

Type 1 and Type 2 Adult Diabetes Update 2024

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Disclosures

- No disclosures
- I am a full-time employee of the private, non-profit health sciences university, Pacific Northwest University of Health Sciences (PNWU), in Yakima WA.

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Abbreviations Used

- PWD = people or person with diabetes
- T1D = type 1 diabetes
- T2D = type 2 diabetes
- ADA SOC = American Diabetes Association Standards of Care
- Post-prandial = generally, 2-4 hours after food consumption
- Fasting = no food or calorie intake for at least 8 hours
- SMBG = self-monitoring of blood glucose
- DSMES = diabetes self-management education and support
- MNT = Medical Nutrition Therapy; only can be provided and billed by registered dietitian nutritionists

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Learning Objectives

1. Describe the recent changes to the ADA Standards of Care in Diabetes – 2024
2. Discuss how to avoid therapeutic inertia when treating obesity and using measures outside of BMI
3. Describe how to effectively incorporate behavioral and lifestyle considerations into treatment plans for adults with type 1 or type 2 diabetes (via cases)
4. Describe the use of the 5As in the implementation of a behavior change conversation

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Introduction to Case 1

45-year-old female, CJ, with long-history of type 2 diabetes, requiring insulin for 10+ years

Busy working mom with 3 kids and a spouse. Self-identifies as Mexican American and states that cultural foods are very important to her.

Taking metformin (1000mg twice daily), 15 units of aspart with each meal (3x/day), plus 100 units of glargine, daily.

Initial A1C 10.5%. BMI 29.5.

Eats 4-5 flour tortillas per meal, three times per day, sometimes with beans, meat, eggs, and/or vegetables. Also eats Mexican rice (about 1 C) 2-3 times per week. Rarely eats fruit.

Avoids juices, soda, and alcohol.

No physical activity outside of work as a fruit packer (40+ hours per week).

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Introduction to Case 2

Upon meeting, KT explains she just moved to the area after finishing grad school. She is 30 years old.

Works full-time as information technology director for a large tech company. Works long hours (sometimes more than 55 hrs per week), mostly sitting in front of a computer or in meetings.

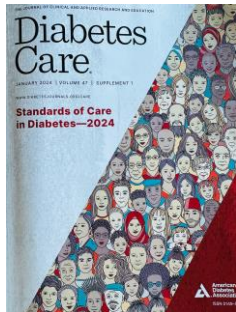
She is single and lives alone. She was diagnosed with type 1 diabetes at the age of 18. She currently uses an insulin pump with CGM and has a total daily dose of 65 units per day. Her insulin to carb ratio is 1 unit per every 10 grams of carbs. She is 5'5" and weighs 162 lbs. BMI 27. Weight has been stable for several years. Most recent A1C was 8.7%.

KT is sedentary and dislikes sports/exercise – she's held this view "since she was a kid" and prefers to do gaming on her PS5, watch TikTok, or read a good fantasy novel in her spare time.

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https://diabetesjournals.org/care/issue/47/Supplement_1

<https://diabetesjournals.org/clinical/issue/41/1>

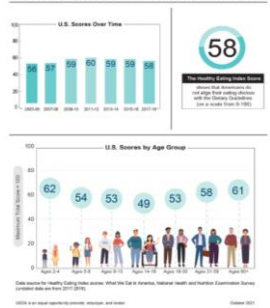


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How well do we meet recommendations for activity and eating?

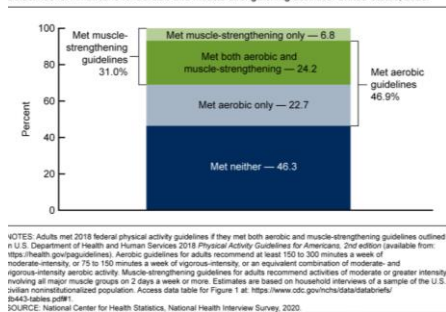
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How Healthy Is the American Diet?



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Figure 1. Percent distribution of adults aged 18 and over who met 2018 Physical Activity Guidelines for Americans for aerobic and muscle-strengthening activities. United States, 2020



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Are your patients getting diabetes self-management education and support (DSMES)?

