

Spotlight on Health

Prediabetes

Prediabetes is a condition in which a person's blood glucose levels are higher than normal, but not high enough to be considered diabetes. Over 84 million American adults have prediabetes, yet few (about 11%) know that they have this condition.¹ It is important to identify this condition, as nearly 70% of people with prediabetes will develop type 2 diabetes within 10 years.² Identifying and treating prediabetes before it progresses is critical in order to stem the rising incidence of diabetes and related comorbid conditions.

This newsletter will discuss the risk factors, screening, and testing associated with prediabetes in adults. It will also discuss interventions that can help prevent the progression of prediabetes to type 2 diabetes.

Screening and Testing Based on Risk Factors

Prediabetes generally lacks specific signs and symptoms. Therefore, a patient's risk factors can be used to assess the need for screening and testing. Screening can start with an informal assessment using a tool such as the [prediabetes risk test](#).³ The tool asks 7 basic questions and offers a score that indicates whether the person is at increased risk for prediabetes and diabetes. If screening indicates a person is at risk, they may be a candidate for testing.

Laboratory testing for prediabetes includes measuring fasting plasma glucose (FPG), tracking hemoglobin A1c (HbA1c), and conducting oral glucose tolerance tests (OGTT). Formal testing to examine for the presence of prediabetes is indicated if a person is overweight or obese (BMI ≥ 25 kg/m² or ≥ 23 kg/m² in Asian Americans) and has at least one other risk factor from the following list:²

- Age: ≥ 45 years
- Race/ethnicity: African-American, Hispanic/Latino American, American Indian, Pacific Islander, or Asian-American
- Physically inactive: Less than 10 minutes per week of moderate or vigorous activity
- High blood pressure: $\geq 140/90$ mm Hg
- Low high-density lipoprotein (HDL) cholesterol: < 35 mg/dL
- High triglycerides: >250 mg/dL
- Family history: First-degree relative with diabetes
- Personal history: cardiovascular disease, women with gestational diabetes or polycystic ovary syndrome
- Prior testing: HbA1c $\geq 5.7\%$, impaired glucose tolerance, or impaired fasting glucose



National Diabetes Prevention Program

If you have a patient with prediabetes, you can encourage them to join a lifestyle-change program recognized by the CDC. While in a group setting, the interventions are individualized. Classes cover topics such as:

- Eating healthy
- Increasing physical activity
- Dealing with stress
- Tracking meals and activity
- Setting goals
- Staying motivated

Regional in-person classes and online classes can be found at the following website: nccd.cdc.gov/DDT_DPRP/Programs.aspx

If a patient is diagnosed with prediabetes, they should be monitored annually to check whether they have progressed to diabetes.⁴ For those who have not been diagnosed with prediabetes, but still have risk factors, the American Diabetes Association recommends testing for prediabetes every 3 years.²

Intervention and Prevention

Effective interventions can help prevent or delay progression of prediabetes to type 2 diabetes. Patients may even be able to reverse their prediabetes status.

Diet combined with exercise is effective in preventing the progression of prediabetes to type 2 diabetes.⁵ But the most effective means of prevention is participation in the Diabetes Prevention Program (DPP) developed by the CDC (see sidebar on page 1).^{4,6} Participation in the DPP can reduce the risk of progressing from prediabetes to type 2 diabetes by 58% over 3 years.⁴ The program is an intensive lifestyle intervention, including:

- Weight loss: achieving and maintaining 7% weight loss
- Diet: reducing caloric intake, improving quality of fat consumed (eg, the Mediterranean and the Dietary Approaches to Stop Hypertension (DASH) diet patterns are effective⁷)
- Exercise: being active 150 minutes per week (with exercise intensity similar to a brisk walk)
- Smoking: reducing or quitting smoking

The DPP also includes use of medication (eg, metformin) for certain patients, such as:

- Those with a BMI ≥ 35 kg/m²
- Those aged <60 years
- Women with prior gestational diabetes mellitus
- Those with a high HbA1c despite lifestyle interventions

Audiovisual and mobile technology may also aid in preventing type 2 diabetes.⁴ The use of instructional DVDs, online virtual groups, and online social networks have been validated for content delivery. Mobile apps for weight loss and diabetes prevention have been also been validated for their ability to reduce HbA1c levels.

How the Laboratory Can Help

Quest Diagnostics offers the [Diabetes Risk Panel](#), which can be used in the diagnosis of prediabetes and to identify people who might benefit from lifestyle changes and/or medication. The panel tests levels of glucose, HbA1c, total cholesterol, HDL-cholesterol, and triglycerides, and also reports calculated values for cholesterol/HDL ratio, LDL-cholesterol, and non-HDL cholesterol.

For patients 45 to 64 years old, the panel includes the Framingham diabetes risk score to assess the risk of developing type 2 diabetes within 8 years. The score is based on test results, clinical data, and family history.

References

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