

# Research shows impact of bariatric surgery on cardiovascular disease risk in obese teens

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Cardiovascular disease is the leading cause of death in patients with type 2 diabetes, and youth with severe obesity and type 2 diabetes face a high risk of developing cardiovascular disease during their lifetime. However, in a recently published study in *Surgery for Obesity and Related Diseases*, researchers at Children's Hospital Colorado (Children's Colorado) determined that the long-term risk of cardiovascular events including heart attack, congestive heart failure, stroke and coronary death was reduced by almost threefold for teenagers with type 2 diabetes who underwent bariatric surgery compared to those whose diabetes was only managed medically.

"The incidence of youth-onset type 2 diabetes is increasing in the U.S., translating to premature mortality from [cardiovascular disease](#) and other [chronic diseases](#) such as diabetic kidney disease," said Petter Bjornstad, MD, an endocrinologist at Children's Colorado and one of the study's authors. "Bariatric surgery is currently the only treatment available for youth with severe obesity and type 2 diabetes that results in considerable and durable weight loss and improvement in blood sugar levels in the majority of patients. With this study, our intent was to further demonstrate the benefits of [bariatric surgery](#) in adolescents by proving that it also leads to significantly lower long-term risks of cardiovascular disease."

Specifically, the study compared the 30-year risk for cardiovascular disease in two cohorts of adolescents with type 2 diabetes over a period of five years. The patients were participants in one of two multi-center

studies led by researchers at Children's Colorado: Teen-Longitudinal Assessment of Bariatric Surgery (Teen-LABS) and Treatment Options of Type 2 Diabetes in Adolescents and Youth (TODAY). The two groups included:

- 30 Teen-LABS participants, all of whom underwent bariatric surgery and had type 2 diabetes at the time of surgery
- 63 TODAY participants, all of whom had received [medical treatment](#) for type 2 diabetes

The Teen-LABS participants involved in the study had a significantly higher pre-treatment risk for cardiovascular disease than the TODAY participants, with higher blood pressure and cholesterol levels at the outset. However, the study revealed that treatment with bariatric surgery reduced the long-term risk of cardiovascular disease, whereas [medical therapy](#) alone was actually associated with an increase in risk among adolescents with type 2 diabetes and [severe obesity](#).

The risk reduction due to bariatric surgery was attributed to improved blood sugar levels, weight loss, changes in blood pressure and an increase in HDL-C ("good" cholesterol) in the Teen-LABS patients.

"The high cardiovascular disease risk observed in TODAY participants, despite their lower baseline BMI, underscores the inadequacy of standard medical therapy in mitigating the risk of cardiovascular events, and calls for more aggressive therapy in this at-risk population," said Thomas H. Inge, MD, Ph.D., Teen-LABS principal investigator, and director of pediatric surgery and the bariatric center at Children's Colorado. "While longer-term studies are needed to determine whether the risk score predictions hold true, the long-term cardiovascular health prospects associated with bariatric surgery in adolescents appear to be very positive."

**More information:** Justin R. Ryder et al, Effect of surgical versus medical therapy on estimated cardiovascular event risk among adolescents with type 2 diabetes and severe obesity, *Surgery for Obesity and Related Diseases* (2020). [DOI: 10.1016/j.soard.2020.09.002](https://doi.org/10.1016/j.soard.2020.09.002)

Provided by Children's Hospital Colorado

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