The syndrome has previously been linked to component design, patellar tilt, and other factors. Larger intercondylar box ratio of the PFC Sigma PS has been found to lead to a higher incidence of patellar clunk syndrome due to more frequent contact between the patellar and intercondylar. The purpose of this study was to evaluate the association of patellar clunk syndrome with flexion and several other factors using the PFC Sigma PS.

Methods: One hundred and nine posterior stabilized TKAs were performed from 2009 to 2011, ninety-four of which were finally evaluated. All patients had a PFC Sigma RP. The following factors were recorded during the study and compared between those with complications of patellar clunk syndrome (PCS) and those without (NPC): age, gender, diagnosis (OA/RA), preoperative flexion, 6-week post-operative flexion, and final flexion. The study also took into account and compared both groups (PCS/NPC) on Insall-Salvati ratio, postoperative patella height, preoperative and postoperative femoral-tibial angle using x-ray. Statistical analysis of patellar clunk incidence evaluated chi-squares test or student T test, with significance at P less than 0.05.

Results: The study was conducted with a mean follow-up of 2.2 years (1.3–5). Of the ninety-four knees evaluated, patellar clunk syndrome was identified in six (7.4%). The 6-week postoperative knee flexion and postoperative low lying patellar were significantly associated with patellar clunk syndrome (P<0.05). Other factors showed no significant association with this syndrome.

Conclusions: In this study, patellar clunk syndrome is associated with 6-week postoperative knee flexion. It doesn’t, however, show a strong association during preoperative and final postoperative stages. Furthermore, a lower patellar height leads to an increased patellar-intercondylar friction area. Patellar clunk syndrome usually occurs between the 3-month to 9-month stage post-operation. It has been shown that deep flexion at the 6-week postoperative period shows strong links to patellar clunk syndrome suggests that ROM exercise should be modified to take into consideration the possibility of inflammatory fibrous hyperplasia at the early stage of healing.

579
IMPROVEMENTS IN BIOMECHANICAL SYMMETRY ARE RELATED TO IMPROVED FUNCTIONAL PERFORMANCE FOLLOWING TOTAL KNEE ARTHROPLASTY
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Inter-limb asymmetry in the lower extremity is evident after unilateral total knee arthroplasty (TKA). In particular, these altered movement patterns are characterized by larger hip and knee extension moments and higher vertical ground reaction forces under the non-operated limb compared to the operated limb during a sit-to-stand (STS) task. Although greater symmetry in quadriceps strength is associated with improved biomechanical symmetry, strength only explains a small portion of the variance in symmetrical movement patterns. Previous work has also revealed that greater biomechanical symmetry during STS is correlated with better functional performance at a single time point; however, no studies have evaluated whether improvements in symmetry over time are correlated with improvements in functional performance over the same time period.

Purpose: The purpose of this study was to determine if improvements in biomechanical symmetry were associated with improvements in functional performance when compared 2–3 weeks before surgery and 6-months after TKA.

Methods: Eight subjects who scheduled to undergo unilateral TKA (6 males) participated in this study. After TKA, patients received 6–8 weeks of outpatient physical therapy that included progressive strengthening and symmetry retraining. Biomechanical analysis of STS and functional testing were performed 2–3 weeks before TKA and 3 and 6 months after surgery. Biomechanical measures included symmetry ratio of peak flexion knee moment (PFKM) during rising from a chair (RFC), as well as vertical ground reaction force (VGRF) during RFC, standing and return to sit (STS). Symmetry ratios were calculated as the operated limb divided by the non-operated limb. Functional one-minute walk (MEDWT), stair climbing task (SCT), the timed up and go test (TUG) and the quadriceps index (QI), which was a ratio of the isometric knee extensor strength of each limb (operated/non-operated). Correlations of change scores were created between functional and biomechanical outcomes.

Results: Subjects demonstrated improved symmetry for all biomechanical variables and quadriceps strength, and subjects improved in all functional performance metrics across testing sessions (Table).