

Gastric bypass improves long-term diabetes remission, even after weight recurrence: Study

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Adults who have obesity and type 2 diabetes are much more likely to see their diabetes stay in remission if they undergo gastric bypass surgery

rather than sleeve gastrectomy, even after regaining weight, according to a study [published](#) in the *Journal of the American College of Surgeons*.

Some people who undergo weight loss surgery regain a significant amount of weight within a few years after the procedure. Specific types of [bariatric surgery](#) include gastric bypass, which bypasses a part of the small intestine, called the duodenum, and a more popular, minimally invasive procedure called sleeve gastrectomy, which works by making the stomach smaller, restricting the amount of food that can be consumed.

"We showed that in patients who had bariatric surgery, bypassing the duodenum has a greater benefit for patients with [diabetes](#). We saw that patients who had sleeve gastrectomy and weight recurrence had a much greater chance of having their diabetes return when compared to their gastric bypass counterparts, even after adjusting for all diabetes patient factors," said lead study author Omar M. Ghanem, MD, FACS, DABS, a bariatric and metabolic surgeon at Mayo Clinic in Rochester, Minnesota.

"We know that the first portion of the intestine, the duodenum, plays a very important part of digestion, and helps regulate what we call the 'gut metabolic pathway.' Bypassing that axis contributes to many physiologic actions or changes in metabolism and one of them is the regulation of glycemia and eventually diabetes," Dr. Ghanem said.

For the study, researchers investigated whether diabetes returned when patients regained their weight after bariatric surgery. The review was based on data from 224 patients who underwent gastric bypass surgery and 46 control subjects who underwent sleeve gastrectomy at Mayo Clinic between 2008 and 2017.

All patients involved in the analysis had obesity and had been diagnosed with type 2 diabetes before they underwent weight loss surgery. Each

patient was followed for at least five years after the operation. Diabetes remission rates were then grouped into four weight relapse categories and compared. The aim was to see if [weight gain](#) led to diabetes recurrence.

Among key findings of the study

- Overall, 75% of gastric bypass patients saw their diabetes stay in remission, compared with only 34.8% of patients in the sleeve gastrectomy group.
- After adjusting for patient and weight-related factors, the odds of diabetes returning over the five-year follow-up period were 5.5 times greater in the sleeve gastrectomy group compared to the gastric bypass group.
- In a subgroup analysis of gastric bypass patients, diabetes remission rates were stratified into four [weight regain](#) categories. Over half of the patients in all four categories (patients who lost weight after surgery and regained 25%, 25% to 50%, 50% to 75%, and more than 75% of the weight they initially lost from having surgery) kept their diabetes in remission.
- Among patients who regained 100% or more of their weight after [gastric bypass surgery](#), about 60% kept their diabetes in remission five years after the operation, compared to zero in the gastric sleeve group.
- Insulin use, higher preoperative A1c (which measures average blood sugar levels), and longer preoperative duration of diabetes were associated with diabetes recurrence, whereas weight regain was not.

Obesity is a leading risk factor contributing to death in the U.S. Most of the mortality risk linked to obesity is due to the development of diabetes and cardiovascular diseases. The researchers noted they intend to conduct more in-depth studies to understand this connection on a cellular

level, which will better explain these findings.

"These findings help us understand how the bypass works and how to keep diabetes in remission. Looking forward, we need to understand the mechanism behind this association so we can counsel patients on the best procedure for them when presenting to us with diabetes," Dr. Ghanem said.

"A major determining factor when choosing the most appropriate surgery is if the patient wants to eliminate diabetes or wants to have the least chance of having diabetes come back in the long term. While both procedures are great, we know that gastric bypass is a better procedure for patients with diabetes at this point."

"Diabetes remission is more durable after gastric bypass than after sleeve gastrectomy. The magnitude of the difference in this study is important," said Anthony T. Petrick, MD, FACS, director, division of bariatric and foregut surgery, Geisinger Health System, who was not involved with the study. "Although there was a small number of [sleeve gastrectomy](#) patients in this study, the long-term follow-up is a strength of these findings."

A potential limitation of the study is that it is a retrospective, single-center study. Therefore, the results may not apply to other bariatric programs across the country.

Co-authors are Kamal Abi Mosleh, MD; Anthony Kerbage, MD; Lauren X. Lu; Karl Hage, MD; and Barham K. Abu Dayyeh, MD, MPH.

More information: Continued Diabetes Remission Despite Weight Recurrence: The Gastric Bypass Long-Term Metabolic Benefit, *Journal of the American College of Surgeons* (2024). [DOI: 10.1097/XCS.0000000000000934](#)

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