

Study identifies weight-loss threshold for heart health in patients with obesity, diabetes

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Steve Nissen, M.D. Credit: Cleveland Clinic

A Cleveland Clinic study shows that 5 to 10 percent of surgically induced weight loss is associated with improved life expectancy and cardiovascular health. In comparison, about 20 percent weight loss is necessary to observe similar benefits with a non-surgical treatment. The findings also show that metabolic surgery may contribute health benefits that are independent of weight loss. The study is published in the October issue of *Annals of Surgery*.

This large observational study looked at 7,201 Cleveland Clinic patients: 1,223 patients with obesity and type 2 diabetes who underwent metabolic [surgery](#) (bariatric or weight loss surgery) were matched to 5,978 patients who received usual medical care. About 80 percent of the patients had hypertension, 74 percent had dyslipidemia (elevated triglycerides and cholesterol), and 31 percent were taking insulin to treat their diabetes.

Using different statistical models, the effects of weight loss were studied to identify the minimum weight loss needed to decrease the risk of death and of experiencing major adverse cardiovascular events, such as coronary artery events, cerebrovascular events, [heart failure](#), kidney disease, and atrial fibrillation.

"Following metabolic surgery, the risk of death and major heart complications appears to decrease after about 5 percent and 10 percent weight loss, respectively. Whereas, in the nonsurgical group, both the risk of death and major cardiovascular complications decreased after losing approximately 20 percent of [body weight](#)," said Ali Aminian, M.D., director of Cleveland Clinic's Bariatric & Metabolic Institute, and lead author of the study.

"This study suggests greater heart disease benefits are achieved with less weight loss following metabolic surgery than medical weight loss using lifestyle interventions. The study findings suggest that there are important benefits of metabolic surgery independent of the weight loss achieved," said Steven Nissen, M.D., Chief Academic Officer of the Heart, Vascular & Thoracic Institute at Cleveland Clinic, and the study's senior author.

The groundbreaking STAMPEDE study showed metabolic surgery's beneficial effects on blood glucose control. Since then, additional studies have observed [health benefits](#) other than weight loss following metabolic surgery. In fact, this research is a secondary analysis of a large study that showed [weight](#)-loss surgery is associated with a 40 percent reduction in risk of death and heart complications in patients with type 2 diabetes and obesity.

Researchers continue to study the physiological changes in the surgically modified gastrointestinal tract, the impact on hormone secretion and the

microbiome. Those beneficial changes may contribute to the cardiovascular and survival benefits of metabolic surgery, independent of [weight loss](#). More research is needed to better understand the underlying mechanisms for the health benefits of [metabolic surgery](#) in patients who have obesity and type 2 diabetes.

More information: Ali Aminian et al, How Much Weight Loss is Required for Cardiovascular Benefits? Insights From a Metabolic Surgery Matched-cohort Study, *Annals of Surgery* (2020).
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