


Weight management interventions

► Intervention in brief

Rising risk:	Weight management interventions are lifestyle interventions (e.g., diet, physical activity, behavior change support) with the goal of helping obese or overweight patients achieve and maintain a healthy weight and minimize risk factors or symptoms of chronic diseases.
Strength of evidence	 Medium Interventions show inconsistent impacts on clinical quality measures. In many cases, weight loss above 10% is required in order to achieve health benefits. ¹
Impact	<ul style="list-style-type: none"> • Decreased cost: \$1,403 lifetime cost savings per person; ROI of \$16.70:1 • Decreased utilization: None • Improved quality, clinical outcomes: <ul style="list-style-type: none"> • <i>Decreased risk of cardiovascular disease:</i> 20-21% lower risk of cardiovascular disease among patients who lost >10% of baseline body weight vs. control after 10 years • <i>Decreased risk of cardiovascular event:</i> 7% relative reduced risk of developing a cardiovascular event • <i>Decreased mortality:</i> 18% relative reduced mortality over two years • <i>Increased weight loss:</i> Insignificant to 8.6% or 8.76 kg weight loss, 92% greater weight loss than control group after one year, 86% greater weight loss than control after four years • <i>Decreased blood pressure:</i> Insignificant to 9.9 mmHg or 6.8% decreased systolic blood pressure, 59% greater than control after one year, 43% greater than control after four years; insignificant to 4.0 mmHg decreased diastolic blood pressure after one year • <i>Improved lipids:</i> Insignificant to 3.9 mg/dL or 3.4% increased HDL cholesterol, 59% more than control after one year, 46% better than control after four years; insignificant to 4.4 mg/dL decreased LDL cholesterol; insignificant to 15.1 mg/dL decreased total cholesterol; insignificant to 39.0 mg/dL decreased triglycerides after one year • <i>Decreased HbA1c:</i> Insignificant to 1.2% decreased HbA1c, 78% better than control at one year, 75% better than control at four years • <i>Improved fitness:</i> 72% improved mean fitness after one year and 84% after four years compared to the control • <i>Improved management:</i> 49% more patients achieving HbA1c, blood pressure, and LDL goal after one year • Increased access: None • Improved stakeholder satisfaction: None
How to succeed	<p>To build an effective weight management program:</p> <ul style="list-style-type: none"> • Focus primarily on diet (e.g., working with a dietician, calorie counting) and/or behavior change (e.g., feedback, comparing an individual's behavior to others) rather than physical activity, as these interventions have stronger outcomes • Create multifaceted programs that combine multiple weight loss strategies (diet or behavior change, physical activity) rather than taking a single-pronged approach • Track a range of metrics beyond weight loss, such as cholesterol (LDL, HDL, and total), blood pressure (systolic and diastolic), and HbA1c, to capture the program's full range of impacts <p>Although the Advisory Board has not completed in-depth research on weight management programs, external resources may be helpful, including the American College of Preventive Medicine's recommendation, Integrating Effective Weight Management Into Practice, here. Then check out pages S120-S127 of the American Heart Association's 2013 Guideline for the Management of Overweight and Obesity in Adults here.</p>

1) Studies show largely insignificant impacts on cardiovascular health for patients who lose 0-5% of their total body weight, inconsistent impacts for patients who lose 5-10% of their total body weight, but significant impacts for patients who lose >10%.

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► Demonstrated impact

Literature review summary

Title: Cost Effectiveness and Return on Investment of a Scalable Community Weight Loss Intervention

Publication: Preventive Medicine

Date: 2017

Type: Simulation study

Study population: 33,656 adults (men aged 53 years, women aged 54 years) in Denver, Colorado with BMI ≥ 25 when they enrolled in the 12-month community-based weight loss program, Weigh and Win (WAW)

Major findings: \$1,403 reduction in average lifetime cost; 16.70:1 ROI based on estimated lifetime cost savings per person, including from averted cases of coronary heart disease, stroke, type 2 diabetes, colorectal cancer, and breast cancer. ROI is high despite small per-person cost savings due to a low per-participant cost of intervention (\$84).

Source: Full article [here](#).

Title: Effects of Weight Loss Interventions for Adults Who Are Obese on Mortality, Cardiovascular Disease, and Cancer

Publication: The BMJ

Date: 2017

Type: Systematic review and meta-analysis

Study population: 30,206 obese adults involved in 54 randomized controlled trials across North America, Europe, Asia, Australia, and Brazil

Major findings: Despite high heterogeneity, weight management interventions resulted in:

- A relative reduction in mortality over a median of two years (18%)
- A relative reduction in developing new cardiovascular events (7%)
- Weight loss after one year (3.42 kg), two years (2.51 kg), and three or more years (2.56 kg)

Source: Full article [here](#).

