

Early weight-loss surgery may improve type 2 diabetes, blood pressure outcomes

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Dr. Thomas Inge, lead researcher for an NIH-funded study of bariatric surgery in teens, sees a patient at Children's Hospital Colorado in Denver. Credit: Children's Hospital Colorado

Despite similar weight loss, teens who had gastric bypass surgery were significantly more likely to have remission of both type 2 diabetes and high blood pressure, compared to adults who had the same procedure. Results are from an NIH-funded study comparing outcomes in the two groups five years after surgery. Previously, no treatment has shown longer-term effectiveness at reversing type 2 diabetes in youth, which tends to advance more quickly than in adults.

Researchers evaluated 161 teens and 396 adults who underwent this surgery at clinical centers participating in Teen-LABS (Teen-Longitudinal Assessment of Bariatric Surgery) and its adult counterpart, LABS. Teens in the study were under 19 years old at the time of surgery, and adults in the study reported having obesity by age 18. Teen-LABS clinical centers had specialized experience in the surgical evaluation and management of young people with severe obesity, and both studies were funded primarily by NIH's National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The results were published in *The New England Journal of Medicine*.

"Obesity increases the risk for type 2 diabetes and cardiovascular diseases, and these conditions can be more difficult to manage in young people," said Mary Evans, Ph.D., a study author and program director in the NIDDK Division of Digestive Diseases and Nutrition. "We found earlier [bariatric surgery](#) in carefully selected youth may have greater benefits compared to waiting until later in life."

Key findings of the research include:

- Overall weight loss percentage was not different between the groups. Teens lost 26% of their bodyweight and adults lost 29% at five years after surgery.
- Type 2 diabetes declined in both groups, but teens with type 2 diabetes before surgery were 27% more likely than adults to have

controlled [blood glucose](#) (blood sugar) without the use of diabetes medications.

- No teens in the group needed diabetes medications after surgery, compared to 88% of teens before surgery. 79% of adults used diabetes medications before surgery, and 26% used diabetes medications five years later.
- Before surgery, 57% of teens and 68% of adults used blood pressure medications. Five years after surgery, 11% of teens and 33% of adults used blood pressure medications.
- Among those with [high blood pressure](#) before surgery, teens were 51% more likely than adults to no longer have high blood pressure or take blood pressure medication.

However, teens were more likely to have increased risks in other areas, including a need for subsequent abdominal surgeries, most commonly gall bladder removal. Teens were also more likely to have low iron and vitamin D levels, potentially because teens may be less likely to take enough vitamin and mineral supplements after surgery. There was a similar death rate for both teens and adults five years after surgery, including two people from the [teen](#) group who died from overdose. There is an overall increasing trend of drug overdose deaths in the U.S., and a previous LABS study found an increased risk of substance and alcohol use disorders after bariatric surgery in adults.

"Although there are risks associated with bariatric surgery, this study demonstrates that, for many [young people](#), the benefits likely outweigh the risks," said Thomas Inge, M.D., Ph.D., the study's first author from Children's Hospital Colorado. "Sufficient vitamin and mineral supplementation, along with continued [medical care](#), can help mitigate some of these risks."

These results build on earlier research related to the benefits, risks, and timing of bariatric surgery to aid in weight management. Obesity affects

more than one in three adults and about 17% of American children and teens. Obesity increases risk for type 2 diabetes, heart and kidney diseases, some types of cancer, and other health conditions.

"Type 2 [diabetes](#) in youth has been a growing problem without a solution, hitting young adults with serious health conditions when they should be in the prime of their lives. This study demonstrates that bariatric [surgery](#) may provide an [effective treatment](#), though not one without risks," said NIDDK Director Dr. Griffin P. Rodgers. "We hope future research continues to shed light on the best timing and the most effective treatments for all people with weight-related conditions."

Provided by National Institute of Diabetes and Digestive and Kidney Diseases

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