



Prediabetes

WHAT IS PREDIABETES?

Blood glucose (sugar) is produced by the body from the foods you eat. Insulin, a hormone produced by the pancreas, takes glucose from the bloodstream and carries it to your cells where it is used for energy. This process keeps the amount of glucose in your blood from getting too low or too high.

Prediabetes is a condition in which blood glucose levels are higher than normal but not high enough for a diagnosis of diabetes. Over time, having too much glucose in your blood puts you at risk for heart disease and stroke, and for developing type 2 diabetes.

Risk factors that increase your chances of developing prediabetes include

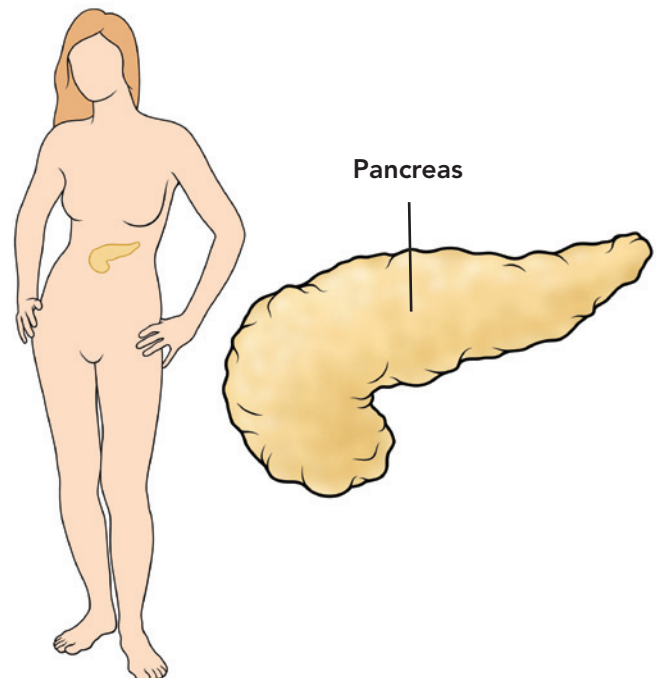
- Being overweight or obese
- Not getting enough exercise
- Having a family history of type 2 diabetes
- Being age 45 years or older
- Having an African American, Latino/Hispanic, or American Indian family background
- Having had gestational diabetes (diabetes during pregnancy) or giving birth to a baby weighing more than 9 pounds

DID YOU KNOW?

Older adults are most at risk for developing prediabetes, but children and adolescents also can have this condition.

WHO IS AT RISK OF DEVELOPING PREDIABETES?

According to the Centers for Disease Control and Prevention, about 79 million American adults age 20 years or older have prediabetes. As the population ages and becomes more overweight and inactive, the number of adults with prediabetes continues to increase. The number of children and young adults with prediabetes is also rising.



HOW DO YOU KNOW IF YOU HAVE PREDIABETES?

Prediabetes has no visible signs or obvious symptoms. Three blood tests are used to check the levels of glucose in your blood and diagnose this condition:

- **Fasting blood glucose test (FBG).** Blood is drawn after you fast (go without food) overnight or for at least 8 hours.
- **Oral glucose tolerance test (OGT).** You must fast for at least 8 hours. Blood is drawn before you drink a sugary solution and again 2 hours after.
- **Hemoglobin A1c (HbA1c) test.** This blood test gives an estimate of your average blood glucose during the past 3 months.

WHAT YOUR TEST RESULTS MEAN		
Normal Blood Glucose	Prediabetes	Diabetes
<ul style="list-style-type: none">• FBG: 70 to 99 mg/dL• OGT: Less than 140 mg/dL• HbA1c: 4 to 5.6%	<ul style="list-style-type: none">• FBG: 100 to 125 mg/dL• OGT: 140 and 199 mg/dL• HbA1c: 5.7 to 6.4%	<ul style="list-style-type: none">• FBG: 126 mg/dL or higher• OGT: 200 mg/dL or higher• HbA1c: 6.5% or higher

WHY SHOULD YOU TAKE PREDIABETES SERIOUSLY?

Each year about 1 out of 10 people with prediabetes develops type 2 diabetes. If left untreated, diabetes can cause blindness, kidney failure, nerve damage, heart disease, and stroke. Even when blood glucose levels are slightly high, as they are with prediabetes, your risk for heart disease and stroke increases.

HOW DO YOU PREVENT AND TREAT PREDIABETES?

You can prevent prediabetes (and type 2 diabetes) even if diabetes runs in your family. Most people with prediabetes can avoid progressing to diabetes with lifestyle changes that include

- Eating a balanced meal plan, low in fat and high in fruits, vegetables, and whole grains
- Getting regular physical activity (a half-hour five times a week)
- Maintaining a healthy weight (if you are overweight or obese, losing just 5 to 10 percent of your weight can help lower your chances of developing type 2 diabetes)

While lifestyle changes are the first choice to treat prediabetes and prevent diabetes, medications may be an option. Several drugs have been proven to lower the risk that prediabetes will progress to diabetes. However, these drugs can have side effects. Also, research studies have shown that the effects of drugs used to prevent diabetes wear off after stopping the drug. So a healthy diet and exercise are still the best and safest ways to prevent diabetes.

Because of the link between type 2 diabetes and obesity, medicines that help with weight loss may also lower the risk of developing diabetes.

Questions to ask your doctor

- Do I need to be checked for prediabetes?
- If I have prediabetes, should I be checked for type 2 diabetes? How often?
- Should I take medicines to treat my prediabetes?
- What are the benefits and risks of prediabetes medicines?
- How can I lose weight if I need to?
- Should I see an endocrinologist for my care?

RESOURCES

- Find-an-Endocrinologist: www.hormone.org or call 1-800-HORMONE (1-800-467-6663)
- Hormone Health Network diabetes information: www.hormone.org/Diabetes/index.cfm
- American Diabetes Association: www.diabetes.org/diabetes-basics/prevention/pre-diabetes
- Mayo Clinic: www.mayoclinic.com/health/prediabetes/DS00624
- National Diabetes Education Program (National Institutes of Health–NIH): ndep.nih.gov
- National Diabetes Information Clearinghouse (NIH): diabetes.niddk.nih.gov/dm/pubs/insulinresistance

EDITORS

Abbas E. Kitabchi, PhD, MD
Guillermo Umpierrez, MD

The Hormone Health Network offers free, online resources based on the most advanced clinical and scientific knowledge from The Endocrine Society (www.endo-society.org). The Network's goal is to move patients from educated to engaged, from informed to active partners in their health care. This fact sheet is also available in Spanish at www.hormone.org/Spanish.

