



10-year Results of a Randomized Clinical Trial of Mobile-bearing vs. Fixed-bearing TKA

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Introduction: It has been suggested that mobile-bearing total knee arthroplasty (TKA) might lead to better durability, ROM, and patient function. We conducted a large randomized clinical trial (RCT) to specifically determine if there were differences in durability (as measured by survival free of all-cause revision), ROM (as measured by mean maximal flexion), or function (as measured by Knee Society [KS] scores and prevalence of patellar complications) at 10 years between the mobile- and fixed-bearing versions of a contemporary TKA.

Methods: 235 patients who were enrolled in this RCT underwent a primary cemented TKA with a single femoral component and one of three tibial components (all-polyethylene fixed-bearing, modular metal-backed fixed-bearing, or mobile-bearing). Median follow-up was 10 years. Mean age was 67 years.

Results: There was no difference in durability at 10 years as measured by survivorship free of revision for any reason: 95% in the all-polyethylene, 97% in the modular-metal-backed, and 97% in the mobile-bearing. Males were more likely to undergo revisions (HR=5; $p=0.05$). The risk of revision increased 1.3-fold per unit BMI in the mobile-bearing group ($p=0.04$). There was no difference in mean maximal ROM at 10 years: 110°, 110°, and 109° for the all-polyethylene, modular-metal-backed, and mobile-bearing groups, respectively ($p=0.91$). There was no difference in patient function at 10 years as measured by KS function scores: 90 in the all-polyethylene, 82 in the modular-metal-backed, and 83 in the mobile-bearing groups ($p=0.63$). There was no difference in patient function as measured by the prevalence of patellar tilt: 2%, 4% and 13% in the all-polyethylene, modular-metal-backed, and mobile-bearing groups, respectively ($p=0.11$).

Conclusions: At 10 years in this 235-patient randomized clinical trial, the theoretical advantages ascribed to mobile-bearing TKAs were not demonstrated as the mobile- and fixed-bearing versions of this cemented TKA design had similar durability, ROM, and function.