

# Older adults who 'train' for a major operation spend less time in the hospital

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Older adults who "train" for a major operation by exercising, eating a healthy diet, and practicing stress reduction techniques preoperatively

have shorter hospital stays and are more likely to return to their own homes afterward rather than another facility, compared with similar patients who do not participate in preoperative rehabilitation, according to research findings. The new study, which appears as an "article in press" on the *Journal of the American College of Surgeons* website in advance of print, evaluated a home-based program of preoperative rehabilitation—called prehabilitation—for Michigan Medicare beneficiaries.

The researchers also reported an association between prehabilitation and lower total insurance payments for all phases of care.

"Prehabilitation is good for patients, providers, and payers," said study coauthor Michael J. Englesbe, MD, FACS, a liver transplant surgeon at the University of Michigan, Ann Arbor. "We believe every patient should train for a major operation. It's like running a 5K race: You have to prepare."

Involving physical and [lifestyle changes](#), prehabilitation, or "prehab," optimizes a patient's well-being and ability to withstand the stress of undergoing an operation, Dr. Englesbe said. Past studies show that prehabilitation lowers the rate of postoperative complications and speeds the patient's return to their normal functioning, among other advantages.

"Prehab has been gaining momentum over the past 10 years. More surgeons and other clinicians are appreciating its benefits," Dr. Englesbe said. "However, the feasibility and value of broad implementation of prehabilitation outside the research environment were unknown."

For this new study researchers tested the real-world effectiveness and cost savings of prehabilitation. Patients underwent diverse cardiothoracic (chest/heart) and abdominal operations at 21 hospitals in Michigan that participated in a statewide prehabilitation [program](#) called the Michigan

Surgical & Health Optimization Program (MSHOP). Patients' surgeons referred them to MSHOP if they were at high risk of postoperative complications, Dr. Englesbe, program co-developer and director, said.

## **Physical and psychological preparation**

MSHOP involved a home-based walking program in which surgical patients tracked their steps using a pedometer and received daily reminders and feedback through phone, email, or text messages. Program participants received educational materials on nutrition, relaxation techniques, and smoking cessation as well. They also practiced using an incentive spirometer, a [medical device](#) that helps patients keep their lungs healthy after an operation.

Included in the study were 523 Medicare patients who participated in MSHOP for at least one week before an inpatient operation and filed Medicare claims between 2014 and 2017, according to the article. For comparison, the researchers used Medicare claims data during the same period to identify 1,046 matched controls: patients with similar demographic characteristics and coexisting illnesses who had the same operation at the same hospital but did not take part in prehabilitation. The average age of patients and controls was 70 years.

Participation in MSHOP ranged from 11 to 33 days, the researchers reported. Of the participants, 62 percent were reportedly "engaged" in the prehabilitation program, defined as recording step counts three or more times per week for most of the program. Thirty-nine patients (7.5 percent) asked to be removed from the program, but they remained in the statistical data analysis. For both groups, the study authors analyzed data for the hospitalization and 90 days afterward.

## **Prehabilitation leads to better outcomes**

Participation in prehabilitation was significantly associated with several improved outcomes that are important to patients or insurers, according to the researchers:

- The hospital length of stay was shorter by one day, with a median (middle value) of six days for participating patients versus seven days for controls, who received no prehabilitation.
- Program participants were more likely to be discharged from the hospital to home: 65.6 percent versus 57 percent of controls.
- Medicare paid nearly \$3,200 less in total payments for both hospital and posthospital care (what Medicare calls an "episode of care") for patients who underwent prehabilitation than for controls: \$31,641 versus \$34,837.
- Insurance payments were especially lower among patients for posthospital care, including skilled nursing facility (\$941 versus \$1,566 for controls) and home health care (\$829 versus \$960 for controls).

"Every patient scheduled for a major operation—not just those at high risk—should ask their surgeon for a prehabilitation program," Dr. Englesbe recommended.

Although the study did not evaluate patient satisfaction with prehabilitation, Dr. Englesbe said patients at his medical center who completed MSHOP described their surgical experience positively, using words such as "empowering." Some patients requested MSHOP when they required another operation, he said.

Dr. Englesbe said he hopes that prehabilitation will become the standard of surgical care in Michigan.

Nationwide, prehabilitation is an area of focus for the American College of Surgeons' Strong for Surgery program, which promotes evidence-

based practices to boost preoperative health. Prehab also is part of the College's new Geriatric Surgery Verification Program standards, developed to optimize surgical care for older adults, and now enrolling hospitals nationally.

**More information:** Charles A. Mouch et al. Statewide Prehabilitation Program and Episode Payment in Medicare Beneficiaries, *Journal of the American College of Surgeons* (2019). [DOI: 10.1016/j.jamcollsurg.2019.10.014](https://doi.org/10.1016/j.jamcollsurg.2019.10.014)

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