POSITIVITY AND PREVENTION: POSITIVE HEALTH BEHAVIORS AND WELL-BEING FOR THE PERSON LIVING WITH DIABETES, PREDIABETES, AND OBESITY

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DISCLOSURES:

- Speaker Bureau- Abbott, Novo Nordisk, Xeris
- Advisory Board- Corcept, Xeris

LEARNING OBJECTIVES:

Define	Assessing and diagnosing prediabetes and diabetes
Discuss	Lifestyle changes and behaviors to delay diabetes and comorbidities
Evaluate	Recommended lifestyle intervention and education to improve diabetes outcomes

DIAGNOSING AND CLASSIFYING DIABETES

DIAGNOSTIC TESTS FOR DIABETES

- **Recommendations**
- **2.1a** Diagnose diabetes based on A1C or plasma glucose criteria, either the fasting plasma glucose (FPG) value, 2-h plasma glucose (2-h PG) value during a 75-g oral glucose tolerance test (OGTT), or random glucose value accompanied by classic hyperglycemic symptoms/crises criteria. A
- **2.1b** In the absence of unequivocal hyperglycemia (e.g., hyperglycemic crises), diagnosis requires confirmatory testing. **A**

American Diabetes Association Professional Practice Committee; 2. Diagnosis and Classification of Diabetes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S20–S42. https://doi.org/10.2337/dc24-S002

CRITERIA DEFINING PREDIABETES IN NONPREGNANT INDIVIDUALS

Criteria defining prediabetes in nonpregnant individuals
A1C 5.7-6.4%
OR
FPG 100 mg/dl to 125 mg/dl
OR
2-h PG during 75-g OGTT 140 mg/dl to 199 mg/dl
For all three tests, risk is continuous, extending below the lower limit of the range and becoming disproportionately greater at the higher end of the range.

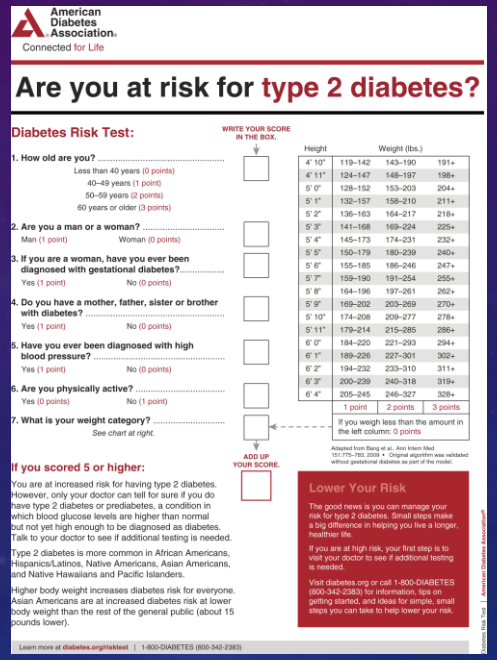
American Diabetes Association Professional Practice Committee; 2. Diagnosis and Classification of Diabetes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S20–S42. https://doi.org/10.2337/dc24-S002

CRITERIA FOR THE DIAGNOSIS OF DIABETES IN NONPREGNANT INDIVIDUALS

Criteria for the diagnosis of diabetes in nonpregnant individuals
A1C ≥ 6.5%. The test should be performed in a laboratory using a method that is NGSP certified and standardized to the DCCT assay*
OR
FPG ≥ 126 mg/dl. Fasting is defined as no caloric intake for at least 8 h*
OR
2-h PG ≥ 200 mg/dl during OGTT. The test should be performed as described by the WHO, using a glucose load containing the equivalent of 75 g anhydrous glucose dissolved in water.*
OR
In an individual with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥ 200 mg/dl. Random is any time of the day without regard to time since previous meal.
*In the absence of unequivocal hyperglycemia, diagnosis requires two abnormal test results obtained at the same time (e.g., A1C and FPG) or at two different time points.

From: **2. Diagnosis and Classification of Diabetes: Standards of Care in Diabetes—2024**

Diabetes Care. 2023;47(Supplement_1):S20-S42. doi:10.2337/dc24-S002



American Diabetes Association®
Connected for Life

Are you at risk for type 2 diabetes?

Diabetes Risk Test:

WRITE YOUR SCORE IN THE BOX.

