

JAMA Clinical Guidelines Synopsis

July 11, 2022

Obesity and Weight Management for Prevention and Treatment of Type 2 Diabetes

Cherry Jiang, MD¹; Adam S. Cifu, MD¹; Susan Sam, MD¹

[Author Affiliations](#) [Article Information](#)

JAMA. Published online July 11, 2022. doi:10.1001/jama.2022.10338

Guideline title Obesity and Weight Management for the Prevention and Treatment of Type 2 Diabetes: Standards of Medical Care in Diabetes—2022

Developer American Diabetes Association (ADA)

Release date January 1, 2022

Prior versions January 1, 2021 (annually), as part of Standards of Medical Care in Diabetes

Funding source ADA

Target population Adult patients with type 2 diabetes and obesity

Major recommendations

- Diet, physical activity, and behavioral therapy should be designed to achieve and maintain at least 5% weight loss. Additional weight loss usually results in further improvements in control of diabetes and cardiovascular risk (level of evidence B).

- Interventions to achieve weight loss should include a high frequency of counseling (≥ 16 sessions in 6 months) to achieve a 500- to 750-kcal/d energy deficit (level of evidence A).
- When selecting glucose-lowering medications for people with type 2 diabetes and overweight or obesity, consider the effect of medications on weight (level of evidence B).
- Weight loss medications are effective as adjuncts to diet, physical activity, and behavioral counseling for selected people with type 2 diabetes and body mass index (BMI) of at least 27 (level of evidence A).
- Metabolic surgery should be a recommended option to treat type 2 diabetes in those with BMI of at least 40 (≥ 37.5 in Asian American individuals) and in those with BMI of 30 to 39.9 (32.5-37.5 in Asian American individuals) who do not achieve durable weight loss or improvement in comorbidities with nonsurgical methods (level of evidence A).

Summary of the Clinical Problem

Type 2 diabetes is a disease characterized by insulin resistance and pancreatic β -cell dysfunction resulting in hyperglycemia. An estimated 34 million people in the US (about 1 in 10) have diabetes, of whom an estimated 90% to 95% have type 2 diabetes.¹ The risk of type 2 diabetes increases with obesity, and weight loss is associated with improved glycemic control. Both obesity and type 2 diabetes increase risk of cardiovascular disease, a leading cause of death in the US.

Characteristics of the Guideline Source

This guideline ([Table](#)) was developed by the nonprofit ADA.² The ADA Professional Practice Committee, a multidisciplinary group, is appointed to review and update the Standards of Care document annually. Although the ADA has corporate sponsors including major pharmaceutical companies, the ADA funds development of its Standards of Care out of general revenues and does not use industry funds for this purpose. The Professional Practice Committee for this guideline included physicians, nurses, and dietitians who are experts in diabetes care and education. Members were required to disclose potential conflicts of interest but the consequences of conflicts were not discussed. Several members were consultants or part of advisory boards of pharmaceutical companies. The committee performed literature searches supplemented by input from ADA staff and the medical community at large. Formal systematic reviews were not part of the process. Important updates based on new evidence were considered for inclusion midcycle.

Evidence Base

For this guideline, each recommendation was assigned a rating of A (clear or supportive evidence from well-conducted randomized clinical trials [RCTs] or meta-analyses with adequate power; compelling nonexperimental evidence [eg, “all or none” rule]), B (supportive evidence from well-conducted cohort or case-control studies), C (supportive evidence from poorly controlled or uncontrolled studies; conflicting evidence with weight of evidence supporting recommendation), or E (expert consensus or clinical experience).

The guideline recommended nonpharmacologic interventions such as diet, physical activity, and behavioral therapy to achieve and maintain at least 5% weight loss. This recommendation was based on findings from a systematic review on the association of lifestyle weight-loss intervention outcomes with hemoglobin A_{1c} levels, blood pressure, and lipids in people with obesity and type 2 diabetes.³ Improvement in these end points was noted in only 2 of 11 trials. The 2 positive trials restricted caloric intake to 1200 to 1800 kcal/d and provided weekly to monthly in-person support for the first 6 months. The guidelines’ recommendation for a high frequency of counseling (≥16 sessions in 6 months) to achieve a 500- to 750-kcal/d energy deficit was based on the findings from these 2 RCTs as well.

Pharmacotherapy for treatment of type 2 diabetes can be associated with changes in body weight. The ADA guidelines recommended consideration of the agent’s effects on body weight when treating individual patients. Metformin, glucagon-like peptide 1 agonists, sodium-glucose cotransporter 2 inhibitors, α-glucosidase inhibitors, and amylin mimetics are associated with varying degrees of weight loss, whereas insulin, insulin secretagogues, and thiazolidinediones are associated with weight gain. However, a meta-analysis that demonstrated no difference in efficacy of different classes of medications on lowering hemoglobin A_{1c} and BMI based on baseline BMI suggests that individuals with obesity benefit from the same types of hypoglycemic treatments as individuals with normal weight.⁴ The B rating reflects that at this time there is no evidence from RCTs to support considering weight in the selection of medications for treatment of type 2 diabetes.

Several medications are approved by the US Food and Drug Administration for weight management. Phentermine is approved for short-term use (≤12 weeks) and orlistat, extended-release phentermine-topiramate, extended-release naltrexone-bupropion, liraglutide, 3.0 mg, and semaglutide, 2.4 mg, are approved for long-term use (>12 weeks). All are associated with at least 5% weight loss.²

Metabolic surgery was recommended as an option to treat type 2 diabetes in people who are overweight who do not achieve durable weight loss or improvement in comorbidities with nonsurgical methods. Several RCTs have shown larger improvements in glycemic control with surgical vs medical management. A meta-analysis of matched cohort and prospective controlled studies has shown lower all-cause mortality with metabolic

surgery, especially in individuals with preexisting diabetes.⁵⁻⁷ Adverse events include nutritional deficiencies, post–bariatric surgery hypoglycemia, and gastrointestinal risks (eg, dumping syndrome).

Benefits and Harms

Use of evidence-based guidelines to manage weight in treatment of type 2 diabetes should be associated with improved glycemic control and cardiovascular risk. These guidelines may be harmful in that they emphasize treating patients with obesity, who experience weight bias, differently from other patients.

Discussion

These ADA guidelines are similar to the 2016 American Association of Clinical Endocrinologists (AACE) and American College of Endocrinology (ACE) comprehensive clinical practice guidelines for obesity management.⁸ Both guidelines recommend lifestyle changes, including a reduced-calorie meal plan and physical activity with a weight loss target of 5% to 15% or more, weight loss medications as an adjunct to lifestyle changes, and bariatric surgery if nonsurgical interventions fail to achieve weight loss. The AACE/ACE guidelines also recommend using diabetes medications that are associated with weight loss or are weight neutral if possible.

Areas in Need of Future Study or Ongoing Research

Future investigation is needed in the selection of type 2 diabetes medications in people who are overweight or obese. Additional studies are needed on the long-term effectiveness and safety of weight loss medications and metabolic surgery and the cost of these treatments