

Lifestyle Medicine for Diabetes Prevention and Management

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Objectives

- **Criteria Pre Diabetes**
 - Screening & Screening Tool
- **ADA / American College of Lifestyle Medicine**
- **Pillars of Lifestyle Medicine**
 1. Whole Food Plant Based (WFPB)
 - Plant forward-less processed
 2. Adequate physical activity
 - No less than 150 min per week
 3. Restorative sleep
 4. Stress Management
 5. Positive Social Interactions
 6. Avoiding Risky Behaviors

Credit/Source: Rosenfeld RM, Grega ML, Karlsen MC, et al. Lifestyle Interventions for Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults: A Clinical Practice Guideline From the American College of Lifestyle Medicine. *American Journal of Lifestyle Medicine*. 2025;19(2_suppl):10S-131S. doi:[10.1177/15598276251325488](https://doi.org/10.1177/15598276251325488)

Prediabetes Criteria

Table 2.2—Criteria defining prediabetes in nonpregnant individuals

A1C 5.7–6.4% (39–47 mmol/mol)

OR

FPG 100 mg/dL (5.6 mmol/L) to 125 mg/dL (6.9 mmol/L) (IFG)

OR

2-h PG during 75-g OGTT 140 mg/dL (7.8 mmol/L) to 199 mg/dL (11.0 mmol/L) (IGT)

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. FPG, fasting plasma glucose; IFG, impaired fasting glucose; IGT, impaired glucose tolerance; OGTT, oral glucose tolerance test; 2-h PG, 2-h plasma glucose.

Criteria for screening

Table 2.4—Criteria for screening for diabetes or prediabetes in asymptomatic adults

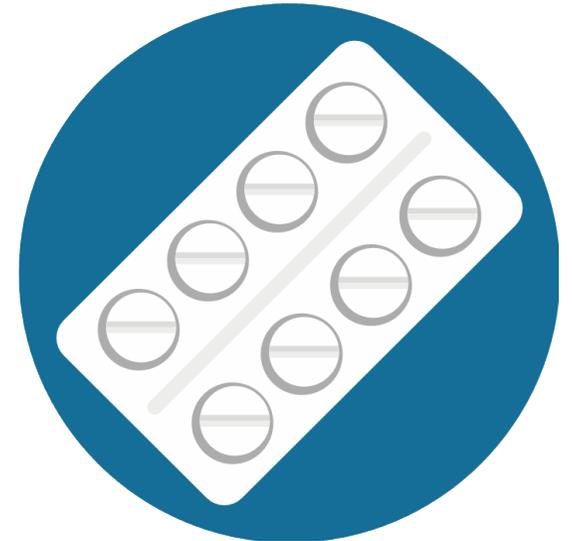
1. Testing should be considered in adults with overweight or obesity (BMI ≥ 25 kg/m² or ≥ 23 kg/m² in Asian American individuals) who have one or more of the following risk factors:
 - First-degree relative with diabetes
 - High-risk race and ethnicity (e.g., African American, Latino, Native American, Asian American, Pacific Islander)
 - History of cardiovascular disease
 - Hypertension ($\geq 130/80$ mmHg or on therapy for hypertension)
 - HDL cholesterol level < 35 mg/dL (< 0.9 mmol/L) and/or a triglyceride level > 250 mg/dL (> 2.8 mmol/L)
 - Individuals with polycystic ovary syndrome
 - Physical inactivity
 - Other clinical conditions associated with insulin resistance (e.g., severe obesity, acanthosis nigricans)
2. People with prediabetes (A1C $\geq 5.7\%$ [≥ 39 mmol/mol], IGT, or 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 age 35 years.
5. If results are 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

GDM, gestational diabetes mellitus; IFG, impaired fasting glucose; IGT, impaired glucose tolerance.

Standards of Care Section 3

What medications can be prescribed to adults to prevent type 2 diabetes?

- The U.S. Food and Drug Administration has not approved any drugs for diabetes prevention.
- Metformin has the strongest evidence base for diabetes prevention.



Who should be considered for metformin therapy to prevent type 2 diabetes?