1. How old are you?
   - Less than 40 years (0 points)
   - 40–49 years (1 point)
   - 50–59 years (2 points)
   - 60 years or older (3 points)
2. Are you a man or a woman?
   - Man (1 point)
   - Woman (0 points)
3. If you are a woman, have you ever been diagnosed with gestational diabetes?
   - Yes (1 point)
   - No (0 points)
4. Do you have a mother, father, sister or brother with diabetes?
   - Yes (1 point)
   - No (0 points)
5. Have you ever been diagnosed with high blood pressure?
   - Yes (1 point)
   - No (0 points)
6. Are you physically active?
   - Yes (0 points)
   - No (1 point)
7. What is your weight category?
   - *See chart at right.*

Height	Weight (lbs.)		
4' 10"	119–142	143–190	191+
4' 11"	124–147	148–197	198+
5' 0"	128–152	153–203	204+
5' 1"	132–157	158–210	211+
5' 2"	136–163	164–217	218+
5' 3"	141–168	169–224	225+
5' 4"	145–173	174–231	232+
5' 5"	150–179	180–239	240+
5' 6"	155–185	186–246	247+
5' 7"	159–190	191–254	255+
5' 8"	164–196	197–261	262+
5' 9"	169–202	203–269	270+
5' 10"	174–208	209–277	278+
5' 11"	179–214	215–285	286+
6' 0"	184–220	221–293	294+
6' 1"	189–226	227–301	302+
6' 2"	194–232	233–310	311+
6' 3"	200–239	240–318	319+
6' 4"	205–245	246–327	328+
	1 point	2 points	3 points

If you weigh less than the amount in the left column: 0 points

Adapted from Bang et al., Ann Intern Med 151:775–783, 2009 • Original algorithm was validated without gestational diabetes as part of the model.

ADD UP YOUR SCORE.

If you scored 5 or higher:

You are at increased risk for having type 2 diabetes. However, only your doctor can tell for sure if you do have type 2 diabetes or prediabetes, a condition in which blood glucose levels are higher than normal but not yet high enough to be diagnosed as diabetes. Talk to your doctor to see if additional testing is needed.

Type 2 diabetes is more common in African Americans, Hispanics/Latinos, Native Americans, Asian Americans, and Native Hawaiians and Pacific Islanders.

Higher body weight increases diabetes risk for everyone. Asian Americans are at increased diabetes risk at lower body weight than the rest of the general public (about 15 pounds lower).

Lower Your Risk

The good news is you can manage your risk for type 2 diabetes. Small steps make a big difference in helping you live a longer, healthier life.

If you are at high risk, your first step is to visit your doctor to see if additional testing is needed.

Visit diabetes.org or call 1-800-DIABETES (800-342-2383) for information, tips on getting started, and ideas for simple, small steps you can take to help lower your risk.

Learn more at diabetes.org/risktest | 1-800-DIABETES (800-342-2383)

Source: Risk Test | American Diabetes Association®

Figure Legend:

ADA risk test (diabetes.org/socrisktest).

CLASSIFICATION OF DIABETES

1. Type 1 diabetes (due to autoimmune β-cell destruction, usually leading to absolute insulin deficiency, including latent autoimmune diabetes in adults)
2. Type 2 diabetes (due to a non-autoimmune progressive loss of adequate β-cell insulin secretion, frequently on the background of insulin resistance and metabolic syndrome)
3. Specific types of diabetes due to other causes, e.g., monogenic diabetes syndromes (such as neonatal diabetes and maturity-onset diabetes of the young), diseases of the exocrine pancreas (such as cystic fibrosis and pancreatitis), and drug- or chemical-induced diabetes (such as with glucocorticoid use, in the treatment of people with HIV, or after organ transplantation)
4. Gestational diabetes mellitus (diabetes diagnosed in the second or third trimester of pregnancy that was not clearly overt diabetes prior to gestation or other types of diabetes occurring throughout pregnancy, such as type 1 diabetes).