Title: Lifestyle Weight-Loss Intervention Outcomes in Overweight and Obese Adults with Type 2 Diabetes

Publication: Journal of Academic Nutrition and Dietetics

Date: 2015

Type: Systematic review and meta-analysis

Study population: 6,754 overweight or obese adults with type 2 diabetes across 11 randomized controlled trials

Major findings: After 12 months, weight loss programs resulted in:

- Insignificant to 8.6% weight loss (8.6kg)
- Insignificant to 1.2% decreased HbA1c
- Insignificant to 15.1 mg/dL decreased total cholesterol
- Insignificant to 4.4 mg/dL decreased LDL cholesterol
- Insignificant to 3.9 mg/dL increased HDL cholesterol
- Insignificant to 39.0 mg/dL decreased triglycerides
- Insignificant to 9.9 mmHg decreased systolic blood pressure
- Insignificant to 4.0 mmHg decreased diastolic blood pressure

Source: Full article [here](#).

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Title: Effect of Behavioural Techniques and Delivery Mode on Effectiveness of Weight Management

Publication: Obesity Reviews

Date: 2014

Type: Systematic review and meta-analysis

Study population: 16,000 patients (68% female) averaging ages 32-70 across 37 studies from the U.S., Australia, Belgium, Brazil, Canada, Finland, Germany, Japan, Netherlands, New Zealand, Portugal, Sweden, Switzerland, Sweden, and the U.K.

Major findings: Weight management programs result in average weight loss of 2.8 kg after 12 months. Data showed that supervised physical activity, more frequent contact, or in-person contact didn't have significant impact on weight loss, while calorie counting, contact with a dietitian, and behavior change involving comparing behavior among participants did have significant impact on weight loss.

Source: Full article [here](#).

Title: Diet or Exercise Interventions vs Combined Behavioral Weight Management Programs: A Systematic Review and Meta-Analysis of Direct Comparisons

Publication: Journal of Academic Nutrition and Dietetics

Date: 2014

Type: Meta-analysis

Study population: 1,022 patients considered overweight or obese across eight randomized controlled trials. Patients averaged ages 32-70 and the majority of patients were women.

Major findings: Combined behavioral weight management programs:

- Reduced weight loss by a mean of 8.76 kg (range of 5.7 kg-13.3 kg)
- Reduced weight loss compared to diet-only programs by 1.72 kg at 12 months
- Reduced weight loss compared to physical activity-only programs by 6.29 kg at 12 months

Source: Full article [here](#).

Weight management interventions

Title: Cardiovascular Effects of Intensive Lifestyle Intervention in Type 2 Diabetes

Publication: New England Journal of Medicine

Date: 2013

Type: Randomized controlled trial

Study population: 5,145 patients aged 45-75 (mean 59 years, 59% female) with type 2 diabetes, body mass index ≥ 25 kg/m², glycated hemoglobin $\leq 11\%$, systolic blood pressure < 160 mmHg, diastolic blood pressure < 100 mmHg, triglyceride level < 600 mg/dl, and ability to complete a maximal exercise test

Major findings: Compared to the control, program participants saw:

- Increased weight loss at one year (8.6 kg or 92%) and four years (86%)
- Improved mean fitness at one year (72%) and four years (84%)
- Lowered HbA1c at one year (0.64 or 78%) and four years (75%)
- Decreased systolic blood pressure at one year (59%) and four years (43%)
- Increased HDL cholesterol at one year (59%) and four years (46%)
- Improved percentage of patients achieving HbA1c, blood pressure, and LDL goals at one year (49%)

Source: Full article [here](#).

Title: Association of the Magnitude of Weight Loss and Changes in Physical Fitness with Long-Term Cardiovascular Disease Outcomes in Overweight or Obese People with Type 2 Diabetes: A Post-hoc Analysis of the Look AHEAD Randomised Clinical Trial

Publication: The Lancet – Diabetes and Endocrinology

Date: 2016

Type: Retrospective analysis

Study population: 5,145 patients aged 45-75 with type 2 diabetes, body mass index ≥ 25 kg/m², glycated hemoglobin $\leq 11\%$, systolic blood pressure < 160 mmHg, diastolic blood pressure < 100 mmHg, triglyceride level < 600 mg/dl, and ability to complete a maximal exercise test. The mean age was 59 years and 59% of participants were women.

Major findings: Compared to the control group, the intervention lowered risk of cardiovascular disease by 20% and cardiovascular disease requiring surgical intervention by 21% for program participants who lost more than 10% of their baseline bodyweight.

Source: Full article [here](#).

*Note: Both studies analyze the same randomized controlled trial, Look AHEAD.

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Appendix

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