-  ▪ Adults aged 25–59 years with a BMI ≥ 35 kg/m²
-  ▪ Individuals with higher fasting plasma glucose (e.g., ≥ 110 mg/dL [≥ 6 mmol/L])
-  ▪ Those with higher A1C (e.g., $\geq 6.0\%$ [≥ 42 mmol/mol])
-  ▪ Individuals with a history of gestational diabetes mellitus

What parameters should be monitoring in people on metformin therapy?

- Vitamin B12 should be measured periodically, especially in those with anemia or peripheral neuropathy.

Are you at risk for type 2 diabetes?

Diabetes Risk Test:

WRITE YOUR SCORE
IN THE BOX.

- 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)
- Are you a man or a woman?
 Man (1 point) Woman (0 points)
- If you are a woman, have you ever been diagnosed with gestational diabetes?.....
 Yes (1 point) No (0 points)
- Do you have a mother, father, sister or brother with diabetes?
 Yes (1 point) No (0 points)
- Have you ever been diagnosed with high blood pressure?
 Yes (1 point) No (0 points)
- Are you physically active?
 Yes (0 points) No (1 point)
- What is your weight category?
 See chart at right.

↓

ADD UP
YOUR SCORE.

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.

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

Lower Your Risk

The good news is you can manage your

Pillars of Healthy Behavior



Daily Physical Activity

-Main component – National DPP

- 44% decrease in developing Diabetes
- Only 24% of 18 and older DM Patients participate in 150 min a week and 2 muscle strengthening activities a week.
- 3 Components of exercise prescription
 - Reducing sedentary time (brief bouts of activity)
 - Getting sufficient aerobic activity (allows for talking but not singing)
 - Muscle Strengthening Activity (large muscle groups)
 - Half squats, planks, push ups (walk or floor), sit - stand

Name: _____ Date: _____

2018 Physical Activity Guidelines for Adults:

- 150-300 minutes/week of moderate-intensity activity or 75-150 minutes/week of vigorous activity (somewhat hard to very hard) or a combination of both
- Muscle strength training 2 or more times a week



Aerobic Activity (check)

Frequency (days/week): 1 2 3 4 5 6 7

Intensity: Light (casual walk) Moderate (brisk walk) Vigorous (like jogging)

Time (minutes/day): 10 20 30 40 50 60 or more

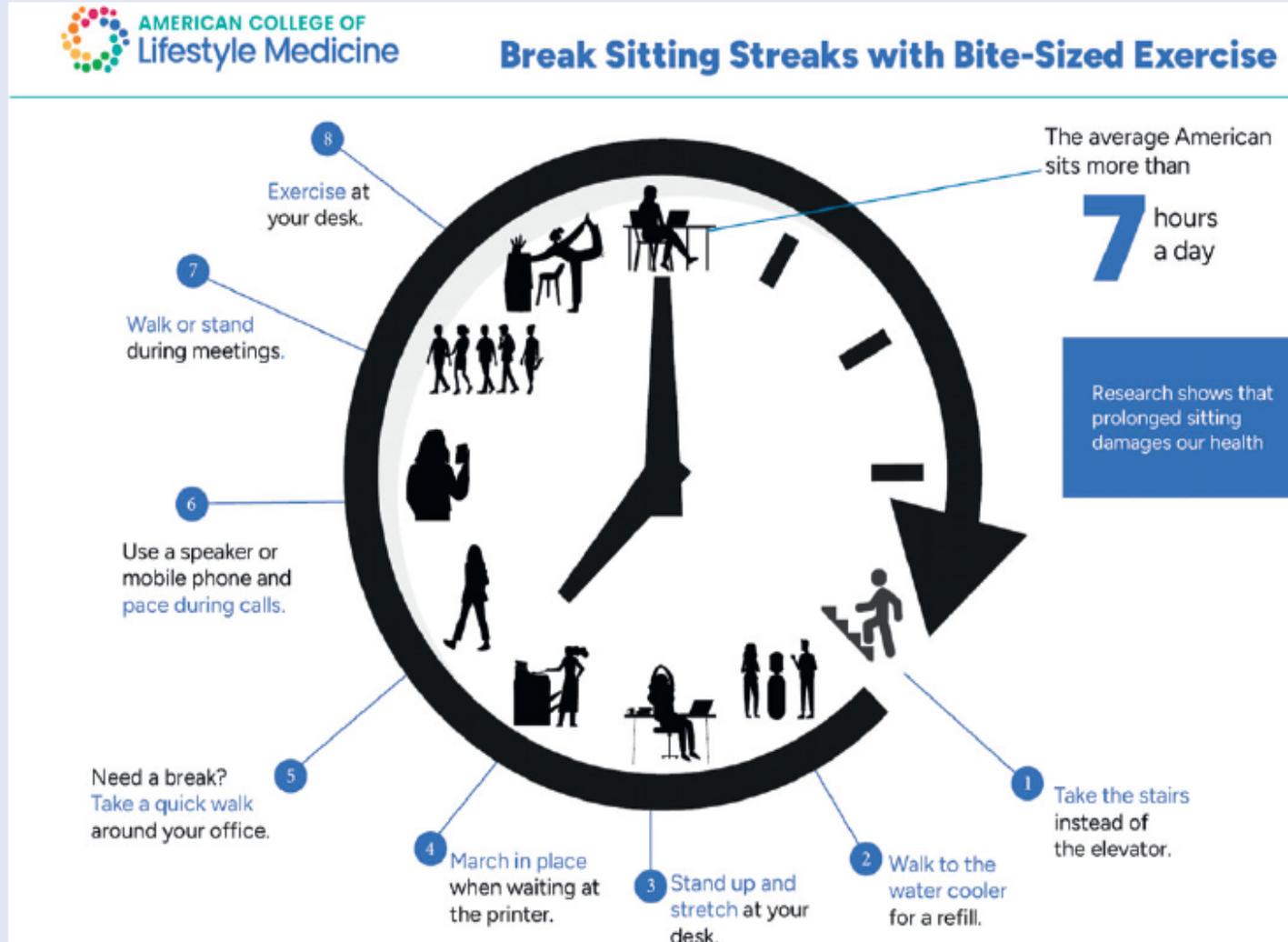
Type: Walk Run Bike Swim/Water Exercise Other _____