American Diabetes Association Professional Practice Committee; 2. Diagnosis and Classification of Diabetes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S20–S42. https://doi.org/10.2337/dc24-S002

SCREENING FOR PREDIABETES AND T2DM

1. Adults with overweight or obesity who have one or more of the following risk factors:

   First-degree relative with diabetes, High-risk race and ethnicity (African American, Latino, Native American, Asian American, Pacific Islander), History of CV Disease, Hypertension, HDL < 35 and/or TG > 250, PCOS, physical inactivity, acanthosis nigricans, severe obesity

2. People with prediabetes (A1C≥ 5.7%, IGT, IFG) should be tested yearly
3. People who were diagnosed with GDM should have lifelong testing at least every 3 years
4. For all other people, testing should begin at the age of 35 years
5. If normal, testing should be repeated at a minimum of 3-year intervals, with consideration of more frequent testing depending on initial results and risk status
6. People with HIV, exposure to high-risk medicines, history of pancreatitis

American Diabetes Association Professional Practice Committee; 2. Diagnosis and Classification of Diabetes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S20–S42. https://doi.org/10.2337/dc24-S002

ADA STANDARDS FOR MONITORING PROGRESSION

- **Recommendations**
- **3.1** In people with prediabetes, monitor for the development of type 2 diabetes at least annually; modify based on individual risk assessment. **E**

- **3.2** In people with preclinical type 1 diabetes, monitor for disease progression using A1C approximately every 6 months and 75-g oral glucose tolerance test (i.e., fasting and 2-h plasma glucose) annually; modify frequency of monitoring based on individual risk assessment based on age, number and type of autoantibodies, and glycemic metrics. **E**

American Diabetes Association Professional Practice Committee; 3. Prevention or Delay of Diabetes and Associated Comorbidities: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S43–S51. https://doi.org/10.2337/dc24-S003

PREVENTION OR DELAY OF DIABETES AND ASSOCIATED COMORBIDITIES

LIFESTYLE BEHAVIOR CHANGE FOR DIABETES PREVENTION

- Refer high-risk for type 2 DM to intensive lifestyle behavior change program
  - Achieve and maintain weight reduction of at least 7%
- Healthy reduced-calorie diet and ≥ 150 min/week of moderate-intensity physical activity
- A variety of eating patterns can be considered to prevent type 2 diabetes
- Given cost-effectiveness of lifestyle behavior modification programs, they should be offered to adults at high risk of type 2 DM
- Diabetes prevention programs should be covered by third-party payers
- Based on individual preference, certified technology-assisted diabetes prevention programs may be effective in preventing type 2 diabetes and should be considered

American Diabetes Association Professional Practice Committee; 3. Prevention or Delay of Diabetes and Associated Comorbidities: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S43–S51. https://doi.org/10.2337/dc24-S003

Knowler WC Barrett-Connor E, Fowler SE, et al.; Diabetes Prevention Program Research GroupReduction in the incidence of type 2 diabetes with lifestyle intervention or metformin *N Engl J Me*2002346393403

DIABETES PREVENTION PROGRAM TRIAL

- **Intervention groups:**
- Participants were randomly assigned to either a lifestyle modification program focused on weight loss and physical activity, a metformin medication group, or a placebo group.
- **Results:**
- Compared to placebo, the lifestyle intervention led to a 58% reduction in the incidence of type 2 diabetes, while metformin reduced the risk by 31%.
- **Significance:**
- This study provided strong evidence that lifestyle changes, including diet and exercise, are highly effective in preventing type 2 diabetes, even more so than medication like metformin in some cases.

NUTRITION

DPP nutrition included reduction of total dietary fat and calories

Evidence suggests not an ideal percentage of calories from carbohydrate, protein, and fat for all people to prevent diabetes

Macronutrient distribution should be based on an individualized assessment of current eating patterns, preferences, and metabolic goals

Mediterranean-style and low-carbohydrate eating plans have also been found beneficial in trials

Vegetarian, plant-based, and DASH eating patterns have been beneficial in observational studies

Emphasis of whole grains, legumes, nuts, fruits, and vegetables and minimal refined and processed foods

American Diabetes Association Professional Practice Committee; 3. Prevention or Delay of Diabetes and Associated Comorbidities: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S43–S51. https://doi.org/10.2337/dc24-S003

PHYSICAL ACTIVITY

- Moderate-intensity physical activity such as 150 minutes/week of brisk walking shows benefits
- DPP Trial incorporated 150 minutes of physical activity in the lifestyle group
- Moderate-intensity physical activity is physical activity that makes you breathe harder, raises your heart rate, and makes you sweat, but you can still talk. You should be able to talk, but not sing during moderate-intensity activity

American Diabetes Association Professional Practice Committee; 3. Prevention or Delay of Diabetes and Associated Comorbidities: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S43–S51. https://doi.org/10.2337/dc24-S003

