

# Analysis finds weight-loss surgery may help people with obesity manage high blood pressure

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People with obesity who underwent weight-loss surgery were more likely to control their high blood pressure over a 1-to-5 year follow-period

compared to those who managed their high blood pressure with medications and lifestyle management, according to preliminary research presented at the American Heart Association's [Hypertension Scientific Sessions 2024](#), held in Chicago, September 5–8, 2024.

Based on a combined analysis of data from 18 randomized controlled trials involving more than 1,300 participants, these findings confirm the positive results from previous research, the authors noted.

"Our findings indicate [bariatric surgery](#) is a durable solution for obesity-related hypertension since it results in [high blood pressure](#) remission, or long-term control, while reducing the dependence on [blood pressure medications](#). Additionally, by improving [blood pressure control](#), bariatric surgery also lowers the risk of cardiovascular disease and enhances overall heart health," said study lead author Sneha Annie Sebastian, M.D., a researcher, graduate of Azeezia Medical College in Kerala, India and residency candidate from Alberta, Canada.

Bariatric surgery helps people lose weight by reducing the size of the stomach, so people feel full when eating less and may also include procedures that change the structure of the digestive system so fewer nutrients and calories are absorbed.

According to the 2022 [guidelines](#) from the American Society for Metabolic and Bariatric Surgery and the International Federation for the Surgery of Obesity and Metabolic Disorders, bariatric surgery is recommended for people with a body mass index of  $35 \text{ kg/m}^2$  or higher, regardless of presence, absence or severity of co-morbidities.

The current analysis, combining data from 18 randomized controlled trials in several countries, compared more than 1,300 people with obesity and high blood pressure who were randomly selected to receive either bariatric surgery or a non-surgical, medication or lifestyle

intervention. After an average follow-up period of one to five years, the researchers found that compared to the [control group](#), participants who had weight-loss surgery:

- were 2.77 times more likely to lower their blood pressure to less than 140/90 mm Hg, defined as blood pressure remission, without the need for blood pressure-lowering medication;
- were 7.1 times more likely to lower their blood pressure to less than 130/80 mm Hg, defined as blood pressure control, while substantially reducing their use of blood pressure-lowering medications;
- lowered their systolic (top number) blood pressure by, on average, 3.67 mm Hg, compared to those in the medication and lifestyle management control group.

"Bariatric surgery is an effective solution for managing obesity-related hypertension. Future research should focus on conducting randomized controlled trials with long-term follow-up and large sample sizes, with a specific emphasis on hypertension outcomes, as many currently focus on diabetes outcomes," Sebastian said.

"Furthermore, it is essential to evaluate the efficacy and cost-effectiveness of different bariatric procedures for various patient profiles and to identify optimal candidates for each type of surgery."

Study details, background or design:

- The final analysis included 18 studies with 1,386 participants older than age 18 with obesity (average [body mass index](#) of 38 kg/m<sup>2</sup>), with primary or secondary outcomes reporting the effects of weight-loss surgery on blood pressure. 62.7% of participants identified as women, and 37.3% identified as men.
- The studies were conducted between December 2002 and May

2024.

- People in the bariatric surgery group had any of several procedures that make changes in the digestive system to facilitate weight loss. People in the control group were similar in obesity and high blood pressure but randomly selected for treatment with medication and lifestyle management rather than surgery.
- The authors included multiple types of [weight-loss surgery](#). However, most of the studies focused on Roux-en-Y [gastric bypass](#) and sleeve gastrectomy.
- Data from a subgroup of five studies were analyzed for hypertension remission and the use of medications; four of the five studies had hypertension as the primary outcome. At the beginning of the four studies, participants were taking maximal doses of at least two pressure-lowering medications.

The analysis is limited by differences among the trials in the baseline characteristics of the participants, the [surgical techniques](#) used, how obesity was diagnosed and the length of follow-up. Additionally, many of the studies did not have a large number of participants, and only four of the 18 studies focused on high blood pressure as the primary outcome.

The authors noted that these limitations may impact the generalizability and reproducibility of the findings.

"These findings underscore the beneficial impact of weight loss on blood pressure control—bariatric surgery consistently improved blood pressure control in individuals with obesity. Unfortunately, there are very limited data on the impact of surgical weight loss with the primary outcome of hypertension remission," said Michael E. Hall, M.D., M.S., FAHA, chair of the writing group for the Association's 2021 scientific statement on [weight-loss strategies for prevention and treatment of hypertension](#) and chair of the department of medicine at the University of Mississippi

Medical Center in Jackson, Mississippi.

"Further, given the effectiveness of newer weight loss medications and beneficial effects on cardiometabolic conditions like hypertension, we need randomized clinical studies comparing bariatric surgery to these newer medications to decide which people are better suited for a specific weight-loss strategy," Hall said.

"Overall, bariatric surgery is an effective and durable treatment option for hypertension related to obesity."

**More information:** Moderated Poster Presentation #MP08; Session MPS02 New Paradigm and Lessons learn from Hypertension Clinical Trials in 2024 is Friday, September 6, 2024, at 9:20 a.m. CT.

Provided by American Heart Association

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