

# Hip replacement surgery improves symptoms and biomechanics—but not physical activity

28 May 2021

Patients undergoing total hip arthroplasty (THA) show significant reduction in pain and other symptoms and improvement in walking gait biomechanics. However, those improvements do not lead to increased daily physical activity levels, reports a study in *The Journal of Bone & Joint Surgery*.

The findings "present a worrying picture that while patients have the opportunity to be more physically active through improvements in functional capacity, their physical behaviors do not change," according to the new research, led by Jasvir S. Bahl of the University of South Australia, Adelaide, in collaboration with the University of Adelaide, Flinders University, and the Royal Adelaide Hospital. The researchers call for additional efforts to help patients get up to a healthy level of physical activity following THA.

## Nearly all patients remain sedentary after THA

The prospective study included 51 patients with an average age of 66 years who underwent primary THA at a public hospital in South Australia. All procedures were performed using the same surgical technique and implant type. Prior to the procedure, data were recorded for several patient-reported domains, including hip-related symptoms, function, and quality of life.

In addition, patients underwent gait analysis and musculoskeletal modeling for in-depth analysis of biomechanics and overall walking performance. They also completed 24-hour physical activity monitoring with use of a wrist-worn activity tracker (accelerometer). In a subgroup of patients, gait analysis and activity monitoring were repeated at one and two years postoperatively.

At both follow-up times, patients reported

improvements in pain and other hip-related symptoms, hip function, and everyday quality of life. Gait analysis showed improvement in almost every aspect of walking biomechanics, including walking speed and step length.

However, 24-hour activity monitoring showed little or no change in daily physical activity patterns. Both preoperatively and postoperatively, patients were sedentary or asleep for 19.5 hours of the day, on average. This finding remained significant after adjusting for age, body mass index, and occupation.

In fact, there was evidence that [sedentary time](#) increased after THA. The percentage of patients who were sedentary for more than 11 hours per day increased from 25 percent preoperatively to 31 percent at one year and 41 percent at two years postoperatively. At all assessment points, patients reported that most of their active time was spent in light physical activity.

Activity monitoring also provided information on the patient sleep time and quality. Average sleep time remained the same, at about nine hours per night. However, sleep efficiency declined year over year, from 84 percent preoperatively to 80 percent at one year and 77 percent at two years postoperatively, with less than 85 percent considered inefficient sleep.

Consistent with many previous studies, these results show that THA leads to "significant and substantial" improvements in pain, function, and quality of life. However, the present study shows that despite these improvements, few patients change their daily physical activity patterns in the two years after THA.

"Evidently, a surgical procedure alone may not

enable patients to lead a more physically active lifestyle," Dr. Bahl and coauthors write. Although the study cannot draw conclusions about the reasons why physical activity did not improve, previous reports have suggested that low activity patterns may become "hard-wired" after years of physical disability. The authors also suggest that if patients have to wait several years before THA, they may become used to a more sedentary lifestyle.

Dr. Bahl and colleagues note that [patients](#) undergoing hip replacement surgery often have accompanying [health conditions](#) such as high blood pressure, obesity, and diabetes that are best managed with increased physical activity and exercise. The researchers conclude: "Health-care providers must consider a multifaceted model of care, which includes patient education on the importance of reducing sedentary behaviors, and addressing a range of barriers and facilitators to increase [physical activity](#) postoperatively."

**More information:** Jasvir S. Bahl et al, Changes in 24-Hour Physical Activity Patterns and Walking Gait Biomechanics After Primary Total Hip Arthroplasty, *Journal of Bone and Joint Surgery* (2021). [DOI: 10.2106/JBJS.20.01679](https://doi.org/10.2106/JBJS.20.01679)

Provided by Wolters Kluwer Health

APA citation: Hip replacement surgery improves symptoms and biomechanics—but not physical activity (2021, May 28) retrieved 4 June 2022 from <https://medicalxpress.com/news/2021-05-hip-surgery-symptoms-biomechanicsbut-physical.html>

*This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.*