PHARMACOLOGIC INTERVENTIONS FOR PREVENTION

- **Recommendations**
- **3.7** Metformin for the prevention of type 2 diabetes should be considered in adults at high risk of type 2 diabetes, as typified by the DPP, especially those aged 25–59 years with BMI ≥35 kg/m^2, higher fasting plasma glucose (e.g., ≥110 mg/dL [≥6 mmol/L]), and higher A1C (e.g., ≥6.0% [≥42 mmol/mol]), and in individuals with prior gestational diabetes mellitus. **A**
- **3.8** Long-term use of metformin may be associated with vitamin B12 deficiency; consider periodic assessment of vitamin B12 level in metformin-treated individuals, especially in those with anemia or peripheral neuropathy. **B**

American Diabetes Association Professional Practice Committee; 3. Prevention or Delay of Diabetes and Associated Comorbidities: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S43–S51. https://doi.org/10.2337/dc24-S003

PREVENTION OF VASCULAR DISEASE AND MORTALITY

- **Recommendations**
- **3.9** Prediabetes is associated with heightened cardiovascular risk; therefore, screening for and treatment of modifiable risk factors for cardiovascular disease are suggested. **B**
- **3.10** Statin therapy may increase the risk of type 2 diabetes in people at high risk of developing type 2 diabetes. In such individuals, glucose status should be monitored regularly and diabetes prevention approaches reinforced. It is not recommended that statins be discontinued for this adverse effect. **B**
- **3.11** In people with a history of stroke and evidence of insulin resistance and prediabetes, pioglitazone may be considered to lower the risk of stroke or myocardial infarction. However, this benefit needs to be balanced with the increased risk of weight gain, edema, and fractures. **A** Lower doses may mitigate the risk of adverse effects but may be less effective. **C**

American Diabetes Association Professional Practice Committee; 3. Prevention or Delay of Diabetes and Associated Comorbidities: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S43–S51. https://doi.org/10.2337/dc24-S003

PERSON-CENTERED CARE GOALS

- **Recommendations**
- **3.12** In adults with overweight or obesity at high risk of type 2 diabetes, care goals should include weight loss and maintenance, minimizing the progression of hyperglycemia, and attention to cardiovascular risk. **B**
- **3.13** Pharmacotherapy (e.g., for weight management, minimizing the progression of hyperglycemia, and cardiovascular risk reduction) may be considered to support person-centered care goals. **B**
- **3.14** More intensive preventive approaches should be considered in individuals who are at particularly high risk of progression to diabetes, including individuals with BMI ≥35 kg/m^2, those at higher glucose levels (e.g., fasting plasma glucose 110–125 mg/dL [6.1–6.9 mmol/L], 2–h postchallenge glucose 173–199 mg/dL [9.6–11.0 mmol/L], and A1C ≥6.0% [≥42 mmol/mol]), and individuals with a history of gestational diabetes mellitus. **A**

American Diabetes Association Professional Practice Committee; 3. Prevention or Delay of Diabetes and Associated Comorbidities: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S43–S51. https://doi.org/10.2337/dc24-S003

FACILITATING POSITIVE HEALTH BEHAVIORS AND WELL-BEING IN PEOPLE LIVING WITH DIABETES

ACHIEVING DM MANAGEMENT GOALS & MAXIMIZING QUALITY OF LIFE

- Diabetes self-management education and support (DSMES)
- Medical Nutrition Therapy (MNT)
- Routine Physical Activity
- Counseling and Treatment to support cessation of tobacco and vaping
- Health Behavior Counseling
- Psychosocial Care

American Diabetes Association Professional Practice Committee; 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S77–S110. https://doi.org/10.2337/dc24-S005

DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT (DSMES)

- **Recommendations**
- **5.1** Strongly encourage all people with diabetes to participate in diabetes self-management education and support (DSMES) to facilitate informed decision-making, self-care behaviors, problem-solving, and active collaboration with the health care team. **A**
- **5.4** DSMES should be culturally sensitive and responsive to individual preferences, needs, and values and may be offered in group or individual settings. **A** Such education and support should be documented and made available to members of the entire diabetes care team. **E**
- **5.5** Consider offering DSMES via telehealth and/or digital interventions to address barriers to access and improve satisfaction. **B**
- **5.8** Include social determinants of health of the target population in guiding design and delivery of DSMES **C** with the ultimate goal of health equity across all populations.

