

Obesity alone may not affect knee replacement outcome or increase overall complication risk

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Obesity alone may not diminish outcomes or increase the risk of complications in total knee replacement (TKR) patients, according to two research studies presented today at the 2013 Annual Meeting of the American Academy of Orthopaedic Surgeons (AAOS). However, TKR replacement patients may face significantly longer hospital stays and related costs.

Total [knee replacement](#) in obese patients previously has been associated with increased post-operative complications and lower clinical function scores in multiple research studies.

In the study, "The Effect of Obesity on Direct [Medical Costs](#) in Total [Knee Arthroplasty](#) (TKA)" researchers reviewed the records of more than 8,000 patients who had undergone single, primary or revision TKR procedures between 2000 and 2008, collecting data on clinical and surgical characteristics, complications and hospital costs. Patients were classified into eight groups based on [body mass index](#) (BMI) and comorbidities (diabetes, hypertension, etc.).

Length of hospital stay and direct medical costs were lowest for patients with a BMI of 25-30kg/m². Greater BMI was associated with significantly longer hospital stays after adjusting for age, sex, type of surgery and comorbidities. Every 5 unit increase in BMI beyond 30 kg/m² was associated with approximately \$250-\$300 in higher

hospitalization costs for primary knee arthroplasty and \$600-\$650 higher hospitalization costs for revision procedures.

Although increasing BMI was not associated with an overall increase in complication risk during the 90-day window, there was a higher rate of infection in obese patients.

"The costs associated with obesity are believed to be largely those that come from managing comorbid [medical conditions](#) linked to obesity, such as diabetes," said lead study author Hilal Maradit-Kremers, MD, an associate professor of epidemiology at Mayo Clinic in Rochester, Minn. In this study, "we attempted to tackle this problem by restricting the analysis to patients without [comorbid conditions](#). Even in the absence of comorbidities, obesity was still associated with longer stays and higher hospital costs."

"The bottom line is that obesity is increasingly common among patients undergoing joint replacement and it creates a myriad of technical and medical challenges, and likely contributes to the financial burden of the surgery," said senior author David G. Lewallen, MD, an orthopaedic surgeon, also from [Mayo Clinic](#).

In the related study, "Outcome of Total Knee Arthroplasty in Obese Patients," researchers in Singapore analyzed the outcomes of 301 TKA patients between December 2008 and April 2010 and grouped them according to BMI.

There was no difference in surgical time between obese and non-obese patients, although the obese patients had a longer hospital stay following TKR – 7.77 days versus 6.29 days for non-obese patients.

Patient outcomes were recorded pre-operatively and at 2 years after TKR using Knee Society Score (KSS), Short Form 36 Health Survey

(SF36) and Western Ontario and McMaster Universities Arthritis Index (WOMAC) outcomes.

The non-obese patients achieved "superior" post-operative flexion (ability to bend) and range of movement. The absolute improvements in WOMAC scores among the obese patients post surgery also were deemed statistically superior and comparable to those of non-obese [patients](#).

The study concluded that TKR is a "safe and efficacious operation in [obese patients](#) with no significantly greater risk of complication."

"Obesity does not negate good surgical outcome in total knee arthroplasty," said lead study author Chin Tat Lim, MD.

Provided by American Academy of Orthopaedic Surgeons

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