

TACKLING PREDIABETES

WHAT IS PREDIABETES?

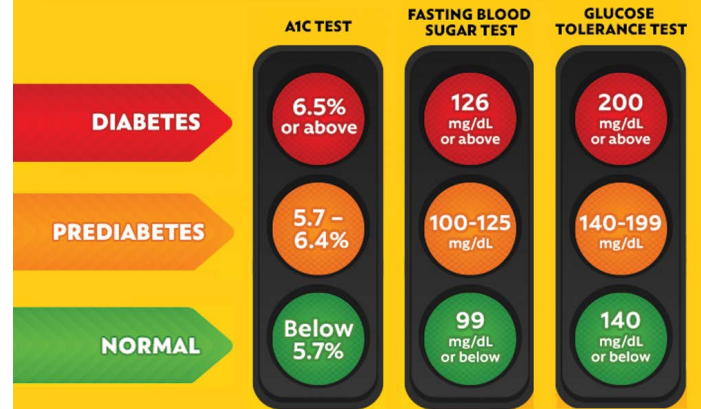
Prediabetes is a condition where blood sugar levels are high, but not high enough to be diagnosed as diabetes. Most people aren't aware they have prediabetes since there aren't any symptoms.

It's a serious condition because left unchecked, it can evolve into type 2 diabetes. Prediabetes also elevates your risk for heart disease and stroke. Common risk factors for prediabetes are being overweight; being age 45 years or older; having a parent, brother or sister with type 2 diabetes; or being physically active less than three times a week.

Race and ethnicity can also play a role: African Americans, Hispanic/Latino Americans, American Indians, Pacific Islanders and some Asian Americans are at higher risk.

Prediabetes is determined by a blood test: either an HbA1c test, fasting blood sugar test or glucose tolerance test. Talk to your doctor or registered dietitian to see if it makes sense for you to get a test to learn more about your blood sugar levels.

THE ROAD TO TYPE 2 DIABETES

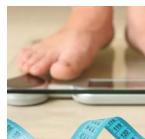


Source: <https://www.cdc.gov/diabetes/pdfs/library/socialmedia/road-to-diabetes-infographic.pdf>

PREDIABETES PREVENTION

The good news is that prediabetes doesn't have to evolve into diabetes. Lifestyle changes can help to slow or even stop the progression. And a lot of the lifestyle recommendations are ones you probably already know. Steps to take now include:

1 Lose weight if you're overweight. Losing even a small amount (5% of your current body weight) can make a difference.



2 Exercise for 30 minutes at least five days a week. Brisk walking, bicycling, dancing, and kayaking are examples of moderate intensity exercises.

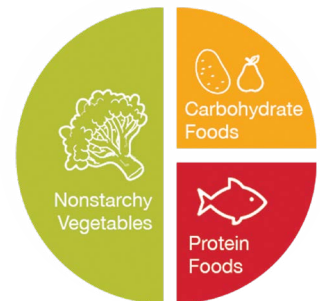


3 Keep on top of your blood sugar levels. See your doctor regularly to know your numbers.



4 Portion your plate. The [Diabetes Plate Method](#)¹ is an easy way to create meals to help manage your blood sugar. Using a nine-inch plate, break it up into three sections.

- Fill half your plate with non-starchy veggies—like carrots, green beans or salad.
- Fill one quarter of your plate with plant protein foods or lean meat, poultry or fish.
- Fill one quarter of your plate with carbohydrates—whole grains, starchy veggies, beans and legumes, fruits or dairy products.



Source: American Diabetes Association

5 Be a smart snacker. Snacking is part of most people's daily routines, and knowing the right portion is half the battle of keeping snacks the right size.

With almonds, it's easy as 1–2–3. A 1-ounce serving is 23 almonds with a weight-wise 160 calories. Plus, they offer:

- 6 grams of plant protein
- Only 1 gram of saturated fat
- 4 grams of filling fiber
- Vitamins and minerals like magnesium, vitamin E and more
- 13 grams of good unsaturated fats

This mix of nutrients in almonds can help you stay satisfied for longer.

¹ Learn more about the Diabetes Plate Method at: <https://www.diabetesfoodhub.org/articles/what-is-the-diabetes-plate-method.html>

SCIENCE SHOWS THAT LIFESTYLE TWEAKS WORK

A recent study² funded by the Almond Board of California, looked at how almond snacking affects blood sugar and blood lipid measures in adolescents and young adults in India with prediabetes. At the start of the study, weight, height, and waist and hip circumferences were measured and fasting blood samples were taken of the 275 study participants, ages 16–25. Participants also underwent a glucose tolerance test (a test often used to diagnose diabetes, which checks how your body moves sugar from the blood into tissues like muscle and fat). Participants were then randomly divided into either an almond group or a savory snack group.

The almond group ate 56 grams (about 2 one-ounce servings, or ~340 calories) of unroasted almonds every day for three months, and the control group ate a savory snack with the same number of calories. Both the almond and savory snacks accounted for ~20% of participants' overall daily calorie intake.

Throughout the duration of the study, participants were monitored to ensure they were compliant in eating their snacks. At the end of the study, participants completed dietary intake assessments, and the same measurements and blood tests were performed again. Results showed:

- A statistically significant decrease in HbA1c in the almond group compared to the control group. HbA1c is a simple blood test that provides a picture of your average blood sugar level over the past two to three months. Improving blood sugar levels at the prediabetes stage may help prevent or delay the development of diabetes.



- A statistically significant decrease in total cholesterol and "bad" LDL-cholesterol levels, while maintaining "good" HDL-cholesterol levels among the almond snackers, compared to those in the control group.
- There were no changes in measures of weight, height, waist or hip circumference, or biochemical markers, nor macronutrient intake, between the almond group and the control from the start to the end of the study.

What this research also tells us is that having daily almond snacks was a healthy habit that people with prediabetes were able to stick with over several months—and in turn, the study participants experienced a reduction in these risk factors associated with prediabetes.

A limitation of this study is that participants could not be blinded, so they knew who was in which group. Nutritional intervention studies can trigger diet and lifestyle changes, as the participants are made aware of their risk during the recruitment process. Finally, further research is needed to investigate the effects of almond consumption on these same measures of prediabetes in other age groups and of different ethnicities.

² Madan J, Desai S, Moitra P, Sallis S, Agashe S, Batalwar R, Mehta A, Kamble R, Kalita S, Phatak AG, Udipi SA, Vaidya RA and Vaidya AB (2021) Effect of Almond Consumption on Metabolic Risk Factors—Glucose Metabolism, Hyperinsulinemia, Selected Markers of Inflammation: A Randomized Controlled Trial in Adolescents and Young Adults. *Front. Nutrients*. 8:668622. doi: 10.3389/fnut.2021.668622.

© 2022 Almond Board of California. All rights reserved.