American Diabetes Association Professional Practice Committee; 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S77–S110. https://doi.org/10.2337/dc24-S005

5 CRITICAL TIME POINTS FOR DSMES

1. At diagnosis
2. Annually
3. When not meeting treatment goals
4. When complicating factors (e.g., health conditions, physical limitations, emotional factors, or basic living needs) that influence self-management develop
5. When transitions in life and care occur

American Diabetes Association Professional Practice Committee; 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S77–S110. https://doi.org/10.2337/dc24-S005

MEDICAL NUTRITION THERAPY (MNT)

- There is not a one-size fits-all eating pattern for individuals with diabetes
- Meal planning should be individualized
- Refer people with diabetes for individualized MNT provided by an RDN at diagnosis and throughout life span

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GOALS OF NUTRITION THERAPY FOR ALL PEOPLE WITH DIABETES

1. To promote and support healthful eating patterns, emphasizing a variety of nutrient-dense foods in appropriate portion sizes, to improve overall health and:
    1. achieve and maintain body weight goals
    2. attain individualized glycemic, blood pressure, and lipid goals
    3. delay or prevent the complications of diabetes
2. To address individual nutrition needs based on personal and cultural preferences, health literacy and numeracy, access to healthful foods, willingness and ability to make behavioral changes, and existing barriers to change
3. To maintain the pleasure of eating by providing nonjudgmental messages about food choices while limiting food choices only when indicated by scientific evidence
4. To provide an individual with diabetes the practical tools for developing healthy eating patterns rather than focusing on individual macronutrients, micronutrients, or single foods

American Diabetes Association Professional Practice Committee; 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S77–S110. https://doi.org/10.2337/dc24-S005

PHYSICAL ACTIVITY

- **Recommendations**
- **5.27** Counsel youth with type 1 diabetes **C** or type 2 diabetes **B** to engage in 60 min/day or more of moderate- or vigorous-intensity aerobic activity, with vigorous muscle-strengthening and bone-strengthening activities at least 3 days/week.
- **5.28** Counsel most adults with type 1 diabetes **C** and type 2 diabetes **B** to engage in 150 min or more of moderate- to vigorous-intensity aerobic activity per week, spread over at least 3 days/week, with no more than 2 consecutive days without activity. Shorter durations (minimum 75 min/week) of vigorous-intensity or interval training may be sufficient for younger and more physically fit individuals.
- **5.29** Counsel adults with type 1 diabetes **C** and type 2 diabetes **B** to engage in 2–3 sessions/week of resistance exercise on nonconsecutive days.
- **5.30** Recommend flexibility training and balance training 2–3 times/week for older adults with diabetes. Yoga and tai chi may be included based on individual preferences to increase flexibility, muscular strength, and balance. **C**
- **5.31** For all people with diabetes, evaluate baseline physical activity and time spent in sedentary behavior (i.e., quiet sitting, lying, and leaning). For people who do not meet activity guidelines, encourage increase in physical activities (e.g., walking, yoga, housework, gardening, swimming, and dancing) above baseline (type 1 diabetes **E** and type 2 diabetes **B**). Counsel that prolonged sitting should be interrupted every 30 min for blood glucose benefits. **C**

	Glucose/insulin	Blood pressure	A1C	Lipids	Physical function	Depression	Quality of life
SITTING/BREAKING UP PROLONGED SITTING	↓	↓	↓	↓	↑	↓	↑
STEPPING	↓	↓	↓	↓	↑	↓	↑
SWEATING (MODERATE-TO-VIGOROUS ACTIVITY)	↓	↓	↓	↓	↑	↓	↑
STRENGTHENING	↓	↓	↓	↓	↑	↓	↑
ADEQUATE SLEEP DURATION	↓	↓	↓	↓	?	↓	↑
GOOD SLEEP QUALITY	↓	↓	↓	↓	?	↓	↑
CHRONOTYPE/CONSISTENT TIMING	↓	?	↓	?	?	↓	?

IMPACT OF PHYSICAL BEHAVIORS ON CARDIOMETABOLIC HEALTH IN PEOPLE WITH TYPE 2 DIABETES

↑ Higher levels/improvement (physical function, quality of life); ↓ Lower levels/improvement (glucose/insulin, blood pressure, A1C, lipids, depression); ? no data available;
↑ Green arrows = strong evidence; ↑ Yellow arrows = medium-strength evidence; ↑ Red arrows = limited evidence.