Steps/day: 2,500 5,000 7,000 9,000 or more Other _____

What about aerobic activity?

- Moderate activity is at a pace where you can talk but cannot “sing.” Examples: *brisk walking, light biking, water exercise and dancing.*
- Vigorous activity is done at a pace where you can’t say more than a few words without pausing for a breath. Examples: *jogging, swimming, tennis and fast bicycling.*
- You can exercise for any length of time. For example, you might walk:
 - 30 minutes 5 days/week or
 - 20 minutes daily
 - 5 minutes here, 10 minutes there. Just work your way up to 150 total minutes/week.
- Your ultimate goal is to gradually build up to 7,000-9,000 steps/day.

Bite-sized exercise snacks. Examples of bite-sized activities that individuals can utilize to break up or reduce sedentary time.



Breaking sitting streaks. Examples of how exercise “snacks” or “bite-sized exercise” regimens can be easily integrated into everyday activities by increased standing time and a few 2-to-3-minute exercise bursts throughout the day.



Break Sitting Streaks with Bite-Sized Exercise



Example:



Sit to stand



Leg lifts – side, front, back, across



Walk or march in place



Squats (or lunges with a chair for support)



Arm Exercises



Dance



Raise and lower heels off the ground



Walk up and down stairs OR step up and down off 1 step



Stretch



Keep moving!

- Breaking up your sitting streaks will help you avoid the health issues and even early death associated with prolonged sitting
- The average American sits for ~7 hours a day or more, but any extra movement makes a difference
- Make it a goal to stand up and reduce sitting time to less than 6 hours/day
- Exercise bursts can also help lower blood sugar and increase blood flow

Aim for at least 5 minutes of exercise or movement every 30 min, or 10 min/hour

Mix it up and choose a few of the activities shown here to stay in motion throughout the day

Importance of 24-Hour Physical Behaviors for Type 2 Diabetes

SITTING/BREAKING UP PROLONGED SITTING

Limit sitting. Breaking up prolonged sitting (every 30 min) with short regular bouts of slow walking/simple resistance exercises can improve glucose metabolism.



STEPPING

- An increase of only 500 steps/day is associated with 2-9% decreased risk of cardiovascular morbidity and all-cause mortality.
- A 5-to 6-min brisk-intensity walk per day equates to ~4 years' greater life expectancy.



