

# “The Other Partial Knee”

*Outcomes of 250 Consecutive Patients using a  
Popular Milling System Technique  
for Patellofemoral Unicompartmental Arthroplasty*

**Alexander P. Sah MD**

<sup>1</sup>Medical Co-Director, Institute for Joint Restoration  
Director, Outpatient Joint Replacement Program  
Fremont, CA

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# Disclosures

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## Consultant/Speaker

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Depuy

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Osso VR

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## Research Support

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Microport

S&N



# Introduction

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- Patellofemoral arthroplasty (PFA) remains somewhat controversial, primarily due to high failure rates with early implant designs.
- Recent changes in instrumentation and prosthesis design may improve surgical reproducibility and consistency of outcomes.
- Patient selection, however, likely remains the most important factor in determining optimal results.
- Furthermore, different patellofemoral implant systems may have specific technical aspects of the procedure that are unique to the system and may influence outcomes.
- To date, most PFA outcome studies are limited to small case studies.



# Objective

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- To evaluate the early results of the largest consecutive series to date of PFAs performed with a commonly used milling system technique and factors that may lead to early failure.



# Methods

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- 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.
- Majority of patients were female (182/250, 73%).
- Follow-up was performed for minimum 2 years, with average 4.2 years follow-up.



# Technique

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- Bone resection begins with entry of the femoral canal for the anterior resection guide
- There are two important steps when performing this procedure:
  - (#1) Proper external rotation and anterior resection depth set the stage for the remaining steps
  - (#2) Once appropriate anterior femoral resection is obtained, the milling guide is positioned so that it is seated fully and ensures final trochlear component rotation and proper implant fixation
- Milling is performed with a high-speed burr
- Once complete, the next guide is placed for drill peg preparation and the trial prosthesis placed



# Results

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- With the milling technique, there were no technical complications, no component placement or sizing deviations, and no intraoperative abandonments to total knee replacement.
- Patellar thickness averaged 20.3 mm prior to resection and 21.7 after resurfacing.
- Four lateral releases were performed.
- No intraoperative conversions to TKA, no instrumentation complications.
- Knee Society scores increased on average 78 to 98
- The impairments leading to low preoperative scores and also serving as areas of most improvement were stair climbing and pain relief.



# Results

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- 1 patient developed asymptomatic patellar avascular necrosis
- One clinical failure due to confounding pain from an ipsilateral hip and lower spine
- Two patients have been converted to TKA at latest follow-up
  - one patient at two years for progressive arthritis in compartment of prior open surgery (although preop exam and xray suggested a healthy compartment)
  - one patient 6 months after a traumatic fall and resulting recurrent hemarthroses





# Discussion



- ✓ With careful patient selection, PFA can have excellent short-term results.
- ✓ A milling system is easy to use and provides reproducible surgical results.
- ✓ However, the risk for need for conversion to TKA exists, regardless of strict inclusion criteria.
- ✓ In this series, failures involved the following factors:
  - patient with history of prior surgery in another compartment may represent reason for exclusion
  - in spite of appropriateness of PFA, confounding pain sources may preclude successful results
- ✓ Nonetheless, in most patients, PFA reliably improves stair function and anterior knee pain
- ✓ In particular, with careful attention to two particular surgical steps, including (1) accuracy of anterior femoral resection and (2) subsequent appropriate milling guide placement, this technique is a reliable and reproducible procedure for patellofemoral arthroplasty.