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Healthy People 2030

Home > Objectives and Data > Disease Objectives > Diabetes > Increase the proportion of people with diabetes who get formal diabetes education - D-06 > Increase the proportion of people with diabetes who get formal diabetes education - Data

Increase the proportion of people with diabetes who get formal diabetes education - D-06

Data

Objective Overview

Status: Little or no detectable change ⓘ Learn more about our data release schedule

Most Recent Data: 55.1 percent (2019)* Target: 55.2 percent* Desired Direction: Increase desired

Baseline: 51.7 percent of adults aged 18 years and over with diagnosed diabetes ever had received formal diabetes self-management education and support (DSMES) in 2017*

* Age adjusted to the year 2000 standard population.

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Evidence-based Meal Patterns for Persons with or at risk for Diabetes

Alison B. Evert, Michelle Dennison, Christopher D. Gardner, W. Timothy Garvey, Ka Hei Karen Lau, Janice MacLeod, Joanna Mitrì, Raquel F. Pereira, Kelly Rawlings, Shamera Robinson, Laura Saslow, Sacha Uelmen, Patrícia B. Urbanski, William S. Yancy; Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report. *Diabetes Care* 1 May 2019; 42 (5): 731–754. <https://doi.org/10.2337/dci19-0014>

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Eating Patterns and Diabetes-related Effects

Mediterranean-style (69,76,85–91)	Emphasizes plant-based food (vegetables, beans, nuts and seeds, fruits, and whole intact grains); fish and other seafood; olive oil as the principal source of dietary fat; dairy products (mainly yogurt and cheese) in low to moderate amounts, typically fewer than 4 eggs/week; red meat in low-frequency and amounts; wine in low to moderate amounts; and concentrated sugars or honey rarely.	<ul style="list-style-type: none"> • Reduced risk of diabetes • A1C reduction • Lowered triglycerides • Reduced risk of major cardiovascular events
Vegetarian or vegan (77–80,92–99)	The two most common approaches found in the literature emphasize plant-based vegetarian eating devoid of all flesh foods but including egg (ovo) and/or dairy (lacto) products, or vegan eating devoid of all flesh foods and animal-derived products.	<ul style="list-style-type: none"> • Reduced risk of diabetes • A1C reduction • Weight loss • Lowered LDL-C and non-HDL-C
Low-fat (26,45,80,83,100–106)	Emphasizes vegetables, fruits, starches (e.g., breads/crackers, pasta, whole intact grains, starchy vegetables), lean protein sources (including beans), and low-fat dairy products. In this review, defined as total fat intake $\leq 30\%$ of total calories and saturated fat intake $\leq 10\%$.	<ul style="list-style-type: none"> • Reduced risk of diabetes • Weight loss
Very low-fat (107–109)	Emphasizes fiber-rich vegetables, beans, fruits, whole intact grains, nonfat dairy, fish, and egg whites and comprises 70–77% carbohydrate (including 30–60 g fiber), 10% fat, 13–20% protein.	<ul style="list-style-type: none"> • Weight loss • Lowered blood pressure

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Low-carbohydrate (110–112)	Emphasizes vegetables low in carbohydrate (such as salad greens, broccoli, cauliflower, cucumber, cabbage, and others); fat from animal foods, oils, butter, and avocado; and protein in the form of meat, poultry, fish, shellfish, eggs, cheese, nuts, and seeds. Some plans include fruit (e.g., berries) and a greater array of nonstarchy vegetables. Avoids starchy and sugary foods such as pasta, rice, potatoes, bread, and sweets. There is inconsistent definition of “low” carbohydrate. In this review, a low-carbohydrate eating pattern is defined as reducing carbohydrates to 26–45% of total calories.	<ul style="list-style-type: none"> • A1C reduction • Weight loss • Lowered blood pressure • Increased HDL-C and lowered triglycerides
Very low-carbohydrate (VLC) (110–112)	Similar to low-carbohydrate pattern but further limits carbohydrate-containing foods, and meals typically derive more than half of calories from fat. Often has a goal of 20–50 g of nonfiber carbohydrate per day to induce nutritional ketosis. In this review a VLC eating pattern is defined as reducing carbohydrate to $\leq 26\%$ of total calories.	<ul style="list-style-type: none"> • A1C reduction • Weight loss • Lowered blood pressure • Increased HDL-C and lowered triglycerides

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Dietary Approaches to Stop Hypertension (DASH) (81,118,119)	Emphasizes vegetables, fruits, and low-fat dairy products; includes whole intact grains, poultry, fish, and nuts; reduced in saturated fat, red meat, sweets, and sugar-containing beverages. May also be reduced in sodium.	<ul style="list-style-type: none"> • Reduced risk of diabetes • Weight loss • Lowered blood pressure
Paleo (120-122)	Emphasizes foods theoretically eaten regularly during early human evolution, such as lean meat, fish, shellfish, vegetables, eggs, nuts, and berries. Avoids grains, dairy, salt, refined fats, and sugar.	<ul style="list-style-type: none"> • Mixed results • Inconclusive evidence

*Source: RCTs, meta-analyses, observational studies, nonrandomized single-arm studies, cohort studies. USDA, U.S. Department of Agriculture.