SLEEP

Aim for consistent, uninterrupted sleep, even on weekends.



Quantity - Long (>8 h) and short (<6 h) sleep durations negatively impact A1C.



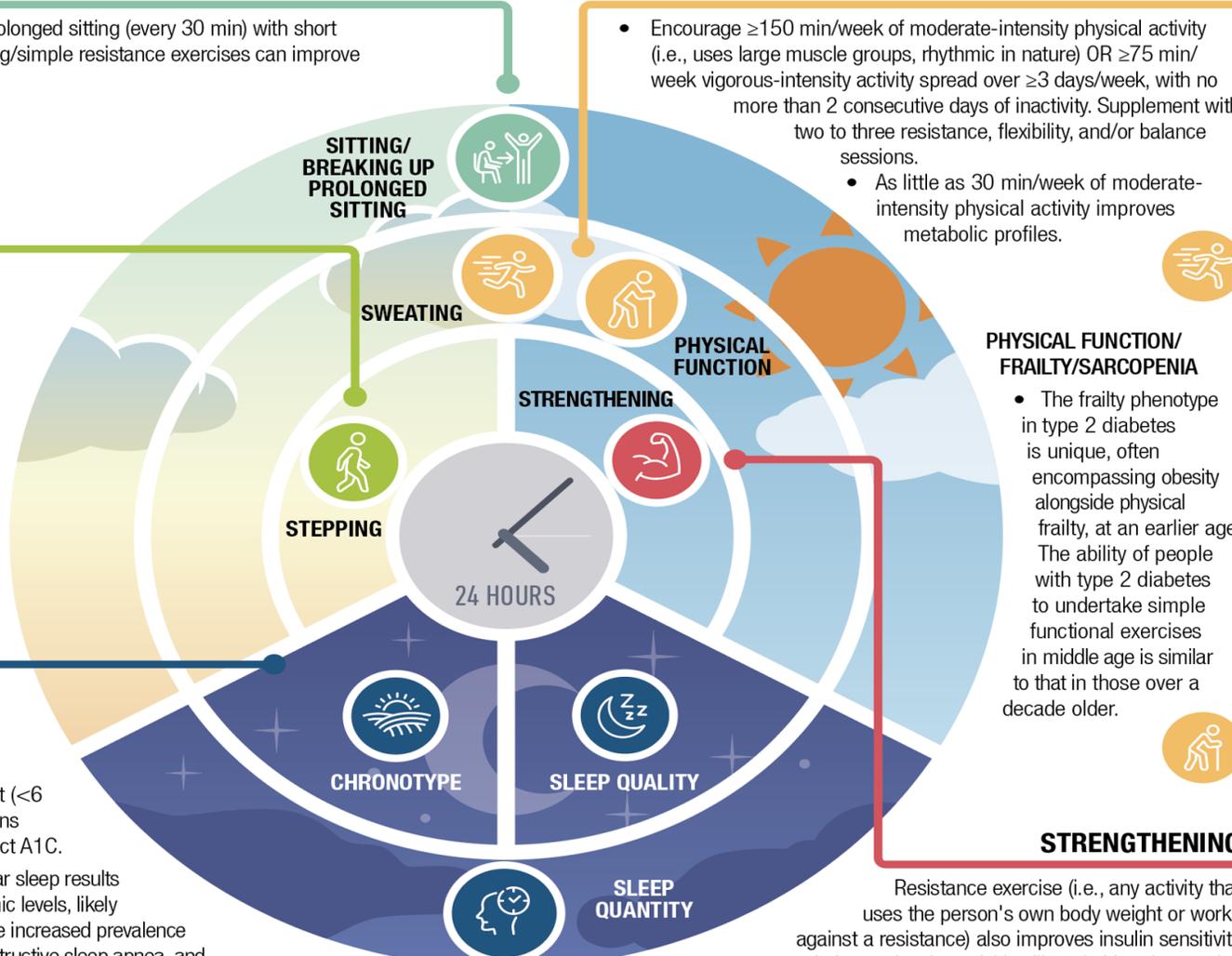
Quality - Irregular sleep results in poorer glycemic levels, likely influenced by the increased prevalence of insomnia, obstructive sleep apnea, and restless leg syndrome in people with type 2 diabetes.



