

# Do Implant-Specific Associations Exist Between Patellar Resurfacing and All-Cause Revision Risk After Primary Total Knee Arthroplasty? A Retrospective Analysis of Two National Joint Registries

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## INTRODUCTION:

The role of patellar resurfacing (PR) during primary total knee arthroplasty (TKA) remains controversial. It is unclear if PR impacts revision risk differently for individual implant systems. The purpose of this study was to compare estimated revision rates for many highly utilized TKA implants based on the presence or absence of primary PR.

## METHODS:

Over 20 national joint registries were screened. Only the National Joint Registry (NJR) Annual Report 2023 and the Endoprothesenregister Deutschland (EPRD) Annual Report 2023 reported implant-specific estimated all-cause revision rates stratified by primary PR status. Individual implants at or above the 50<sup>th</sup> percentile with respect to implant utilization were analyzed. Kaplan Meier estimated all-cause revision rates at 5 years were compared for individual implants amongst patients with versus without PR during primary TKA using multivariable logistic regression.

## RESULTS:

Thirteen unique implant systems from EPRD and 46 implants from NJR were analyzed, yielding 1,379,573 primary TKAs in total. In the EPRD, estimated all-cause revision rates were significantly higher without primary PR for 58.3% of implants (all OR > 1.00, *p-value* < 0.05), comparable for 34.0% of implants (*p-value* > 0.05), and significantly lower for 7.7% of implants (OR 0.66, *p-value* < 0.05). In the NJR, estimated all-cause revision rates were significantly higher without primary PR for 56.5% of implants (all OR > 1.00, *p-value* < 0.05), comparable for 41.3% of implants (*p-value* > 0.05), and significantly lower for 2.2% of implants (OR 0.91, *p-value* < 0.05).

**DISCUSSION AND CONCLUSION:** Across two national joint registries, PR during primary TKA was associated with significantly lower estimated all-cause revision rates at 5 years for over half of unique implant systems. This data suggests the impact of PR on revision rates may vary based upon the implant utilized.

