

# Asian Patients Experience Lower Complications and Mortality Following Total Knee Arthroplasty Compared to White Patients in a Large Matched Cohort

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**INTRODUCTION:** While racial disparities in arthroplasty outcomes have been well documented in Black and Hispanic populations, limited data exist regarding Asian patients. Often grouped under broad "Other" categories, Asian patients remain understudied despite comprising a rapidly growing demographic in the United States. This study compares short-term complications and long-term mortality between Asian and White patients undergoing primary total knee arthroplasty (TKA) using a large, propensity-matched national cohort.

**METHODS:** We conducted a retrospective cohort study using the TriNetX national research database. Adult patients undergoing primary TKA (CPT 27447) were stratified by race. Propensity score matching was performed on age, sex, body mass index (BMI), diabetes mellitus, and tobacco use, yielding 9,064 patients in each group. Thirty- and ninety-day postoperative complications and all-cause mortality at 90 days, 1 year, and 5 years were assessed. Risk ratios (RR), 95% confidence intervals (CI), and *p*-values were calculated, with statistical significance set at *p* < 0.05.

**RESULTS:** Asian patients had lower rates of periprosthetic joint infection at 30 days (0.4% vs. 0.9%; RR 0.481, 95% CI 0.325–0.710; *p* = 0.0002) and 90 days (0.9% vs. 1.5%; RR 0.616; *p* = 0.0004). At 90 days, rates of deep vein thrombosis (1.1% vs. 1.7%; RR 0.651; *p* = 0.0008), pulmonary embolism (0.5% vs. 0.8%; RR 0.634; *p* = 0.0154), acute renal failure (1.1% vs. 1.5%; RR 0.733; *p* = 0.0178), wound dehiscence (0.4% vs. 1.0%; RR 0.427; *p* < 0.001), and pneumonia (0.6% vs. 0.9%; RR 0.690; *p* = 0.0308) were also significantly lower. However, transfusion rates were higher in the Asian cohort at both 30 days (1.4% vs. 0.6%; RR 2.26; *p* < 0.001) and 90 days (1.6% vs. 0.7%; RR 2.17; *p* < 0.001). Rates of manipulation under anesthesia were also higher at 90 days (2.8% vs. 2.0%; RR 1.414; *p* = 0.0003). All-cause mortality was significantly lower in Asian patients at 90 days (0.2% vs. 0.6%; RR 0.246; *p* < 0.0001), 1 year (0.3% vs. 1.1%; RR 0.316; *p* < 0.0001), and 5 years (1.4% vs. 2.9%; RR 0.502; *p* < 0.0001).

## DISCUSSION AND CONCLUSION:

In this large, nationally matched cohort study, Asian patients undergoing total knee arthroplasty demonstrated significantly lower rates of key postoperative complications—including periprosthetic joint infection, venous thromboembolism, pneumonia, acute renal failure, and long-term mortality—compared to matched White patients. Although higher rates of transfusion and manipulation under anesthesia were observed in the Asian cohort, the overall postoperative profile favored improved outcomes.

These findings challenge the prevailing narrative that minority racial status is uniformly associated with inferior surgical outcomes. While disparities in access and utilization of orthopedic care have been reported in Asian populations, the current analysis suggests that, when access is achieved, outcomes may in fact be more favorable. The reasons underlying these differences remain multifactorial and incompletely understood. Potential contributors include lower BMI and tobacco use rates, differences in health-seeking behaviors, family and caregiver support, or cultural adherence to post-discharge care instructions. Genetic or microbiome-related factors influencing infection susceptibility may also play a role.

Importantly, these findings also highlight the limitations of aggregated race categories in national databases and underscore the need for more granular, disaggregated analyses. Risk stratification models commonly used in perioperative planning may fail to capture the true risk profile of Asian patients, potentially leading to miscalibrated care pathways. From a policy standpoint, this study supports the integration of race-specific data into surgical quality metrics and the development of culturally competent postoperative protocols tailored to diverse populations.

As the demographic makeup of arthroplasty patients continues to shift, further research is needed to identify protective factors that may be driving the improved outcomes observed in Asian patients. Doing so has the potential not only to improve care equity but also to enhance overall outcomes by applying successful strategies more broadly across patient populations.

Postoperative Complications and Mortality Following TKA  
(Asian vs White Patients, Matched Cohort)

