

Paper #206

## Knee Proprioception Does Not Affect Outcomes in Total Knee Replacement: Unicompartmental versus Total Knee Replacement, a Comparative Study

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### Summary:

Overall, unicompartmental arthroplasty, posterior cruciate retaining total knee arthroplasty and posterior stabilized total knee arthroplasty showed similar clinical results at 2 year postoperative. Patients with UKA demonstrated greater precision and less variability in reaching the target angle in open kinetic chain compared to CR and PS, and in closed kinetic chain compared to PS. There is no s

### Abstract:

**TITLE:** Knee proprioception doesn't affect outcomes in total knee replacement. Unicompartmental versus Total knee replacement. A comparative study.

### Introduction

Knee proprioception plays a key role in the accurate and efficient execution of the movements. With ACL and PCL damage, the impact on the proprioceptive sense can cause errors in the normal models of muscle coordination and, consequently, impairment of functional stability. The aim of the study is to evaluate knee proprioception difference in patients with 3 different types of arthroplasty; unicompartmental arthroplasty (UKA), total knee arthroplasty with posterior cruciate retention (TKA-CR) and total posterior stabilized arthroplasty (TKA-PS).

### Methods

90 patients will be enrolled, divided into three groups, 30 with UKA, 30 with TKA-CR and 30 with TKA-PS. At 2 years postoperative, Knee Society Score (KSS), WOMAC score, Oxford Knee score, Forgotten Joint Score (FJS) and knee proprioception were evaluated. Then results of the three groups were compared. In order to evaluate knee proprioception, blindfolded patients were asked to move the joint from the starting position to the target angle in open and closed kinetic chain. The angle between the femur and the tibia is measured using a digital goniometer (angular error + 0.1 °). The relative angular error is calculated as the arithmetic mean of the difference between the target angle and the angle reproduced.

### Results

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There was no significant differences between groups in terms of demographic characteristics ( $P > 0.05$ ). KSS, WOMAC score, Oxford Knee score and FJS didn't show significant difference between the three groups at last follow-up ( $p > 0.05$ ). In open kinetic chain measurement UKA showed statistically significant higher value of proprioception compared to TKA-CR ( $61.3^\circ \pm 1.0^\circ$  vs  $65.5^\circ \pm 2.3^\circ$ ;  $p < 0.05$ ) and compared to TKA-PS ( $61.3^\circ \pm 1.0^\circ$  vs  $64.6^\circ \pm 1.8^\circ$ ;  $p < 0.05$ ); there is no statistically difference between TKA-CR and TKA-PS ( $p > 0.05$ ). In closed kinetic chain measurement UKA showed statistically significant higher value of proprioception compared to TKA-PS ( $31.1^\circ \pm 1.2^\circ$  vs  $33.7^\circ \pm 1.3^\circ$ ;  $p < 0.05$ ). there is no statistically difference between UKA and TKA-CR and between TKA-CR and TKA-PS ( $31.1^\circ \pm 1.2^\circ$  vs  $33.5^\circ \pm 1.5^\circ$ ;  $p > 0.05$ ).

## Conclusion

Overall, unicompartmental arthroplasty, posterior cruciate retaining total knee arthroplasty and posterior stabilized total knee arthroplasty showed similar clinical results at 2 year postoperative. Patients with UKA demonstrated greater precision and less variability in reaching the target angle in open kinetic chain compared to CR and PS, and in closed kinetic chain compared to PS. There is no significant difference in proprioception between CR and PS.