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SMOKING CESSATION

- **Recommendations**
- **5.32** Advise all people with diabetes not to use cigarettes and other tobacco products or e-cigarettes. **A**
- **5.33** As a routine component of diabetes care and education, ask people with diabetes about the use of cigarettes or other tobacco products. After identification of use, recommend and refer for combination treatment consisting of both tobacco/smoking cessation counseling and pharmacological therapy. **A**

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PSYCHOSOCIAL CARE

- **Recommendations**
- **5.35** Psychosocial care should be provided to all people with diabetes, with the goal of optimizing health-related quality of life and health outcomes. Such care should be integrated with routine medical care and delivered by trained health care professionals using a collaborative, person-centered, culturally informed approach. **A**
- **5.36** Diabetes care teams should implement psychosocial screening protocols for general and diabetes-related mood concerns as well as other topics such as stress, quality of life, available resources (financial, social, family, and emotional), and/or psychiatric history. Screening should occur at least annually or when there is a change in disease, treatment, or life circumstances. **C**
- **5.37** When indicated, refer to behavioral health professionals or other trained health care professionals, ideally those with experience in diabetes, for further assessment and treatment for symptoms of diabetes distress, depression, suicidality, anxiety, treatment-related fear of hypoglycemia, disordered eating, and/or cognitive capacities. Such specialized psychosocial care should use age-appropriate standardized and validated tools and treatment approaches. **B**
- **5.38** Consider developmental factors and use age-appropriate validated tools for psychosocial screening in people with diabetes. **E**

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SITUATIONS THAT WARRANT REFERRAL OF A PERSON WITH DIABETES TO A QUALIFIED BEHAVIORAL HEALTH PROFESSIONAL

A POSITIVE SCREEN ON A VALIDATED SCREENING TOOL FOR DEPRESSIVE SYMPTOMS, DIABETES DISTRESS, ANXIETY, FEAR OF HYPOGLYCEMIA, SUICIDALITY, OR COGNITIVE IMPAIRMENT

THE PRESENCE OF SYMPTOMS OR SUSPICIONS OF DISORDERED EATING BEHAVIOR, AN EATING DISORDER, OR DISRUPTED PATTERNS OF EATING

INTENTIONAL OMISSION OF INSULIN OR ORAL MEDICATION TO CAUSE WEIGHT LOSS IS IDENTIFIED

A SERIOUS MENTAL ILLNESS IS SUSPECTED

IN YOUTH AND FAMILIES WITH BEHAVIORAL SELF-CARE DIFFICULTIES, REPEATED HOSPITALIZATIONS FOR DIABETIC KETOACIDOSIS, FAILURE TO ACHIEVE EXPECTED DEVELOPMENTAL MILESTONES, OR SIGNIFICANT DISTRESS

LOW ENGAGEMENT IN DIABETES SELF-MANAGEMENT BEHAVIORS, INCLUDING DECLINING OR IMPAIRED ABILITY TO PERFORM DIABETES SELF-MANAGEMENT BEHVIORS

BEFORE UNDERGOING BARIATRIC OR METABOLIC SURGERY AND AFTER SURGERY, IF ASSESSMENT REVEALS AN ONGOING NEED FOR ADJUSTMENT SUPPORT

DIABETES DISTRESS

- Refers to significant negative psychological reactions related to emotional burdens and worries specific to an individual's experience in having to manage a severe, complicated, and demanding chronic condition such as diabetes

- **Recommendation**
- **5.39** Screen people with diabetes, caregivers, and family members for diabetes distress at least annually, and consider more frequent monitoring when treatment targets are not met, at transitional times, and/or in the presence of diabetes complications. Health care professionals can address diabetes distress and may consider referral to a qualified behavioral health professional, ideally one with experience in diabetes, for further assessment and treatment if indicated. **B**

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ANXIETY

- **Recommendation**
- **5.40** Consider screening people with diabetes for anxiety symptoms, fear of hypoglycemia, or diabetes-related worries. Health care professionals can discuss diabetes-related worries and should consider referral to a qualified behavioral health professional for further assessment and treatment if anxiety symptoms indicate interference with diabetes self-management behaviors or quality of life. **B**

American Diabetes Association Professional Practice Committee; 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S77–S110. https://doi.org/10.2337/dc24-S005

