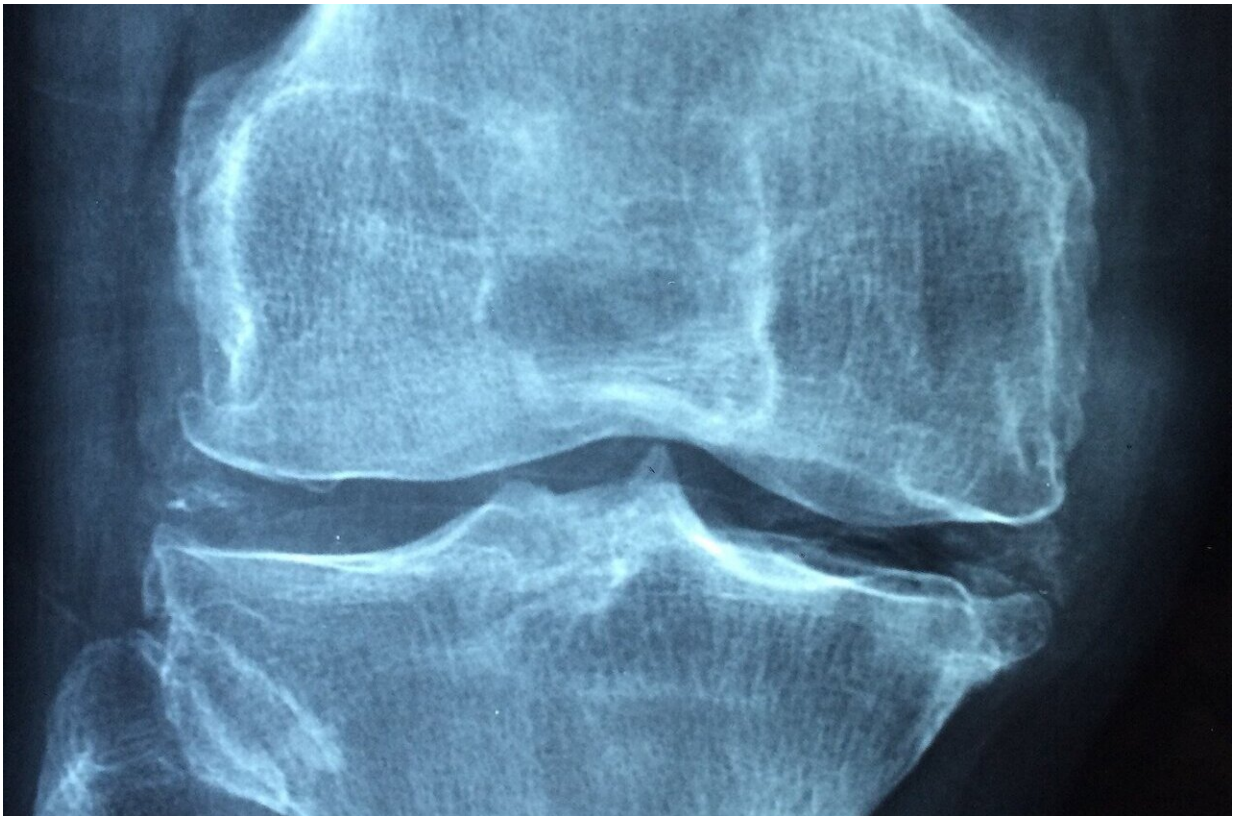


Age, sex, race among top risk factors for revision knee surgery

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Patients who are younger than about 40, male, or Black are among those most at risk for revision surgery after having had a total knee replacement, according to researchers at UT Southwestern Medical

Center. The study, published in the [Archives of Orthopaedic and Trauma Surgery](#), was the first to explore relationships among risk factors for revision after total knee arthroplasty (TKA).

"This research helps to identify risk factors for revision surgery so patients can be better counseled on expectations with their knee replacements. It also helps surgeons identify which patients may be good candidates for surgery," said Georges Bounajem, M.D., Assistant Professor of Orthopaedic Surgery at UT Southwestern and first author of the study.

TKA, also known as [total knee replacement](#), is among the most common and fastest-growing surgeries in the U.S., as well as one of the most impactful procedures in improving [patient outcomes](#) through [orthopedic surgery](#). The rise in these procedures has been accompanied by an increase in TKA revision—a second surgery for patients who experience complications with their initial surgery.

The number of revision surgeries was projected to increase between 78% and 182% from 2014 to 2030, with the [financial burden](#) on the U.S. health care system expected to surpass \$13 billion, according to the study.

The top reason patients undergo TKA is primary osteoarthritis; others include post-traumatic or inflammatory arthritis, osteonecrosis, and malignancy. Although risk factors for TKA revision surgery are already established, relationships among them are not yet well understood and may be critical to improving patient risk assessment.

Using data from the State Inpatient Databases (SID), Dr. Bounajem and his colleagues identified 958,944 patients who underwent TKA between January 2006 and December 2015. Of those, 33,550 (3.5%) required revision. The researchers analyzed this data to determine [risk factors](#) for

revision and how those factors interact.

Results showed that age was the strongest risk factor, with [younger patients](#) significantly more likely to need revision. Risk was also much higher in patients who were male, were Black, had hospital stays shorter or longer than three days, resided in a small metropolitan community, or had an underlying reason for TKA surgery other than primary osteoarthritis.

Most notably, the analysis revealed that indications for initial TKA interacted with patient age to affect revision risk, such that osteoarthritis patients experienced a slower decline in revision risk as age increased, while other patients experienced a linear reduction. One possible explanation for the observed relationship is that the activity levels of patients with osteoarthritis fall at a slower rate as they age, while the activity levels of patients with other indications slow more consistently over time.

"Revision rates are relatively low overall, but further research is needed into additional risk factor interactions due to the significant physical, psychological, and financial toll of revision surgery," Dr. Bounajem said.

More information: Georges J. Bounajem et al, Does interaction occur between risk factors for revision total knee arthroplasty?, *Archives of Orthopaedic and Trauma Surgery* (2023). [DOI: 10.1007/s00402-023-05107-2](https://doi.org/10.1007/s00402-023-05107-2)

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