1.6, 3.7)	0.0089
Tibial axial	2.2 (1.1, 3.4)	5.4 (2.8, 9.3)	0.0001

* Significantly different from the control group. † Significantly different from the Mako UKA group.

Table 1

Comparison of knee excursion values during loading phase of gait at 1-year post-operation. Standard deviation in brackets.

Reference:
 Motesharei A, Rowe P, Blyth M, Jones B, Maclean A. A comparison of gait one year post operation in an RCT of robotic UKA versus traditional Oxford UKA. Gait & Posture. 2018; 62:41-45.
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