

All About Insulin Resistance

Toolkit No. 5

Insulin resistance is a condition that increases your chances of developing type 2 diabetes and heart disease. When you have insulin resistance, your body has problems responding to insulin. Eventually, your blood glucose (sugar) levels rise above normal. The good news is that cutting calories, adding physical activity to your daily routine, and losing weight can reverse insulin resistance and lessen your chances of getting type 2 diabetes and heart disease.

What does insulin do?

Insulin's job is to help the body use glucose for energy. It's a hormone, one of the chemicals your body makes to help trigger or regulate processes in the body. Insulin is made by the pancreas, an organ located behind the lower part of the stomach. Your pancreas usually makes just the right amount of insulin to match the food you eat.

Insulin acts as the doorman at the entrance to your cell. Food arrives at the door of a cell in the form of blood glucose. When your insulin is working effectively, it opens the door, just like a doorman. Then blood glucose enters the cell where it is used for energy.

When you have insulin resistance, your cells don't respond to insulin—they **resist** insulin's commands—and insulin can't do its job. Blood glucose still arrives at the cell door, but insulin can't work effectively and the door to the cell won't open. Your pancreas tries to keep blood glucose levels normal by making extra insulin. At first, the extra insulin helps. But after a while, even extra insulin can't open the cell doors and your blood glucose can rise. If your blood glucose is high, you may have either pre-diabetes or even diabetes.



Physical activity, such as walking, can prevent or reverse insulin resistance.

What are the risk factors for insulin resistance?

You're more likely to have insulin resistance if you

- are overweight
- are physically inactive
- are a woman with a waist measurement at your belly button over 35 inches or a man with a waist measure over 40 inches
- have a parent, brother, or sister with type 2 diabetes
- have polycystic ovary syndrome
- are over age 45
- have a blood pressure over 140/90 mmHg
- have low HDL (good) cholesterol levels (35 mg/dl or lower)
- have high levels of a fat called triglycerides in the blood (250 mg/dl or higher)

All of these risk factors put you at risk for heart disease.

How is insulin resistance diagnosed?

At this time, there is no commonly used test to diagnose insulin resistance. People with insulin resistance usually have no symptoms. Your doctor can review your risk factors and then consider whether you're likely to be insulin-resistant. If you have a risk factor for insulin resistance, your doctor should check your fasting blood glucose levels to see whether you have pre-diabetes or even diabetes.

How can I prevent or reverse insulin resistance?

You can cut calories and be physically active. If you do, it's more likely you'll lose weight. Remember, you don't have to lose a lot; even a loss of 10 pounds can help.

Cut calories

Place a check mark next to the steps you'd like to try for cutting down on calories every day. A dietitian can help you find other ways to cut calories and plan healthy meals.

- I'll cut back on my usual serving sizes.
 - I'll order the smallest portion size when I'm eating out. Or I'll share an entree.
 - I'll try calorie-free drinks or water instead of regular soft drinks and juice.
 - I'll try low-fat versions of the foods I usually eat. I'll check the labels to make sure the calories are reduced too.
 - I'll choose baked, grilled, and steamed foods instead of fried.
 - I'll eat more vegetables and whole grain foods.
 - I'll ask for salad dressings and sauces "on the side" and then use as little as possible.
 - I'll use nonstick pans or cooking sprays.
 - I'll cut back on high-fat toppings, such as butter, margarine, sour cream, regular salad dressing, mayonnaise, and gravy. Instead, I'll season my food with barbecue sauce, salsa, lemon juice, or other low-fat choices.
 - I'll stock my kitchen with low-calorie, low-fat snacks. I'll keep serving sizes small.
 - Another way I'll try to cut calories is _____
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Be physically active

Place a check mark next to the ways you'll try to add physical activity to your routine.

- I'll take the stairs instead of the elevator.
 - I'll walk around while I talk on the phone.
 - I'll find an activity I enjoy, such as dancing, gardening, or playing with the kids.
 - I'll be active around the house by working in the garden and washing the car.
 - I'll get up to change the TV channel.
 - I'll take the dog for a walk.
 - I'll park at the far end of the shopping center lot and walk to the store.
 - At the grocery store, I'll walk down every aisle.
 - I'll take a walk every day after lunch, working up to 30 minutes of brisk walking, 5 days a week. Or I'll split the 30 minutes into two or three walks.
 - I'll try strength training by lifting light weights several times a week.
 - Another way I'll try to add physical activity to my day is _____
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Does insulin resistance affect people who already have type 2 diabetes?

Yes, insulin resistance usually starts before type 2 diabetes is diagnosed and then continues, making it more difficult for you to reach your blood glucose targets. If you have type 2 diabetes, you can fight insulin resistance by cutting calories, being physically active, and losing weight if you need to. Talk with your health care team about ways to achieve your goals using meal planning, physical activity, and medications.

