

Tables

| Table 1: Descriptive characteristics of cohort. | | | | | |
|--|---------|------------|------------|-----------|-------------------|
| Group | N knees | N patients | Age | Weight | Proportion female |
| <55 | 116 | 98 | 49.6 (4.5) | 86.8 (17) | .54 |
| 55 to <65 | 304 | 243 | 60.3 (2.9) | 86.7 (18) | .45 |
| 65 to <75 | 374 | 310 | 69.9 (2.9) | 80.4 (15) | .48 |
| 75+ | 206 | 173 | 79.3 (3.2) | 71.8 (13) | .52 |
| | | | | | |
| Entire cohort | 1000 | 818 | 66.6 (9.6) | 81.3 (17) | .49 |
| p value | NA | NA | NA | <0.001 | 0.2 |
| N: number; NA: not applicable; Age, weight, and preop OKS reported as mean (standard deviation); | | | | | |

| Table 2: PROMs by age group | | | | | |
|---|---------------------------------|------------|-------------------|-------------------|--------------------|
| Age group (years) | Score | Pre op | Y1 | Y5 | Y10 |
| <55 | OKS Mean (SD) | 23.1 (9.1) | 39.6 (7.5) | 41.3 (7.6) | 39.1 (9.8) |
| | OKS Median (IQR) | 23 (14) | 41 (7) | 44 (8) | 43.5 (13.5) |
| | OKS % good/excellent | NA | 83% | 86% | 75% |
| | Tegner Activity Score mean (SD) | 2.71 (1.4) | 3.18 (1.3) | 3.50 (1.5) | 3.15 (1.2) |
| 55 to <65 | OKS Mean (SD) | 24.4 (8.5) | 40.3 (8.2) | 41.2 (8.2) | 41.5 (7.7) |
| | OKS Median (IQR) | 25 (11) | 43 (8) | 44 (8) | 45 (10) |
| | OKS % good/excellent | NA | 84% | 87% | 87% |
| | Tegner Activity Score mean (SD) | 2.44 (1.2) | 3.02 (1.0) | 3.03 (1.1) | 2.96 (1.2) |
| 65 to <75 | OKS Mean (SD) | 24.5 (9.0) | 41.4 (7.1) | 41.8 (6.6) | 39.3 (8.9) |
| | OKS Median (IQR) | 24 (13) | 44 (7) | 44 (7.5) | 42 (12) |
| | OKS % good/excellent | NA | 87% | 87% | 76% |
| | Tegner Activity Score mean (SD) | 2.34 (1.1) | 2.83 (0.9) | 2.80 (1.0) | 2.25 (1.0) |
| 75+ | OKS Mean (SD) | 26.2 (8.6) | 40.8 (7.5) | 40.4 (8.2) | 37.1 (9.4) |
| | OKS Median (IQR) | 26.5 (12) | 43 (8) | 43.5 (9) | 38.5 (13.5) |
| | OKS % good/excellent | NA | 86% | 83% | 79% |
| | Tegner Activity Score mean (SD) | 1.96 (0.8) | 2.51 (0.7) | 2.09 (0.9) | 1.73 (0.8) |
| Difference between age groups for OKS (Kruskall-Wallis) | | 0.08 | 0.05 | 0.55 | <0.01 |
| Difference between age groups for Tegner Activity Score (ANOVA) | | <0.01 | <0.01 | <0.01 | <0.01 |
| Bold typeface indicates significant difference compared to prior score. Paired t-test for means, Wilcoxon's signed rank test for medians. | | | | | |

Table 3: Comparison of revision indications by age group. Component time incidence rate per 100 years (95% confidence interval)

| Age group | Overall | Lateral OA progression | Bearing dislocation | Pain | Infection | Instability | Aseptic Loosening | Other |
|-----------|------------------------|------------------------|------------------------|------------------------|---------------------|---------------------|---------------------|---------------------|
| <55 | 0.36 (0.13 to 0.95) | 0.09 (0.01 to 0.63) | 0.09 (0.01 to 0.63) | 0.09 (0.01 to 0.63) | 0 | 0 | 0 | 0.09 (0.01 to 0.63) |
| 55-64 | 0.57 (0.36 to 0.91) | 0.22 (0.11 to 0.47) | 0.10 (0.03 to 0.30) | 0.13 (0.05 to 0.34) | 0.03 (0.00 to 0.23) | 0.03 (0.00 to 0.23) | 0.03 (0.00 to 0.23) | 0.03 (0.00 to 0.23) |
| 65-74 | 0.51 (0.33 to 0.79) | 0.28 (0.15 to 0.50) | 0.08 (0.02 to 0.24) | 0.03 (0.00 to 0.18) | 0.08 (0.02 to 0.24) | 0 | 0 | 0.05 (0.01 to 0.20) |
| 75+ | 0.48 (0.26 to 0.88) | 0.29 (0.13 to 0.64) | 0 | 0.05 (0.01 to 0.34) | 0.10 (0.02 to 0.38) | 0 | 0.05 (0.01 to 0.34) | 0 |
| P value | 0.74 | 0.35 | 0.15 | 0.16 | 0.23 | 0.43 | 0.71 | 0.26 |

