



## HEALTH EDUCATION

# What's the difference between insulin resistance and prediabetes?

Both conditions involve how your body makes and uses insulin—here's how to tell them apart

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When you hear the term [insulin resistance](#), you probably think of diabetes. But while insulin resistance can lead to diabetes, it's not the same thing. Insulin resistance refers to the inability of your body's cells to respond to insulin, whereas diabetes (and prediabetes) happens when your pancreas doesn't make enough insulin to regulate your blood sugar.

If you are confused about insulin resistance vs. diabetes, you are not alone! Here, we'll explain the difference between insulin resistance and prediabetes,

what causes the two conditions, any signs and symptoms to look for, and what steps to take to [manage these conditions](#) if you receive a diagnosis.

## Is insulin resistance the same as diabetes??

Insulin resistance and prediabetes are distinct conditions. To understand each condition better, it's important to first recognize the role that insulin plays in your body. Insulin is a hormone secreted by the pancreas. It helps regulate the glucose that enters your blood cells as food is digested and broken down after eating. After you eat, your insulin levels rise so that a healthy amount of glucose enters your body's cells—not too much, and not too little. Both insulin resistance and prediabetes involve problems using or making insulin.

### Insulin resistance

“Insulin resistance is a condition when the various cells (like muscle, liver, fat) don't respond to insulin hormone and cannot regulate glucose from the blood,” explains Soma Mandal, MD, an internist at [Summit Health](#) in New Jersey.” Insulin resistance is more common than you might realize and affects as many as [24% of adults age 20 and older](#).

Unfortunately, most healthcare providers don't test for insulin resistance but may be able to diagnose it based on symptoms. According to the National Institute of Diabetes and Digestive and Kidney Diseases, the current tests available for insulin resistance are complex and are used primarily for research purposes.

### Prediabetes

Prediabetes and diabetes are characterized by increased glucose levels in your blood and occur when the pancreas isn't making proper amounts of insulin or your cells become resistant to insulin. In prediabetes, your glucose levels are higher than they should be, but not yet elevated enough to be considered diabetes. Most healthcare providers screen adults regularly for prediabetes, using blood tests such as the [A1C test](#) and the fasting plasma glucose test. Type 2 diabetes occurs when your blood glucose levels reach certain thresholds—for example when your [A1C test result is 6.5% or higher](#) or when your glucose tolerance test is 200 mg/dL or more. Prediabetes affects about 84 million adults aged 18 and older, which comes out to roughly every [1 in 3 adults in the United States](#).

## Insulin Resistance vs. Prediabetes Symptoms

| Insulin resistance symptoms   | Prediabetes symptoms  |
|---|---|
| <p>Not everyone with insulin resistance has symptoms, though common signs may include:</p> <ul style="list-style-type: none"><li>• Excess fat around your waistline</li><li>• Elevated blood pressure</li><li>• Elevated fasting blood sugar levels</li><li>• High cholesterol and/or triglyceride levels</li><li>• Dark patches on the neck or other parts of your body</li><li>• Low energy and fatigue</li><li>• Irregular menstrual cycles (in women)</li></ul> | <p>Many people live with this condition for years without showing any noticeable symptoms. As it progresses, you may develop signs including:</p> <ul style="list-style-type: none"><li>• Feeling very thirsty</li><li>• Frequent urination</li><li>• Dry mouth</li><li>• Hunger after eating</li><li>• Unexplained weight loss or gain</li><li>• Headaches</li><li>• Blurred vision</li></ul> <p>These may be signs that prediabetes is starting to progress to Type 2 diabetes.</p> |

## What causes insulin resistance and prediabetes?

There are a number of medical history and lifestyle factors that contribute to the development of insulin resistance and prediabetes.

