

# Obesity increases risk of complications after shoulder joint replacement surgery

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Credit: Lynn Greyling/public domain

For patients undergoing shoulder joint replacement surgery

(arthroplasty), higher body mass index is linked to increased complications—including the need for "revision" surgery, reports a study in the June 7 issue of *The Journal of Bone & Joint Surgery*.

"Increasing BMI is strongly associated with increased rates of revision surgical procedures and postoperative complications after [shoulder arthroplasty](#)," write Eric R. Wagner, MD, and colleagues at the Mayo Clinic, Rochester, Minn. Their findings suggest that, above a certain level of obesity, complication risk increases steadily along with increasing [body mass index](#) (BMI).

## **Complication Risks Increase Steadily with Higher BMI**

The study included data on 4,567 shoulder arthroplasties performed between 1970 and 2013. Various shoulder arthroplasty procedures are performed to treat shoulder pain and loss of function resulting from arthritis or other conditions.

Forty-three percent of the shoulder arthroplasty patients were obese (defined as a BMI of 30 or higher). The researchers analyzed the relationship between BMI and different types of complications. Overall, 302 patients needed revision [surgery](#) due to [mechanical failure](#), loosening of the implant, or other causes. An additional 62 cases required a non-revision reoperation.

Obese patients were at increased risk of both types of reoperation. Among patients with a BMI of 35 or higher, each additional one-unit increase in BMI was associated with a five percent increase in the risk of reoperation for any reason.

Higher BMI was also specifically associated with revision surgery for mechanical failure. For every one-unit increase in BMI after 30, there

was a five percent increased risk of revision for mechanical failure.

The BMI-related increases in complications remained significant after statistical adjustment for other factors. The strongest association was for superficial wound infection: risk increased by nine percent for each one-unit increase in BMI. In this population of shoulder-arthroplasty patients, obesity was not a risk factor for blood clot-related complications (thromboembolism), as it is for patients undergoing hip or knee replacement.

The rising prevalence of obesity—now present in more than one-third of US adults—has had a major impact on healthcare and related costs. Obese patients are at increased risk of several types of complications after total hip or knee replacement surgery. The new study is among the first to assess how BMI affects the risk of complications after shoulder arthroplasty. This study is also unique in that it analyzes BMI in one-unit increments, rather than in ranges.

The results suggest that the risk of revision surgery and most other complications of shoulder arthroplasty increases along with BMI in [obese patients](#). "These findings support the notion that increasing BMI increases the stress on the implant, leading to higher rates of mechanical implant failure," Dr. Wagner and coauthors write. They add that the increased infection risk is likely related to immune system changes and to "dead space" created by excess fatty tissue.

Dr. Wagner and colleagues believe their findings will help patients, physicians, and surgeons to make better-informed decisions about the relative risks and benefits of shoulder [arthroplasty](#) at different levels of BMI. They discuss the implications of their findings for policy and research, including the need for further studies to modify the risks associated with increased BMI and studies helping to support the risk stratification for reimbursement, providing financial incentives for

surgeons treating more complex and high-risk [patients](#).

**More information:** Eric R. Wagner et al. Increasing Body Mass Index Is Associated with Worse Outcomes After Shoulder Arthroplasty, *The Journal of Bone and Joint Surgery* (2017). [DOI: 10.2106/JBJS.15.00255](https://doi.org/10.2106/JBJS.15.00255)

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