

# UKA Patients Return to Function Earlier than TKA Patients

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## INTRODUCTION

Unicompartmental Knee Arthroplasty (UKA) was introduced in the 1970s as a tissue sparing alternative to total knee arthroplasty (TKA) for degenerative knee arthritis<sup>1</sup>. Proposed benefits of UKA include more normal kinematics and function<sup>2</sup>. UKA is a viable treatment option for those patients who osteoarthritis (OA) is confined to a single compartment of the knee. The procedure is technically demanding and has yielded variable results and low levels of usage<sup>3</sup>. A robotic assisted technique was introduced in 2006 to increase accuracy of component placement and potentially reduce learning curve of this demanding surgery (Mako Surgical Corp, Fort Lauderdale, FL). In this study, a novel measurement technique was used to determine proposed benefits between UKA and TKA.

## METHODS

UKA or TKA patients were prospectively enrolled in this IRB approved study. Each patient received preoperative education regarding their expected physical therapy (PT) regimen, which was uniform for all patients. Five functional criteria were tracked including range of motion from 5 to 115 degrees, recovery of flexion and extension strength to 4/5 of preoperative strength, gait with minimal limp and without an assistive device for 250 feet and ability to ascend and descend a flight of stairs with step over gait and good control. The number of PT visits required to reach each functional criteria was recorded along with the total time to discharge from PT or complete all criteria. Patient reported outcomes measurements (PROM) scores collected pre-operatively, 2 and 6 weeks post-operatively including: Knee Society Score (KSS), Knee Injury and Osteoarthritis Outcome Score (KOOS), Western Ontario and McMaster Osteoarthritis Index (WOMAC), Forgotten Joint Score (FJS).

## RESULTS

26 patients (27 knees) were enrolled in the study, with 11 females and 15 males. 18 knees received a TKA and 9 received a UKA. Average age was  $64.6 \pm 7.4$  for the TKA group and  $64.7 \pm 4.1$  for the UKA group. Average body mass index (BMI) was  $28.4 \pm 5.9$  for the TKA group and  $30.4 \pm 4.3$ . Age and BMI did not differ between the two groups. The UKA group required less PT visits on average to reach each criteria, a significant difference ( $p < 0.05$ ) was seen in extension of 5 degrees (5 vs 2.4,  $p = 0.0411$ ), flexion of 115 degrees (5 vs 3.8,  $p = 0.0004$ ), gait with minimal limp (6.8 vs 3.8,  $p = 0.0022$ ), stair ascend/descend (10.5 vs 7.1,  $p = 0.0277$ ) and 4/5 extension strength (9.8 vs 6.4,  $p = 0.0319$ ). No Statistical difference in KSS, KOOS, WOMAC, FJS at any follow-up (pre-op, 2 and 6 weeks post-op)

## DISCUSSION

Early results show less PT is required for UKA patients than TKA patients to reach the same functional goals. As PT accounts for a significant portion of the episode of care for knee

arthroplasty, this may result in a decreased economic burden for UKA patients<sup>4</sup>. Differences in outcomes of PT testing and Patient Reported Outcomes Measures (PROMs) scores indicates current PROM scores are not sensitive enough to detect changes in early recovery<sup>5</sup>. More patients and longer follow-up are required to determine full clinical and economic benefit of UKA procedure. This study is ongoing and will follow patient out to 1 year post-op.

#### REFERENCES

1. Willis-Owen, C.A., et al., Unicondylar knee arthroplasty in the UK National Health Service: an analysis of candidacy, outcome and cost efficacy. *Knee*, 2009. 16(6): p. 473-8.
2. Kozinn SC, Scott R. Unicondylar knee arthroplasty. *J Bone Joint Surg Am*. 71:145-150, 1989.
3. Thomas J. Aleto, Michael E. Berend, Merrill A. Ritter, Philip M. Faris, R. Michael Meneghini, Early Failure of Unicompartmental Knee Arthroplasty Leading to Revision, *J Arthroplasty*, 23 (2), 159-163, 2008
4. Mitchell C, et al. Costs and effectiveness of pre- and post-operative home physiotherapy for total knee replacement: randomized controlled trial, *J Eval Clin Pract*, 11(3), 283-92, 2005
5. Marx RG et al. Measuring Improvement Following Total Hip and Knee Arthroplasty Using Patient-based Measures of Outcome, *J Bone Joint Surg Am*, 87(9), 1999-2005, 2005.

#### DISCLOSURES

Jennifer Christopher and Michael Conditt are employees of Stryker Corp.

Todd Borus is a consultant of Stryker Corp.