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What is “low carb”?

Table 4

Quick reference conversion of percent calories from carbohydrate shown in grams per day as reported in the research reviewed for this report

Calories	10%	20%	30%	40%	50%	60%	70%
1,200	30 g	60 g	90 g	120 g	150 g	180 g	210 g
1,500	38 g	75 g	113 g	150 g	188 g	225 g	263 g
2,000	50 g	100 g	150 g	200 g	250 g	300 g	350 g
2,500	63 g	125 g	188 g	250 g	313 g	375 g	438 g

Alison B. Evert, et al. Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report. Diabetes Care. 1 May 2019; 42 (5): 731–754. <https://doi.org/10.2337/dci19-0014>

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Weight Loss Guidelines and Overcoming Therapeutic Inertia

- Significant weight loss can be attained with lifestyle programs that achieve a 500–750 kcal/day energy deficit
 - Approx. 1,200–1,500 kcal/day for women and 1,500–1,800 kcal/day for men
- The specific type of meal plan can vary
- Regardless of the eating pattern used, long-term follow-up and support from the diabetes care team are needed to optimize self-efficacy and maintain behavioral changes.

8.18 To prevent therapeutic inertia, for those not reaching goals, reevaluate weight management therapies and intensify treatment with additional approaches (e.g., metabolic surgery, additional pharmacologic agents, and structured lifestyle management programs). A

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Nutrition, Physical Activity, and Behavioral Therapy Recommendations

8.7 Nutrition, physical activity, and behavioral therapy to achieve and maintain $\geq 5\%$ weight loss are recommended for people with type 2 diabetes and overweight or obesity. **B**

8.8a Interventions including high frequency of counseling (≥ 16 sessions in 6 months) with focus on nutrition changes, physical activity, and behavioral strategies to achieve a 500–750 kcal/day energy deficit have been shown to be beneficial for weight loss and should be considered when available. **A**

8.8b Consider structured programs delivering behavioral counseling (face-to-face or remote) to address barriers to access. **E**

8.9 Nutrition recommendations should be individualized to the person’s preferences and nutritional needs. Use nutritional plans that create an energy deficit, regardless of macronutrient composition, to achieve weight loss. **A**

8.10 When developing a plan of care, consider systemic, structural, and socioeconomic factors that may impact nutrition patterns and food choices, such as food insecurity and hunger, access to healthful food options, cultural circumstances, and other social determinants of health. **C**

Diabetes Care 2024;47(Supplement_1):S145–S157. <https://doi.org/10.2337/dc24-S008>

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8.11a For those who achieve weight loss goals, long-term (≥ 1 year) weight maintenance programs are recommended, when available. Effective programs provide monthly contact and support, recommend ongoing monitoring of body weight (weekly or more frequently) and other self-monitoring strategies, and encourage regular physical activity (200–300 min/week). **A**

8.11b For those who achieve weight loss goals, continue to monitor progress periodically, provide ongoing support, and recommend continuing adopted interventions to maintain goals long term. **E**

8.12 When short-term nutrition intervention using structured, very-low-calorie meals (800–1,000 kcal/day) is considered, it should be prescribed to carefully selected individuals by trained practitioners in medical settings with close monitoring. Long-term, comprehensive weight maintenance strategies and counseling should be integrated to maintain weight loss. **B**

8.13 Nutritional supplements have not been shown to be effective for weight loss and are not recommended. **A**

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Eight-year weight losses with an intensive lifestyle intervention: The look AHEAD study

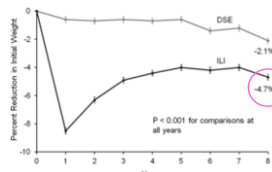
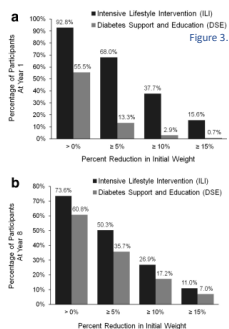


Figure 2

Approximately 50% of intensive lifestyle intervention participants lost $\geq 5\%$ and 27% lost $\geq 10\%$ of their initial body weight at 8 years.