Table 4: Outcome of revisions overall and by age group

| Age group | Revision | N | % of group |
|-----------|--|----|------------|
| Overall | Primary TKR | 27 | 52% |
| | Two stage primary TKR | 5 | 10% |
| | Lateral UKR | 10 | 19% |
| | Bearing exchange | 6 | 12% |
| | Revision TKR components | 2 | 4% |
| | UKR component revision | 2 | 4% |
| <55 | Primary TKR | 2 | 50% |
| | Lateral UKR | 1 | 25% |
| | Bearing exchange | 1 | 25% |
| 55 to <65 | Primary TKR | 11 | 61% |
| | Two stage primary TKR ⁺ | 1 | 6% |
| | Revision TKR [*] | 1 | 6% |
| | Lateral UKR | 1 | 6% |
| | Bearing exchange | 2 | 11% |
| | Tibial component revision [^] | 1 | 6% |
| | Femoral component and bearing exchange ^{\$} | 1 | 6% |
| 65 to <75 | Primary TKR | 9 | 45% |
| | Two stage primary TKR [#] | 3 | 15% |
| | Lateral UKR | 5 | 25% |
| | Bearing exchange | 3 | 15% |
| 75+ | Primary TKR | 5 | 50% |
| | Two stage primary TKR [#] | 1 | 10% |
| | Two stage Revision TKR [#] (stemmed tibia) | 1 | 10% |
| | Lateral UKR | 3 | 30% |

+Infection following ACL reconstruction leading to lateral compartment destruction

*Revised to hinged TKR due to medial compartment opening

[^]Revised due to tibial overhang

^{\$}Femoral component loosened whilst retrieving bearing. Bearing and femoral component revised

[#]All due to infection

| Table 5: Comparison of non-registry studies reporting age | | | | | | |
|---|-------------------|-------------------------|---------------------------|------------------------------|---|---|
| Author | Region | Analysis type | Follow up in years (mean) | Age bracket | Number of knees (N at risk at follow up) | Outcome Survival (95% CI) or N revisions [percentage of cohort revised] |
| <u>Young not at increased risk</u> | | | | | | |
| 2012 Kristensen ¹ | Denmark | Kaplan-Meier | 10.7 (4.8) | <60 60+ | 248 (NR) 447 (NR) | 86.5% (79 to 92) 82.4% (69 to 91) |
| 2007 Kort* ^{2,3} | Netherlands | N of failures in cohort | 2-6 (NR) | <60 60+ | 46 (NR) 154 (NR) | 2 revisions [4.3%] 17 revisions [11.0%] |
| 2012 Matharu ⁴ | Birmingham | Cox regression | (4.4) | NA | 459 total Not reported by age | Not significant |
| Pandit# ⁵ | Oxford | Kaplan-Meier | 10 (5.6) | <60 60+ | 245 (NR) 755 (NR) | 97.3% (91 to 100) 95.1% (91 to 99) |
| <u>Young at increased risk</u> | | | | | | |
| 2005 Price ⁶ | Oxford and Sweden | Kaplan-Meier | 10 (NR) | <60 60+ | 52 (19) 512 (157) | 91% (12.4) 96% (3.2) |
| 2013 Ingale ⁷ | Scotland | Life table | 6 (4) | <60 60-69 70-79 80+ | 110 (23) 164 (40) 145 (50) 51 (19) | 84% (NR) 91% (NR) 94% (NR) 95% (NR) |
| 2009 Kuipers ⁸ | Netherlands | Kaplan Meier | 5 (median 2.6) | <60 60+ | 437 total Not reported by age | 77.2% (68-87) 89.4% (85-94) |
| *Results for <60 and 60+ from different series over same time frame #Includes same patients as in current series Bold typeface indicates significant difference NR not reported; N Number | | | | | | |

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