Chronotype - Evening chronotypes (i.e., night owl: go to bed late and get up late) may be more susceptible to inactivity and poorer glycemic levels vs, morning chronotypes (i.e., early bird: go to bed early and get up early).

SWEATING (MODERATE-TO-VIGOROUS ACTIVITY)

- Encourage ≥ 150 min/week of moderate-intensity physical activity (i.e., uses large muscle groups, rhythmic in nature) OR ≥ 75 min/week vigorous-intensity activity spread over ≥ 3 days/week, with no more than 2 consecutive days of inactivity. Supplement with two to three resistance, flexibility, and/or balance sessions.
- As little as 30 min/week of moderate-intensity physical activity improves metabolic profiles.



PHYSICAL FUNCTION/FRAILITY/SARCOPENIA

- The frailty phenotype in type 2 diabetes is unique, often encompassing obesity alongside physical frailty, at an earlier age. The ability of people with type 2 diabetes to undertake simple functional exercises in middle age is similar to that in those over a decade older.



STRENGTHENING

Resistance exercise (i.e., any activity that uses the person's own body weight or works against a resistance) also improves insulin sensitivity and glucose levels; activities like tai chi and yoga also encompass elements of flexibility and balance.



Whole Food Plant Based

Standard American diet (SAD)	Also called the Western diet, this eating pattern includes high sodium intake and excess calories from meats, added fats, processed foods, and refined carbohydrates, while lacking many nutrients found in fruits, vegetables, and whole grains. ¹⁰
Ultra-processed foods	Foods that are energy-dense and high in salt, additives, unhealthy fats, refined starches, and free sugars that are formulated to be attractive and to trigger the brain's reward system and encourage excess eating. These foods can be poor sources of protein, dietary fiber, and micronutrients. ¹¹
Whole-food, plant-predominant diet ^b	An eating plan composed primarily of nutrient-dense whole grains, vegetables, legumes, fruits, nuts, and seeds while avoiding or minimizing animal foods, refined foods, and ultra-processed foods.

What is Ultra-Processed?



Understanding Ultra-Processed Foods

Why Avoid Or Limit Ultra-processed Foods

Ultra-processed foods:

- Often don't contain vitamins and minerals which are essential for our gut health, blood pressure, and metabolism
- Don't keep us full because they often lack fiber
- Make it hard for us to know when we've eaten enough and they are often high in calories
- Are easy to overeat

It has been shown that when people eat the same number of calories, people eating ultra-processed foods gain more weight.

Least Processed → **Most Processed**

• Apple	• Applesauce	• Apple Juice	• Apple Fruit snacks
• Potato	• Mashed Potatoes	• French Fries	• Potato Chips
• Corn	• Corn Tortilla	• Corn Chips	• High Fructose Syrup

Focus on Whole Foods

- Plan your meals ahead to make sure you focus whole foods
- Choose more whole food versions of ultra-processed foods, like whole grain pasta instead of white pasta, or oatmeal instead of sugary cereal
- Shop the perimeter of the store to find the minimally processed foods



Ultra vs Healthy Whole Foods

Common Ultra-Processed Foods

INSTEAD OF...

Half a bagel = 1 gram of fiber

A glass of juice = 1 gram of fiber

A handful of chips = 1 gram of fiber

A cup of white rice = 0.5 gram of fiber

A pudding cup = 1 gram of fiber

Total Fiber: 4.5 grams



Healthy Whole Foods

EAT...

1/2 cup of oatmeal = 4 grams of fiber

1 medium orange = 3 grams of fiber

A handful of nuts = 4 grams of fiber

1/2 cup of brown rice and 1/4 cup of beans = 6 grams of fiber

1 cup blueberries = 3 grams of fiber

Total Fiber: 20 grams

Standards of Care: Section 3

Diet and Physical Activity Recommendations for Adults at Risk for Type 2 Diabetes

