

One Thousand More Steps: A Simple, Powerful Prescription for Surgical Recovery

Each additional 1,000 steps a patient takes after surgery is linked to fewer complications, a lower readmission rate and shorter hospital stays.

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Key Takeaways

- Each additional 1,000 steps per day after surgery is linked to 18% lower odds of complications, 16% lower odds of readmission, and 6% shorter hospital stays.
- Heart rate variability and self-reported wellness scores aren't associated with improved outcomes.
- Step counts from a wearable offer a practical tool to track recovery in real time, guide discharge decisions, and identify patients who may need additional post-discharge support.

Chicago — Researchers analyzing data from the National Institutes of Health's All of Us Research Program have found that a patient's step count following surgery is a powerful, objective predictor of recovery, outperforming other metrics such as heart rate variability and self-reported wellness. The study is [published](#) in the Journal of the American College of Surgeons (JACS).

For every additional 1,000 steps a patient took per day after surgery, length of stay, risk of complications, and likelihood of readmission all decreased. This association stayed true across different types of procedures and patient health statuses.

"We tell patients that they need to get up and walk after an operation, but we don't have a good sense of how much they're actually moving," said Timothy M. Pawlik, MD, PhD, MPH, MTS, MBA, FACS, senior author of the study and professor and chair of the Department of Surgery at The Ohio State University Wexner Medical Center in Columbus, Ohio. "Wearables give us an objective, continuous readout. Instead of asking how you feel, we can see that you're up and moving, which is a very actionable signal of how your recovery is progressing."

Study Results

After adjusting for factors like age, sex, and surgical risk, each additional 1,000 steps per day in the postoperative period was associated with a 6% reduction in length of stay, as well as lower odds of 30-day and 90-day complications.

Postoperative changes in heart rate variability and self-reported “wellness” scores (using the SPADE composite) were not independently associated with length of stay, complications, or readmissions.

Incremental increases in daily steps were also associated with lower odds of 30-day and 90-day hospital readmissions.

The study, which included 1,965 adult patients undergoing inpatient surgery, leveraged the All of Us database, a unique resource that links electronic health records with data from wearable devices. This allowed researchers to analyze objective preoperative and postoperative data alongside clinical outcomes.

“It’s a bit of a chicken-and-egg situation,” Dr. Pawlik said. “People who feel better are naturally more likely to be up and around. However, the signal is so strong that it suggests step count is not just a marker of wellness, but a key component of it. Seeing a patient’s step count drop can be an early indicator to intervene, perhaps by involving physical therapy or checking in more frequently.”

The findings align with a [2023 study presented at the ACS Clinical Congress](#), which found that patients who took more than 7,500 steps per day before surgery had a 51% lower risk of postoperative complications.

Dr. Pawlik noted that integrating this data into care pathways could empower patients and clinicians. “If a patient’s goal is 8,000 steps before surgery and 6,000 on postoperative day three, they can see if they’re hitting those targets,” he said. “It gives them a concrete goal and gives us objective data to help decide if they’re ready for discharge or if they need more support at home.”

He also said that all exercise plans should be discussed with a provider and that the number of steps any individual takes each day should be considered in light of other health issues.

Co-authors are Abdulaziz Elemosho, MD; Odysseas P. Chatzipanagiotou, MD; and Meher Angez, MD.

This study is published as an [article in press](#) on the JACS website.

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