### Insulin resistance causes

Experts aren't sure what causes insulin resistance, but it's likely a combination of genetics and lifestyle. Risk factors for developing the condition include:

- Being older than 45
- Having a close family member who has diabetes
- Having high blood pressure or elevated cholesterol levels
- Having heart disease or previous strokes
- Having had gestational diabetes during pregnancy
- Having a history of polycystic ovary syndrome (PCOS)
- Having sleep apnea
- Having a history of hormone disorders like acromegaly and Cushing's syndrome
- Taking steroid and antipsychotic medications
- Living a sedentary lifestyle
- Being overweight or obese

“Extra fat in the body can lead to increased inflammation, stress, and other changes that lead to insulin resistance,” Dr. Mandal says. Additionally, women who are perimenopausal or menopausal may be more likely to develop the condition, according to Dr. Mandal, because of changing hormones and metabolic shifts.

## Prediabetes causes

[Risk factors](#) for developing prediabetes include:

- Being overweight or obese
- Leading a sedentary lifestyle or not exercising regularly
- Having a poor diet
- Having an immediate family member with diabetes
- Having [gestational diabetes](#) (in women)
- Having [polycystic ovary syndrome](#) (in women)
- Having high blood pressure
- Having low levels of “good” (HDL) cholesterol
- Being African American, Native American, Latin American, or Asian/Pacific Islander
- Being older 45 years old
- Having [sleep apnea](#)

## Can insulin resistance and prediabetes turn into diabetes?

Although insulin resistance and prediabetes are not the same things, the reason why they are so easily confused is that both conditions can turn into diabetes if they are not well managed through lifestyle changes such as [diet modifications](#) and exercise, says Dung Trinh, MD, an internal medicine specialist and owner of [Healthy Brain Clinic](#).

“When the body’s cells do not respond properly to insulin, the pancreas tries to produce more of it in order to maintain blood sugar levels,” Dr. Trinh explains. “This can lead to an overproduction of insulin, which can eventually make the situation worse by further impairing the body’s ability to use insulin effectively.”

Over time, the pancreas isn’t able to do its job properly. “The ability of the pancreas to make insulin can wear out and eventually, the pancreas no longer

produces enough insulin,” Dr. Mandal says. This can lead to prediabetes, and eventually, Type 2 diabetes.

The tricky thing is that you can be insulin resistant but not diabetic, or at least not diabetic yet. Insulin resistance doesn't always lead to prediabetes or diabetes, says Dr. Trinh. It can get worse over time, and [cause stress on the pancreas](#), eventually resulting in a decrease in the pancreas' ability to make insulin, which leads to prediabetes or Type 2 diabetes. But the development of diabetes isn't the only concern when it comes to insulin resistance. Some research has found links between insulin resistance and heart disease, stroke, and dementia. However, you are less likely to develop these conditions if you adopt healthier lifestyle choices.

## What to do if you're diagnosed with insulin resistance or prediabetes

Learning that you have insulin resistance or prediabetes can be overwhelming and stressful, but knowledge is power. For both of these conditions, [making changes to your diet and lifestyle](#) can have a strong and meaningful impact.

Both prediabetes and insulin resistance can be managed with some basic healthy choices, including:

- Sticking to a diet that emphasizes fruits and veggies, whole grains, and lean proteins
- Avoiding fried foods, sugary foods, foods with trans fats, and unrefined carbs
- Losing weight, if you are overweight or obese
- Adding exercise into your day and staying physically active
- Making sure to get enough sleep
- Taking medication for diabetes, such as [metformin](#), if your healthcare provider prescribes it

According to the National Library of Medicine, it usually takes about 10-15 years for people with insulin resistance to develop diabetes.

Developing Type 2 diabetes means that you will have to monitor your blood sugar regularly, make dietary changes, and take [medication](#) to help regulate your blood sugar. And while managing your diabetes is possible, and

complications can be avoided, unmitigated diabetes can affect many aspects of your health, including [nerve damage, kidney damage, problems with the immune system, feet and skin sores, and eye issues \(reduced vision or blindness\)](#). Meaning, it can have huge benefits for your health to take steps to reverse insulin resistance and prediabetes while you still can.