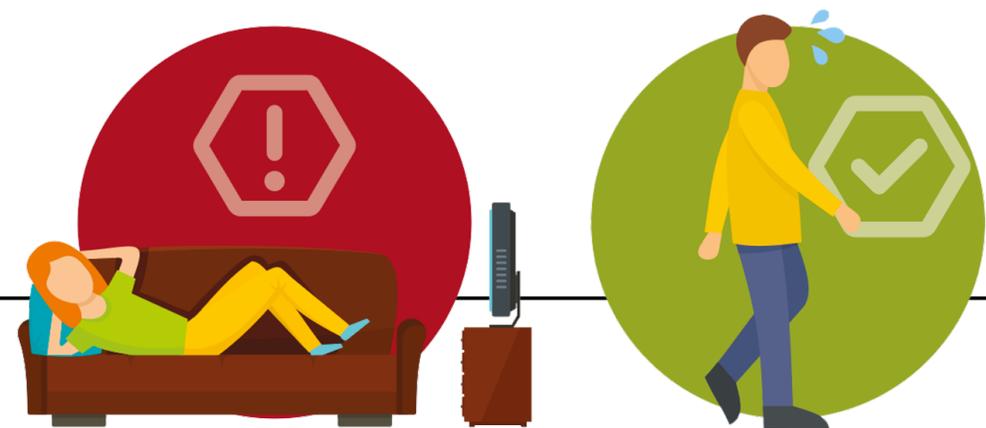
Follow a Healthy Eating Pattern

- Emphasize whole grains, legumes, nuts, fruits, and vegetables and minimize refined and processed foods
- A variety of healthy eating patterns include:
 - Mediterranean-style
 - Low-carbohydrate
 - Vegetarian or plant-based
 - DASH (Dietary Approaches to Stop Hypertension)



Get Regular Physical Activity

- ≥ 150 min/week of moderate-intensity physical activity, such as brisk walking
- May include resistance or strength training
- Break up prolonged sedentary time



Restorative Sleep

- Consistent Sleep Schedule
 - Get up same time
 - Set bedtime (7 hours)
 - Bedtime Routine
 - Not under 6 or more than 9
 - Increase risk of dying early
- Make Bedroom quite and relaxing
 - Cool Temperature
- Avoid blue light no less than 30 minutes before bedtime
- Avoid large meals before bed
- Daily exercise – caution before bedtime
- Avoid ETOH before bedtime
- Avoid caffeine in evening (careful afternoon)

Tip sheet for healthcare providers



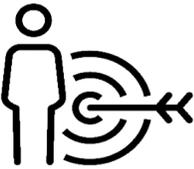
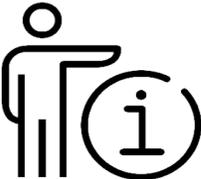
Social Connections – Mental and Emotional

- Relationships where in individual feels seen, heard and valued, and from which they derive substance and strength.
 - Dinner with Family
 - Work connections
 - Church
 - Social / support Groups

Stress Management – Mental and Emotional

- Stress management = mechanism involved in body's physiological arousal to survive a real or perceived threat.
- Stress when appropriate, may improve health and productivity but in excess can lead to anxiety, depression, obesity, immune dysfunction
- Clear personal goals – daily goals
- HCP - Facilitate Patients Problem Solving
- PHQ-9 & GAD-7 = treat and or refer as needed

Stop Risky Behaviors

Support positive health behavior through:	
 <p>Motivational interviewing</p>	 <p>Problem-solving</p>
 <p>Patient activation</p>	 <p>Encouragement of health behavior self-monitoring, with or without clinician feedback</p>
 <p>Goal-setting and action-planning</p>	 <p>Identification of social support resources</p>



MI – Behavior Change Technique

SCALING RULERS

Scaling rulers can rapidly assess how important, confident, and ready the person is to make a change. A score of 7 or higher predicts greater likelihood of success in meeting one's immediate goal.



Importance

On a scale from 0-10, with 10 being very important.
How important to you is it to change your lifestyle?

Confidence

On a scale from 0-10, with 10 being very confident.
How confident are you that you will succeed in changing your lifestyle?

Readiness

On a scale from 0-10, with 10 being very interested.
How interested are you in changing your lifestyle?

Please note that healthcare professional should assess where the patient is in the change process and determine which ruler or rulers are most appropriate for the conversation at that point: importance for exploring, readiness for planning, and confidence that a suggested plan is achievable and realistic.



Not at all

Very

Importance, Confidence, Readiness - Change



Important questions to ask or other considerations after eliciting Scaling Rulers results:

Why did you pick that number and not a lower number?

