

# Shedding pounds may benefit your heart—even if some weight is regained

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Losing weight with lifestyle changes in an intensive behavioral weight loss program was associated with a decrease in risk factors for cardiovascular disease and Type 2 diabetes for at least five years—even

if some weight was regained, according to a systematic review of research, published today in *Circulation: Cardiovascular Quality and Outcomes*.

People affected by obesity or who are overweight are at increased risk for [high cholesterol](#) and [high blood pressure](#)—factors that heighten risk of [cardiovascular disease](#); as well as insulin resistance, a precursor to Type 2 diabetes. Globally, overweight and obesity contributed to 2.4 million deaths in 2020, according to the [American Heart Association's 2023 Statistical Update](#).

Behavioral [weight loss](#) programs can help people lose and maintain a healthy weight by encouraging lifestyle and behavior changes, such as eating healthy foods and increasing physical activity. Regaining some weight is common after behavioral weight loss programs. Some [observational studies](#) suggest this weight change pattern of weight loss followed by weight regain may increase cardiovascular risk. However, according to the authors of this analysis, data from randomized trials and long-term follow-up studies is lacking.

"Many doctors and patients recognize that weight loss is often followed by weight regain, and they fear that this renders an attempt to lose weight pointless," said study co-senior author Susan A. Jebb, Ph.D., a professor of diet and [population health](#) at the University of Oxford in the United Kingdom. "This concept has become a barrier to offering support to people to lose weight. For people with overweight or obesity issues, losing weight is an effective way to reduce the risk of Type 2 diabetes and cardiovascular disease."

In this review, researchers assessed international scientific studies available in 2018 to compare [risk factors](#) for cardiovascular disease and Type 2 diabetes among people who followed an intensive behavioral weight loss program to those who followed a less intensive or no weight

loss program. The studies in the analysis included diet and/or exercise interventions, partial or total meal replacement, intermittent fasting, or financial incentives contingent on weight loss. The studies took place in a variety of settings and included varying modes of delivery (in person, app-based, telephone, etc.).

Researchers combined the results of 124 studies totaling more than 50,000 participants, with an average follow-up of 28 months. They used the combined results to estimate changes in risk factors for cardiovascular disease and Type 2 diabetes after weight loss. The average weight loss across the different studies ranged from 2-5 kilograms, or 5-10 pounds. Weight regain averaged 0.12 to 0.32 kg (0.26 pounds to 0.7 pounds) a year. Participants were an average age 51 years old, with a body mass index of 33, which is considered obese.

Compared to people in a less intensive program and those in no weight loss program, participants who lost weight through an intensive weight loss program had lower risk factors for cardiovascular disease and Type 2 diabetes. These lower risk factors lasted for at least five years after the weight loss program ended.

Based on pooled results of the studies reviewed, on average:

- Systolic blood pressure, the top number in a blood pressure reading, was 1.5 mm Hg (millimeters of mercury) lower at one year, and 0.4 mm Hg lower at five years after participation in an intensive weight loss program.
- In addition, the percentage of HbA1c, a protein in [red blood cells](#) used to test for diabetes, was reduced by 0.26 at both one and five years after participation in an intensive weight loss program.
- The ratio of total cholesterol to good cholesterol—known as high-density lipoprotein (HDL) cholesterol—was 1.5 points lower one year and five years after participation in an intensive weight loss

program.

These changes are important because they represent improvements at the population level, Jebb explained.

In a preliminary finding, the decreased risk of being diagnosed with cardiovascular disease or Type 2 diabetes also appeared to remain lower even after weight regain. However, few studies followed people for more than 5 years and "more information is needed to confirm whether this potential benefit persists," Jebb said.

"Most trials look at whether new treatments are effective and focus on weight change in the short-term rather than the effect on later disease," Jebb said. "Individual studies are often too small to detect differences between groups in the incidence of cardiovascular conditions because, fortunately, they affect only a small proportion of the whole group, and studies may not continue long enough to see the effects on 'hard' outcomes, such as a new diagnosis of Type 2 diabetes or a heart attack.

"Our findings should provide reassurance that weight loss programs are effective in controlling cardiovascular risk factors and very likely to reduce the incidence of cardiovascular disease," she said.

Evidence suggests that cardiovascular health is improved by following the [American Heart Association's Life's Essential 8](#) health metrics: eating healthy food, being physically active, not smoking, getting enough sleep, maintaining a healthy weight, and controlling cholesterol, blood sugar and blood pressure levels.

The analysis had several limitations: information included in the review was not updated after 2019 and the review focused on research papers published in English, so eligible studies written in other languages may have been missed.

An accompanying editorial notes that much remains to be understood about various weight loss interventions, their long-term impact and how this impact may be diminished by regaining weight. Behavioral weight loss programs constitute the backbone of weight management in clinical practice. However, they are often resource intensive, and emerging medication therapies are expensive, according to editorial authors Vishal N. Rao, M.D., M.P.H., and Neha J. Pagidipati, M.D., M.P.H., both from the division of cardiology at Duke University School of Medicine in Durham, North Carolina.

"The present study has interesting implications for the impact of weight regain that may occur after pharmacologic therapies," they write. "What is still unknown is whether these temporary improvements in weight and cardiometabolic risk factors after [weight](#) loss intervention (behavioral or pharmacological) lead to long-term clinical benefit. In other words, is it better to have lost and regained than never to have lost at all?"

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**More information:** Long-term effect of weight regain following behavioral weight management programs on cardiometabolic disease incidence and risk: systematic review and meta-analysis, *Circulation Cardiovascular Quality and Outcomes* (2023). [DOI: 10.1161/CIRCOUTCOMES.122.009348](https://doi.org/10.1161/CIRCOUTCOMES.122.009348)

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