DEPRESSION

- **Recommendations**
- **5.41** Conduct at least annual screening of depressive symptoms in all people with diabetes and more frequently among those with a self-reported history of depression. Use age-appropriate, validated depression screening measures, recognizing that further evaluation will be necessary for individuals who have a positive screen. **B**
- **5.42** Beginning at diagnosis of complications or when there are significant changes in medical status, consider assessment for depression. **B**
- **5.43** Refer to qualified behavioral health professionals or other trained health care professionals with experience using evidence-based treatment approaches for depression in conjunction with collaborative care with the diabetes treatment team. **A**

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DISORDERED EATING BEHAVIOR

- **Recommendations**
- **5.44** Consider screening for disordered or disrupted eating using validated screening measures when hyperglycemia and weight loss are unexplained based on self-reported behaviors related to medication dosing, meal plan, and physical activity. In addition, a review of the medical treatment plan is recommended to identify potential treatment-related effects on hunger/caloric intake. **B**
- **5.45** Consider reevaluating the treatment plan of people with diabetes who present with symptoms of disordered eating behavior, an eating disorder, or disrupted patterns of eating, in consultation with a qualified professional. Key qualifications include familiarity with diabetes disease physiology, treatments for diabetes and disordered eating behaviors, and weight-related and psychological risk factors for disordered eating behaviors. **B**

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SERIOUS MENTAL ILLNESS

- **Recommendations**
- **5.46** Provide an increased level of support for people with diabetes and serious mental illness through enhanced monitoring of and assistance with diabetes self-management behaviors. **B**
- **5.47** Monitor changes in body weight, glycemia, and lipids in adolescents and adults with diabetes who are prescribed second-generation antipsychotic medications; adjust the treatment plan accordingly, if needed. **C**

American Diabetes Association Professional Practice Committee; 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S77–S110. https://doi.org/10.2337/dc24-S005

COGNITIVE CAPACITY/IMPAIRMENT

Recommendations

5.48 Cognitive capacity should be monitored throughout the life span for all individuals with diabetes, particularly in those who have documented cognitive disabilities, those who experience severe hypoglycemia, very young children, and older adults. **B**

5.49 If cognitive capacity changes or appears to be suboptimal for decision-making and/or behavioral self-management, referral for a formal assessment should be considered. **E**

American Diabetes Association Professional Practice Committee; 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S77–S110. https://doi.org/10.2337/dc24-S005

SLEEP HEALTH

- **Recommendations**
- **5.50** Consider screening for sleep health in people with diabetes, including symptoms of sleep disorders, disruptions to sleep due to diabetes symptoms or management needs, and worries about sleep. Refer to sleep medicine specialists and/or qualified behavioral health professionals as indicated. **B**
- **5.51** Counsel people with diabetes to practice sleep-promoting routines and habits (e.g., maintaining consistent sleep schedule and limiting caffeine in the afternoon). **A**

American Diabetes Association Professional Practice Committee; 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: *Standards of Care in Diabetes—2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S77–S110. https://doi.org/10.2337/dc24-S005

OBESITY AND WEIGHT MANAGEMENT FOR THE PREVENTION AND TREATMENT OF TYPE 2 DIABETES

OBESITY

- Chronic, often relapsing disease
- Metabolic complications
- Physical complications
- Psychosocial complications
- Obesity management can delay progression from prediabetes to T2DM
- Metabolic Surgery improves and often leads to remission of diabetes, improved quality of life, improved CV outcomes, and reduced mortality

American Diabetes Association Professional Practice Committee; 8. Obesity and Weight Management for the Prevention and Treatment of Type 2 Diabetes: *Standards of Care in Diabetes–2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S145–S157. https://doi.org/10.2337/dc24-S008

THE COMPLEX ETIOLOGY OF THIS CHRONIC DISEASE[1-6]

Obesity

Physiologic[1-3]

- Altered levels of hormones and gastrointestinal peptides
- Altered homeostatic and reward system pathways
- Weight-positive medications
- Health conditions

Genetic[4]

- Epigenetics
- Mutations
- Single nucleotide polymorphisms

Behavioral[3]

- Diet
- Inactivity
- Emotional factors
- Lack of sleep
- Smoking cessation

Environmental[5,6]

- Socioeconomic status
- Access to/affordability of food
- Built/physical environment
- Cultures
- Sociocultural attitudes
- Endocrine-disrupting chemicals

