



Supplementary Material

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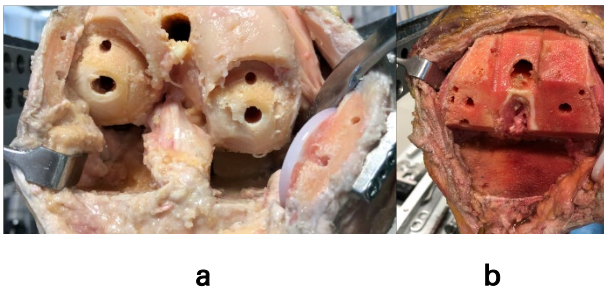


Fig a. a) Cadaver knee specimen following removal of cemented bi-unicondylar arthroplasty components, prior to bone cuts for primary posterior cruciate-retaining total knee arthroplasty (TKA). b) Cadaveric knee specimen after removal of bi-unicondylar arthroplasty and completion of bone cuts for TKA, demonstrating an adequate bone bed for implantation of a standard primary TKA.

Table i. Subgroup analysis of staged bi-unicondylar arthroplasty compared to matched healthy controls and total knee arthroplasty subjects. Where no superscript is shown, $p > 0.05$.

Subject	Healthy	Staged bi-UKA	TKA
Number of knees	20	15	19
Sex, n; M:F	13:7	10:5	12:7
Mean age, yrs (SD)	64 (8)	71 (10)	69 (10)
Mean BMI, kg/m ² (SD)	26.1 (3.8)	28.2 (5.4)	27.6 (3.7)
Mean height, cm (SD)	173 (11)	172 (7)	175 (11)
Mean months post-surgery (SD)		22 (22)*	51 (52)*
Median months post-surgery (IQR)		17 (5 to 81)	24 (6 to 150)
Mean top walking speed, km/h (SD)	7.3 (0.7)	6.5 (0.8)*†	5.6 (0.8)*†
Mean Hof speed, H (SD)	0.74 (0.1)	0.66 (0.1)*†	0.56 (0.1)*†
Mean weight acceptance rate, BW/s (SD)	10.8 (3.7)	10.5 (3.8)*	7.4 (3.8)*†
Mean maximum weight acceptance force, BW (SD)	1.6 (0.2)	1.4 (0.1)*	1.3 (0.2)*†

Mean mid-stance force, BW (SD)	0.47 (0.1)	0.61 (0.1)*†	0.69 (0.1)*†
Mean push-off force, BW (SD)	1.0 (0.1)	0.95 (0.1)	1.0 (0.1)
Mean push-off rate, BW/s (SD)	4.2 (0.8)	4.0 (0.9)	3.7 (0.9)
Mean step length, cm (SD)	84 (10)	79 (7)	73 (7)†
Mean stride length, cm (SD)	179 (20)	157 (13)	151 (16)†
Mean step width, cm (SD)	13 (3)	14 (2)	13 (3)
Mean cadence, step/min (SD)	59.8 (5.3)	58.2 (5.8)*	52.3 (4.8)*†
Mean impulse, BW/s (SD)	382 (21)	380 (21)	376 (28)
Mean double support time, s (SD)	0.28 (0.1)	0.28 (0.1)*	0.36 (0.1)*†
Mean gait cycle time, s (SD)	2.0 (0.2)	2.1 (0.2)*	2.3 (0.2)*†
Mean contact time, s (SD)	1.3 (0.1)	1.3 (0.1)*	1.5 (0.1)*†
Mean OKS (SD)		42.3 (8)*	36.8 (5)*
Median OKS (IQR)		46 (40.5 to 47)*	38 (34 to 38.5)*
Mean EQ-5D (SD)		0.92 (0.1)*	0.82 (0.1)*
Median EQ-5D (IQR)		0.94 (0.88 to 1)*	0.84 (0.77 to 0.89)*

Bi-UKA, bi-unicondylar knee arthroplasty; BW, normalized to body weight; EQ-5D, EuroQol five-dimension questionnaire; IQR, interquartile range; OKS, Oxford Knee Score; SD; standard deviation; TKA, total knee arthroplasty.

*Significant difference between implant groups.

†Significant difference implant versus healthy control ($p < 0.05$).

Demographics calculated using analysis of variance.

Gait calculated using Mann-Whitney U test.

Significance $p < 0.05$ with Bonferroni correction.