

# **"The Other Partial Knee": Outcomes of 250 Consecutive Patients using a Popular Milling System Technique for Patellofemoral Unicompartmental Arthroplasty**

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**INTRODUCTION:** Patellofemoral arthroplasty (PFA) remains controversial, primarily due to high failure rates reported with earlier designed implants. Recent implant changes may improve the reproducibility of surgical technique and consistency of outcomes. Furthermore, different patellofemoral implant systems may have specific technical aspects of the procedure that are unique to the system and may influence outcomes. In addition, most PFA outcome studies to date are small case studies. The purpose of this study is to evaluate the early results of the largest consecutive series to date of patellofemoral unicompartmental arthroplasty performed with a commonly used milling system technique and factors that may lead to early failure.

**METHODS:** From 2011 to 2018, 250 patellofemoral arthroplasties were performed by a single surgeon for unicompartmental arthritis. Patients had an average age of 71 years, 66 inches in height, and 166 pounds weight. The majority of patients were female (182/250, 73%). Radiographic and clinical evaluations were performed. Followup was performed for minimum 2 years, with average 4.2 years followup.

**RESULTS:** With the milling technique, there were no technical complications, no component placement or sizing deviations, and no intraoperative abandonments to total knee replacement. There are two particularly important steps of the procedure that set the foundation for trochlear component placement. Appropriate depth and rotation of the anterior femoral resection is the first critical step. This anterior femoral rotation step sets the stage for the remaining portion of the procedure and should be carefully executed prior to proceeding to the next step. Second, careful placement of the milling guide ensures final trochlear component rotation and proper implant fixation. Patellar thickness averaged 20.3mm prior to resection, and 21.7mm after resurfacing. There were 4 lateral releases performed. Knee Society Scores increased from average 78 to 98( $p < 0.05$ ). The impairments leading to low preoperative scores, and also serving as areas of most improvement, were stair climbing and pain relief. One patient developed asymptomatic patellar avascular necrosis. Two patients have been converted to TKA, one at 2 years for progressive arthritis and one at 6 months after a traumatic fall and recurrent hemarthroses. One clinical failure is due to confounding pain from an ipsilateral arthritic hip and lower spine.

**DISCUSSION AND CONCLUSION:** With careful patient selection, patellofemoral arthroplasty can have excellent short-term results. This is one of the largest consecutive series to date reporting PFA outcomes. Similar to its other unicompartmental counterparts, the isolated patellofemoral arthroplasty yields excellent clinical outcomes. However, risk for need for conversion to total knee replacement exists regardless of strict inclusion criteria. A history of prior open knee surgery or confounding pain sources can negatively impact outcomes, regardless of a technically successful PFA procedure. Nonetheless, in most patients, patellofemoral arthroplasty reliably improves stair function and anterior knee pain. In particular, with careful attention to two particular surgical steps, including accuracy of anterior femoral resection and subsequent appropriate milling guide placement, this technique is a reliable and reproducible procedure for patellofemoral arthroplasty.