1. Lean. Int J Obes (Lond). 2016;40:622. 2. Yu. Obes Rev. 2015;16:234. 3. nhlbi.nih.gov/health/overweight-and-obesity/causes. 4. Killi. North Clin Istanb. 2020;7:153. 5. Martínez. Public Health Nutr. 2007;10:1138. 6. Sharma. Obes Rev. 2010;11:362. 7. Chaput. Obes Rev. 2012;13:681

MODALITIES FOR WEIGHT LOSS

Intensive behavioral and lifestyle counseling

Obesity pharmacotherapy

Metabolic Surgery

American Diabetes Association Professional Practice Committee; 8. Obesity and Weight Management for the Prevention and Treatment of Type 2 Diabetes: *Standards of Care in Diabetes–2024*. *Diabetes Care* 1 January 2024; 47 (Supplement_1): S145–S157. https://doi.org/10.2337/dc24-S008

ASSESSMENT AND MONITORING OF THE INDIVIDUAL WITH OVERWEIGHT AND OBESITY

- **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**
- **8.4** In people with type 2 diabetes and overweight or obesity, weight management should represent a primary goal of treatment along with glycemic management. **A**
- **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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NUTRITION, PHYSICAL ACTIVITY, BEHAVIORAL THERAPY

- **Recommendations**
- **8.7** Nutrition, physical activity, and behavioral therapy to achieve and maintain ≥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**
- **8.9** 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**
- **8.11a** 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**
- **8.12** 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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PHARMACOTHERAPY

- **Recommendations**
- **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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FDA-APPROVED ANTI-OBESITY MEDICATIONS

Bupropion/ Naltrexone

↑DA/NE

MOP-R

↑DA/NE

GABA-R and CAI

Phentermine / Topiramate

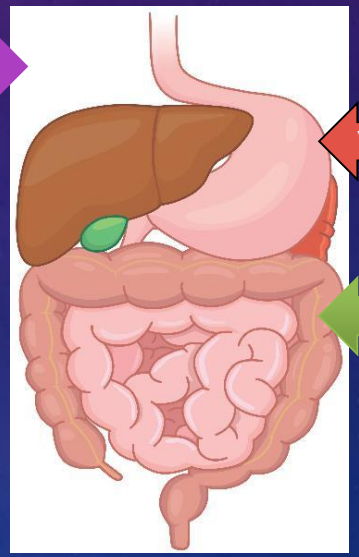
↑DA/NE

Phentermine

- Liraglutide
- Semaglutide
- Tirzepatide

GLP-1 RA

GASTRIC EMPTYING



VOLUME ENHANCE

Hydrogel*

LIPASE INHIBITION

Orlistat

Off-label Medications

- Metformin
- GLP-1 RAs
- SGLT2 inhibitors
- Topiramate
- Bupropion
- Tirzepatide

Pipeline Medications

- GLP-1/GIP RA
- Oral GLP-1 RA
- GLP-1 RA/ amylin analogue
- PYY analogue
- GDF-15 analogue

*Considered a medical device.

Angelidi. Endocr Rev. 2022;43:507. Giruzzi.

METABOLIC SURGERY

- **Recommendations**
- **8.19** Consider metabolic surgery as a weight and glycemic management approach in people with diabetes with BMI ≥30.0 kg/m^2 (or ≥27.5 kg/m^2 in Asian American individuals) who are otherwise good surgical candidates. **A**
- **8.21** People being considered for metabolic surgery should be evaluated for comorbid psychological conditions and social and situational circumstances that have the potential to interfere with surgery outcomes. **B**
- **8.22** People who undergo metabolic surgery should receive long-term medical and behavioral support and routine micronutrient, nutritional, and metabolic status monitoring. **B**
- **8.24** In people who undergo metabolic surgery, routinely screen for psychosocial and behavioral health changes and refer to a qualified behavioral health professional as needed. **C**
- **8.25** Monitor individuals who have undergone metabolic surgery for insufficient weight loss or weight recurrence at least every 6–12 months. **E** In those who have insufficient weight loss or experience weight recurrence, assess for potential predisposing factors and, if appropriate, consider additional weight loss interventions (e.g., obesity pharmacotherapy). **C**

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SUMMARY

- Assessing, diagnosing, and classifying prediabetes and diabetes is important to intervene with lifestyle and possible pharmacologic agents
- Lifestyle intervention is foundational in delaying onset of diabetes and co morbidities
- DSMES is important for all people living with diabetes during different stages in their life
- Obesity management in people with T2DM is important to improve overall outcomes