

After joint replacement surgery, smokers at increased risk of reoperation for infection

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For patients undergoing total hip or knee replacement, smoking is associated with an increased risk of infectious (septic) complications requiring repeat surgery, reports a study in the February 15 issue of *The Journal of Bone & Joint Surgery*.

"Our results found that current smokers had a significantly higher rate of septic reoperation compared with nonsmokers," commented senior author Dr. Matthew S. Austin of the Rothman Institute at Thomas Jefferson University, Philadelphia. "Furthermore, each additional pack-year significantly contributed to total reoperations."

Smokers Show 80 Percent Increase in Risk of Reoperations for Infection

The researchers looked at how smoking history affected the risk of hospital readmissions among patients undergoing total joint replacement—either hip or knee replacement. The study included data on 15,264 patients who underwent a total of 17,394 total joint replacements between 2000 and 2014—8,917 hip and 8,477 knee replacements.

At the time of surgery, nine percent of patients were current smokers, 34 percent were former smokers, and 57 percent were nonsmokers. Current smokers were younger than nonsmokers: average age was about 58 versus 63 years. Smokers also had higher rates of certain major respiratory and cardiovascular diseases.

The absolute risk of reoperation for infectious complications within 90 days was low: 0.71 percent. However, this risk was substantially higher for current smokers: 1.2 percent, compared to 0.56 percent for nonsmokers.

After adjustment for other characteristics, current smokers remained at significantly increased risk of reoperation for infectious complications—the relative risk was 80 percent higher, compared to

nonsmokers. As a group, former smokers were not at increased risk.

However, for current and former smokers alike, the risk of 90-day nonoperative readmission increased with the number of "pack-years" smoked. Smoking an extra pack per day for a decade was associated with a 12 percent increase in that relative risk. Smoking overall, however, was unrelated to the risk of readmission without surgery, or for reoperation for reasons other than infections.

Total joint replacement (also called arthroplasty) is an effective treatment for advanced degenerative joint disease. Nearly one million total joint replacements—most commonly of the hip and knee—were performed in the United States in 2011. The demand for these procedures is expected to increase over the next decade.

Although some important risk factors for complications have been identified, the relationship between smoking and complications after total hip or [knee replacement](#) has been unclear. Minimizing unplanned hospital readmissions is a major focus of efforts to improve the quality and value of healthcare.

While there's no difference in the total readmission rate, the new results suggest that current smokers are at substantially higher risk of reoperation for septic complications. Patients with a history of heavier smoking are also at [increased risk](#), even if they have since quit smoking.

"If smoking is associated with elevated perioperative risk of readmission and/or reoperation, then it may be reasonable to engage the patient in a [smoking cessation program](#) prior to total joint arthroplasty," Dr. Austin and coauthors write. However, further studies would be needed to determine whether quitting [smoking](#) before [joint replacement](#) surgery can reduce the [risk](#) of complications.

More information: Eric H. Tischler et al. Smoking Increases the Rate of Reoperation for Infection within 90 Days After Primary Total Joint Arthroplasty, *The Journal of Bone and Joint Surgery* (2017). DOI: [10.2106/JBJS.16.00311](https://doi.org/10.2106/JBJS.16.00311)

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