Obesity, Volume 22, Issue 1, pages 5–13, 11 JAN 2014 DOI: 10.1002/oby.20662 <http://onlinelibrary.wiley.com/doi/10.1002/oby.20662/full>

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▪ **Look AHEAD confirmed feasibility of achieving and maintaining long-term weight loss in PW T2D**

- Intensive lifestyle intervention (ILI) group had mean weight loss was 4.7% at 8 years
 - Approx. 50% of ILI participants lost and maintained ≥5% of their initial body weight
 - 27% lost and maintained ≥10% of their initial body weight at 8 years
 - Required fewer glucose-, blood pressure-, and lipid-lowering medications than standard care group
- Secondary analyses of Look AHEAD trial and other large CV outcome studies document additional weight loss benefits in people with type 2 diabetes (e.g., improved mobility, physical/sexual function, and health-related quality of life)

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▪ **We are encouraged to engage in person-centered collaborative care**

- shared decision-making in treatment plan selection;
- facilitation of obtaining medical, behavioral, psychosocial, and technology resources as needed; and
- shared monitoring of agreed-upon treatment plans and behavioral goals
- Based on behavioral change theories

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- Obesity is a chronic, often relapsing disease with numerous metabolic, physical, and psychosocial complications, including a substantially increased risk for type 2 diabetes
- Strong and consistent evidence shows obesity management can delay progression from prediabetes to T2D and is highly beneficial in treating type 2 diabetes
- In PW T2D and overweight or obesity, modest weight loss improves glycemia and reduces need for glucose-lowering medications
- Larger weight loss substantially reduces A1C and fasting glucose and may promote sustained diabetes remission
- Metabolic surgery (average >20% of wt loss), strongly improves glycemia
 - often leads to remission of diabetes, improved quality of life, improved cardiovascular outcomes, and reduced mortality

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8.1 Use person-centered, nonjudgmental language that fosters collaboration between individuals and health care professionals, including person-first language (e.g., “person with obesity” rather than “obese person” and “person with diabetes” rather than “diabetic person”). E

8.2a To support the diagnosis of obesity, measure height and weight to calculate BMI and perform additional measurements of body fat distribution, like waist circumference, waist-to-hip ratio, and/or waist-to-height ratio. E

8.2b Monitor obesity-related anthropometric measurements at least annually to inform treatment considerations. E

8.3 Accommodations should be made to provide privacy during anthropometric measurements. E

8.4 In people with type 2 diabetes and overweight or obesity, weight management should represent a primary goal of treatment along with glycemic management. A

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8.5 People with diabetes and overweight or obesity may benefit from any magnitude of weight loss. Weight loss of 3–7% of baseline weight improves glycemia and other intermediate cardiovascular risk factors. A Sustained loss of >10% of body weight usually confers greater benefits, including disease-modifying effects and possible remission of type 2 diabetes, and may improve long-term cardiovascular outcomes and mortality. B

8.6 Individualize initial treatment approaches for obesity (i.e., lifestyle and nutritional therapy, pharmacologic agents, or metabolic surgery) A based on the person’s medical history, life circumstances, preferences, and motivation. C Consider combining treatment approaches if appropriate. E

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Pharmacotherapy Recommendations for Obesity and Weight Management

8.14 Whenever possible, minimize medications for comorbid conditions that are associated with weight gain. E

8.15 When choosing glucose-lowering medications for people with type 2 diabetes and overweight or obesity, prioritize medications with beneficial effect on weight. B

8.16 Obesity pharmacotherapy should be considered for people with diabetes and overweight or obesity along with lifestyle changes. Potential benefits and risks must be considered. A

8.17 In people with diabetes and overweight or obesity, the preferred pharmacotherapy should be a glucagon-like peptide 1 receptor agonist or dual glucose-dependent insulinotropic polypeptide and glucagon-like peptide 1 receptor agonist with greater weight loss efficacy (i.e., semaglutide or tirzepatide), especially considering their added weight-independent benefits (e.g., glycemic and cardiometabolic). A

8.18 To prevent therapeutic inertia, for those not reaching goals, reevaluate weight management therapies and intensify treatment with additional approaches (e.g., metabolic surgery, additional pharmacologic agents, and structured lifestyle management programs). A

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Thank you –
Questions?

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Citations and Resources

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