

What Everyone Needs to Know about Prediabetes:

Symptoms, Diagnosis, Prevention, and more!

What is prediabetes?

Prediabetes is a condition where blood sugar levels are higher than normal, but not high enough to be diagnosed as type 2 diabetes. This occurs when the body has problems in processing glucose properly, and sugar starts to build up in the bloodstream instead of fueling cells in muscles and tissues. Insulin is the hormone that tells cells to take up glucose, and in prediabetes, people typically initially develop insulin resistance (where the body's cells can't respond to insulin as well), and over time the ability to produce sufficient insulin is reduced (if no actions are taken to reverse the situation). People with prediabetes also commonly have high blood pressure as well as abnormal blood lipids (e.g. cholesterol.) These often occur prior to the rise of blood glucose levels.

What are the symptoms of prediabetes?

People typically do not have symptoms of prediabetes, which is partially why up to 90% of people don't know they have it. [The ADA reports](#) that some people with prediabetes may develop symptoms of type 2 diabetes, though even many people diagnosed with type 2 diabetes show little or no symptoms initially at diagnosis. These symptoms include:



Urinating often



Blurry vision



Feeling very thirsty



Feeling very hungry, even though you are eating



Cuts/bruises that are slow to heal



Tingling, pain, or numbness in the hands/feet



Extreme fatigue

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Who is at risk of developing prediabetes?

Overweight and obese adults (a [BMI](#) >25 kg/m²) are at significantly greater risk for developing prediabetes, as well as people with a family history of type 2 diabetes.

[According to the CDC](#), several other factors can have moderate influences on prediabetes risk in addition to age, weight, and family history:

- People with an African American, Hispanic/Latino, American Indian, Asian American, or Pacific Islander racial or ethnic background. [The 2015 ADA Standards of Medical Care](#) recommendations suggest Asian Americans with a BMI of 23 or above be screened for type 2 diabetes.
- Women with a history of diabetes during pregnancy (“gestational diabetes”) or have given birth to a baby weighing nine pounds or more.
- People who are physically active fewer than three times a week.

How do people screen for type 2 diabetes and prediabetes?

- 1 The CDC offers a fast, online [screening test](#) for evaluating the risk for prediabetes.
- 2 The ADA also offers a [screening test](#) to assess type 2 diabetes risk.
- 3 All adults over the age of 45 are recommended to be screened for type 2 diabetes every three to five years with their health care provider.

What can people with prediabetes do to avoid the progression from prediabetes to type 2 diabetes?

If you or someone you know has been told they have prediabetes, here are four helpful strategies and resources.

- 1 Living a healthy lifestyle** The most important action people diagnosed with prediabetes can take is to focus on living a healthy lifestyle. This includes [making healthy food choices](#), controlling portions, and increasing [physical activity](#). Regarding weight control, [research shows losing 5-7%](#) (often about 10–20 lbs.) from your initial body weight and keeping off as much of that weight over time as possible is critical to lowering the risk of type 2 diabetes. This task is of course easier said than done, but sustained weight loss over time can be key to improving health and delaying or preventing the onset of type 2 diabetes.

What are some tips for healthy eating with prediabetes? Eating preference are highly personal, but a few strategies that we have found can be helpful include:

- ✓ Eat more vegetables.
- ✓ Choose whole foods as often as possible; less than five ingredients is ideal, and more than ten ingredients is a red flag.
- ✓ Cook your own food.
- ✓ Avoid sugar, white bread/potatoes/ rice/pasta, crackers, chips, candy, and anything fried.
- ✓ Snack on nuts, seeds, vegetables, fruits, and lean sources of protein.
- ✓ Eat a filling breakfast (protein, fiber) and ideally nothing within 90 minutes of bedtime.
- ✓ Drink water or unsweetened tea.
- ✓ Eat fruit for dessert, when desired.

- 2 In-person diabetes prevention programs:** The CDC offers a one year long lifestyle change program through its [National Diabetes Prevention Program](#) (NDPP) at [various locations](#) throughout the US to help participants adopt healthy habits and prevent or delay progression to type 2 diabetes.

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3 Online diabetes prevention programs: The CDC has now given pending recognition status to three digital prevention programs: [DPS Health](#), [Noom Health](#), and [Omada Health](#). These offer the same one year long educational curriculum as the NDPP, but in an online format. Some insurance companies and employers cover these programs, and you can find more information at the links above. These digital versions are excellent options for those who live far away from NDPP locations or who prefer the anonymity and convenience of doing the program online.

4 Metformin: [Metformin](#), the [safest](#) first-line therapy for type 2 diabetes, may help delay the onset of type 2 diabetes in people with prediabetes. At this time, metformin (or any other medication, for that matter) is not currently FDA approved for prediabetes, and it is sometimes prescribed “[off-label](#)” by a healthcare provider. Your healthcare provider can give you more information and determine whether metformin is a good option for you.

These prediabetes interventions are based on evidence from the landmark [Diabetes Prevention Program \(DPP\)](#) study. The DPP study reported that moderate weight loss (5-7% of body weight, or ~10-15 lbs. for someone weighing 200 lbs.), counseling, and education on healthy eating and behavior reduced the risk of developing type 2 diabetes by 58%. Data presented at the ADA 2014 conference showed that after 15 years of follow-up of the DPP study groups, the results were still encouraging: 27% of those in the original lifestyle group had a significant reduction in type 2 diabetes progression compared to the control group.

Furthermore, participants who took metformin in addition to intensive lifestyle intervention had a [31% reduced risk](#) of developing type 2 diabetes compared to the control group (those not on metformin or intensive lifestyle intervention). Again, 15-year follow up data showed that 17% of those on metformin continued to have a significant reduction in type 2 progression.

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How is prediabetes diagnosed?

According to the [American Diabetes Association](#), prediabetes can be diagnosed through one of the following tests:

- 1 A glycated hemoglobin test, also known as HbA1c or simply A1c, gives an idea of the body's average blood sugar levels from the past two or three months. It is usually done with a small drop of blood from a fingerstick or as part of having blood taken in a doctor's office, hospital, or laboratory.

Diagnosis	A1c Level
Normal	Less than 5.7%
Prediabetes	5.7% to 6.4%
Diabetes	6.5% and higher

- 2 A fasting plasma glucose (FPG) test measures a person's blood glucose level after fasting (not eating) for eight hours – this is typically done in the morning. If a test shows positive for prediabetes, a second test should be taken on a different day to confirm the diagnosis.

Diagnosis	FPG Level
Normal	Less than 5.7%
Prediabetes	5.7% to 6.4%
Diabetes	6.5% and higher