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COMPARISON OF EARLY OUTCOMES COMPARING TWO TOTAL KNEE IMPLANT DESIGNS

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Objective: Numerous total knee arthroplasty (TKA) implants are currently available, incorporating variations in tibial base symmetry and radius of curvature of the femoral component. Traditional implants have symmetric tibial base plates and multi-radius femoral components (SYM-MR), while newer TKA systems incorporate asymmetric tibial baseplates and single-radius femoral components (ASY-SR). However, literature comparing outcomes between these implant designs are conflicting. This study analyzed short-term patient-reported and radiographic outcomes between a SYM-MR and an ASY-SR TKA system.

Methods: This prospective study evaluated a consecutive cohort of unilateral and bilateral TKA patients receiving the SYM-MR or ASY-SR TKA system between 2019 and 2021. Improvements in the Knee Society Function Score, maximum knee flexion and Knee Injury Osteoarthritis Outcome Survey, Joint Replacement (KOOS JR) were calculated from pre-operative to six-months post-operatively. Mechanical axis was measured at six-weeks post-TKA from standing hip-to-ankle radiographs, with neutral defined as $0^{\circ} \pm 3^{\circ}$ and negative values indicating varus alignment.

Conclusion: Overall, 71 patients (96 knees) and 54 patients (79 knees) were included in the ASY-SR and SYM-MR groups, respectively. Six-month and overall improvements in clinical and patient reported outcomes were similar between groups. Post-operative MA was also similar between groups, with 79.2% and 82.3% of SYM-MR and ASY-SR patients having neutral post-TKA MA. The results of the current study demonstrated similar post-operative outcomes between a more traditionally designed SYM-MR and more novel ASY-SR. This suggests early outcomes are not affected by implant design and surgeons should not be overly concerned that one type of design offers clear advantages or disadvantages.