If importance is low (< 4 on scale), consider focusing interventions to increase importance by providing information and eliciting reasons why it might be important to change.

If numbers for importance and confidence are equal, focus on importance first.

If there is a difference between the importance and confidence, focus on lower numbers first (Rollnick et al.). This is especially important for large difference between the two numbers.

What do you think you need to do to move 1 to 2 steps higher?

If you move up 2-3 steps over the next few months, what do you think you'll notice that is different about you? What do you think other people will notice?

Importance, Confidence, Readiness - Change



ROADBLOCKS

**What are roadblocks to effective listening during the use of MI or OARS techniques?
(Gordon 2000)**

Giving advice, making suggestions, or providing solutions.

Persuading with logic, arguing, or lecturing

Moralizing or preaching

Disagreeing, judging, criticizing, or blaming

Interpreting or analyzing

Reassuring, sympathizing, or consoling

Questioning or probing

Withdrawing, distracting, or humoring

MI – Behavior Change



SMART Goals in Action

	S SPECIFIC	M MEASURABLE	A ACHIEVABLE	R RELEVANT	T TIME-BOUND
ASK	What do you want to do? How are you going to do it?	What metrics will you use? How will you keep track of your progress?	How confident are you that you can achieve this goal on a scale of 1 to 10 with 10 being the most confident?	How does this goal connect to your priorities, your purpose, and your personal mission?	When do you think you can complete this goal? What can you do in one week? What can you do each day this week?
USE	Action verbs like I will walk, I will eat or I will quit.	Measuring tools based on patient preference such as logging with pen and paper, wearable devices, or pedometer	Motivational Interviewing if the goal is less than a 7 and inquire, "What would it take to get this goal to a 7 on the confidence scale?"	Open ended questions to explore what matters to the patient and how the goal is connected to that.	A sense of excitement and urgency about the goal and set the expectation that there will be more time for weekly goals.
AVOID	Lofty and vague goals that promise too much too fast like I will lose 20 pounds.	Excessive pressure to track multiple times a day, complicated measuring programs requiring lots of time.	Goals that are too easy and goals that are too hard.	Determining what is relevant to the patient. Let the patient decide.	Trying to do too much at one time.

If the goal is a 7 or above, then the goal is considered achievable.

If the goal is below a 7, consider modifying the goal, to be more easily achievable.

Examples

	DON'T	DO
NUTRITION	I will eat more plants.	I will have one servings of vegetables at lunch and dinner 6 out of 7 days this week.
PHYSICAL ACTIVITY	I will exercise more.	I will walk for 20 minutes after dinner three days this week.
SLEEP	I will sleep more.	I will turn off all electronics at 8 pm and read until 9pm, at which time, I will take a hot bath and get into bed with lights out by 10 pm.
STRESS	I will stress less.	I will do deep breathing exercises for 20 minutes each morning before breakfast.
SOCIAL CONNECTION	I will be more social.	I will connect with a close friend by phone on Monday and arrange a time to meet this weekend.
SUBSTANCE USE	I will drink less alcohol.	From Monday through Friday, I will drink water rather than alcohol. On Saturday and Sunday evenings, I will have only one glass of wine with dinner.

Resources

Rosenfeld RM, Grega ML, Karlsen MC, et al. Lifestyle Interventions for Treatment and Remission of Type 2 Diabetes and Prediabetes in Adults: A Clinical Practice Guideline From the American College of Lifestyle Medicine. *American Journal of Lifestyle Medicine*. 2025;19(2_suppl):10S-131S. doi:[10.1177/15598276251325488](https://doi.org/10.1177/15598276251325488)

[Sleep Tip sheet for healthcare providers](#)

Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2024 *Diabetes Care* 2024;47(Suppl. 1):S77–S110 | <https://doi.org/10.2337/dc24-S005>

Obesity and Weight Management for the Prevention and Treatment of Type 2 Diabetes: Standards of Care in Diabetes—2024 *Diabetes Care* 2024;47(Suppl. 1):S145–S157 | <https://doi.org/10.2337/dc24-S008>

Prevention or Delay of Diabetes and Associated Comorbidities: Standards of Care in Diabetes—2024 *Diabetes Care* 2024;47(Suppl. 1):S43–S51 | <https://doi.org/10.2337/dc24-S00>



Questions?