

# Gastric bypass surgery can give better control for diabetes and obesity than lifestyle modification

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Gastric bypass surgery can give better control for diabetes and obesity than lifestyle modification. In a randomized clinical trial comparing two

treatments, both groups of participants report significant weight loss, better diabetes management and improved quality of life

Boston, MA - People with worrisome levels of obesity and poor control of their type 2 diabetes face two dramatically different options to substantially improve their health: bariatric (weight loss) surgery or intensive lifestyle management. In a randomized controlled clinical trial, scientists from Joslin Diabetes Center and Brigham and Women's Hospital found that patients treated with a form of bariatric surgery known as Roux-en-Y gastric bypass did significantly better, after three years, than patients provided with an intensive diabetes and weight management program.

"Our study demonstrates that in patients with mild-moderate obesity and type 2 diabetes, [gastric bypass surgery](#) leads to a sustained reduction in weight, improvement in glycemic control, and decrease in cardiovascular risk compared to a medical diabetes and weight management program," said lead author Donald C. Simonson, M.D., M.P.H., Sc.D., of the BWH Division of Endocrinology, Diabetes and Hypertension. "Gastric bypass surgery and the medical/lifestyle intervention program are not investigational - both are routinely available to patients at our institutions, and comparable programs exist at many other hospitals and health care facilities."

Given rapid advances in recent years in delivering both of these alternative treatments, "this kind of information is very important to clinicians and patients to help inform decision making," says Allison Goldfine, MD, head of clinical research at Joslin during the trial and senior author on a paper published this month in *Diabetes Care*.

The paper provided the latest results from the SLIMM-T2D (Surgery or Lifestyle with Intensive Medical Management in the Treatment of Type 2 Diabetes) study, which randomly allocated 38 obese patients with type

2 diabetes to treatment either by surgery at BWH or through Joslin's Why WAIT intensive lifestyle management program. These participants had an average weight of 230 pounds and body mass index (BMI) of 36.3.

After three years, patients given surgery saw dramatically greater weight loss, averaging 55 pounds compared to 11 pounds for those in the lifestyle management intervention. The surgical cohort also lowered their hemoglobin A1c levels (a measure of [blood sugar](#) over several months) by an average of 1.79% compared to 0.39% for the lifestyle management cohort. Additionally, those given surgery showed significantly lower risk of coronary heart disease and stroke.

Although patients given the lifestyle intervention program made encouraging initial progress in both weight loss and diabetes control, those improvements dropped noticeably over time. "Patients who had the gastric bypass procedure had superior ability to sustain changes both in weight and blood sugar, and they did so requiring less medication for their diabetes, their blood pressure and their lipids," says Goldfine.

The two groups of trial participants generally self-reported similar improvements in quality of life overall and less distress in living with diabetes—important positive outcomes. Those given surgery did see a significantly higher impact of weight loss on their quality of life, and greater improvement in the domains of physical functioning, self-esteem, and work performance. "As a result of these findings, we expect that more physicians will consider gastric bypass surgery as a viable option for patients with type 2 diabetes and mild to moderate obesity when previous attempts to lose weight and improve glycemic control have not been successful," said Simonson.

Goldfine emphasized, however, that treatment must be personalized for all patients who are struggling with obesity and diabetes, and that gastric

bypass surgery is not always the best option.

The Roux-en-Y gastric bypass procedure is done laparoscopically, through small cuts in the abdomen. Surgeons make a small pouch at the top of the stomach and connect the pouch to the middle of small intestine.

Joslin's 12-week Why WAIT intensive lifestyle management program includes a change in diabetes medications to enhance weight reduction, structured dietary intervention with lower carbohydrates and higher protein and meal replacement, an exercise program with emphasis on strength training, and weekly educational and support sessions.

Both surgical procedures and intensive lifestyle management techniques now take advantage of major medical advances achieved in the past decade or two, Goldfine says.

"Older surgical procedures were much more invasive, with much higher surgical risk and complication rates, and older types of procedures had higher failure rates over time," she says. "Laparoscopic rather than open surgery made the biggest impact on the surgical experience and recovery, but we have improved surgical techniques all the way from preoperative evaluations to better post-operative care."

Medical options also have improved substantially, with the availability in recent years of new classes of diabetes drugs such as GLP-1 (glucagon-like peptide-1) receptor agonists and SGLT2 (sodium-glucose co-transporter-2) inhibitors. These drugs lower blood sugars, reduce weight and have lower rates of hypoglycemia, she points out.

Another arm of the SLIMM-T2D trial examines the use of an alternate approach to bariatric surgery, the adjustable band procedure, which inserts a band around the upper stomach whose tightness can be

modified. (Earlier research has indicated that Roux-en-Y surgery produces greater weight loss and better [diabetes](#) control than adjustable-band surgery, but also changes hormones differently and presents a different set of complications.) In previously released SLIMM-T2D research, participants given gastric band [surgery](#) or intensive lifestyle management achieved similar lowering of blood sugar levels after one year. Participants given the band saw greater average [weight loss](#) (30 pounds compared to 19 pounds).

The research team at Joslin and BWH is now joining in a larger study known as ARMMS-T2D (Alliance of Randomized Trials of Medicine versus Metabolic Surgery in Type 2 Diabetes). ARMMS-T2D will follow about 240 patients from four smaller-scale randomized controlled trials (including SLIMM-T2D) that compared bariatric surgical procedures with lifestyle interventions. The Joslin/Brigham site for the ARMMS-T2D study is led by Joslin principal investigator Mary-Elizabeth Patti, MD.

**More information:** Donald C. Simonson et al, Clinical and Patient-Centered Outcomes in Obese Type 2 Diabetes Patients 3 Years After Randomization to Roux-en-Y Gastric Bypass Surgery Versus Intensive Lifestyle Management: The SLIMM-T2D Study, *Diabetes Care* (2018). [DOI: 10.2337/dc17-0487](https://doi.org/10.2337/dc17-0487)

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