

# Study finds diabetes does not increase risk of total knee surgical complications

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Patients with diabetes who undergo total knee replacement surgery do not have increased risk of surgical complications compared to those patients without diabetes, according to a Kaiser Permanente study published today in *The Journal of Bone and Joint Surgery*.

Researchers studied the electronic health records of more than 40,000 [patients](#) who had a first-time knee replacement from January 1, 2001 through December 31, 2009. Of the patients studied, 12.5 percent had controlled diabetes, 6.2 percent had uncontrolled diabetes and 81.3 percent did not have diabetes. In contrast to the findings of previous studies, researchers on this study found those with controlled and uncontrolled diabetes who underwent a total knee replacement were at no increased risk of complications such as follow-up surgery (also known as revision arthroplasty), deep infection, or blood clots in the legs or lungs, when compared to patients without diabetes.

"We are fortunate to do our research in a real-world setting that helps us to find real-world solutions for our patients," said Annette L. Adams, PhD, MPH, of the Kaiser Permanente Southern California Department of Research & Evaluation. "This current study suggests that patients with diabetes who have higher glucose levels may not be at greater risk of poor surgical outcomes. This finding will help physicians and their patients with diabetes make better informed decisions about total [knee replacement](#) as an option."

Adams also noted that one of the elements that differentiated this study

from previous research was that the Kaiser Permanente patients with diabetes had better glycemic control than previous study populations. "We have good quality of care, and good chronic disease management," Adams said, "and in this setting, glycemic control had little impact on the outcome of total [knee replacement surgery](#)."

The study also found that among the approximately 28 percent of patients who did experience adverse outcomes in the year after surgery, 27.1 percent were rehospitalized for any reason, 1.1 percent underwent follow-up surgery, 1 percent had a heart attack, 0.7 percent developed a deep infection while 0.5 percent had blood clots in the legs and lungs within the first 90 days after surgery.

"While this study puts us one step closer to understanding diabetes-related complications associated with surgical procedures, more research is needed to determine what aspects of diabetes are associated with adverse outcomes," said Robert Namba, MD, Department of Orthopedic Surgery at Kaiser Permanente Southern California. "It is important to note that patients with [diabetes](#) remain at high risk of a number of poor health outcomes affecting many organ systems and clinicians should continue to review all available information about the overall health and stability of these vulnerable patients."

The study was sponsored by Kaiser Permanente's Center for Effectiveness and Safety Research, The Center facilitates inter-regional research conducted by the research programs in each of Kaiser Permanente's eight regions (Colorado, Georgia, Hawaii, Mid-Atlantic States, Northern California, Northwest, Ohio, and Southern California). Through investments in infrastructure and specific projects, the center takes advantage of Kaiser Permanente's talented research teams, rich data assets, and integrated delivery system to contribute to the knowledge base in comparative effectiveness and safety.

"This work illustrates how Kaiser Permanente is realizing the promise of a learning healthcare organization," said Elizabeth McGlynn, PhD, director of the Center for Effectiveness and Safety Research. "We are bringing together our clinical leaders and the Kaiser Permanente research community to answer questions that are critical for ensuring high-quality patient care."

The study was conducted using the Kaiser Permanente Total Joint Replacement Registry, which now has more than 160,000 total joint arthroplasty procedures registered. Since its inception in 2001, Kaiser Permanente's registry has helped health care providers identify clinical best practices, evaluate and monitor patient outcomes and risk factors associated with revision surgeries, and assess the clinical effectiveness of implants. Developed in association with Kaiser Permanente's surgeons, the registry's data is collected prospectively through standardized documentation by surgeons and supplemented by the organization's [electronic health records](#).

Kaiser Permanente's implant registries, which include the Total Joint Replacement Registry, recently won the 2012 annual John M. Eisenberg Patient Safety and Quality Award, sponsored by The National Quality Forum and The Joint Commission. These registries are models of integration across medical centers in nine states and they represent strong partnerships among health plan administration, hospitals, and physician medical groups united to improve the quality of care for patients.

Provided by Kaiser Permanente

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