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# Metabolic Syndrome

## Topic Overview

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### What is metabolic syndrome?

Metabolic syndrome is a group of health problems that include too much fat around the waist, elevated blood pressure, high triglycerides, elevated blood sugar, and low HDL cholesterol.

Together, this group of health problems increases your risk of heart attack, stroke, and diabetes.

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### What causes metabolic syndrome?

Metabolic syndrome is caused by an unhealthy lifestyle that includes eating too many calories, being inactive, and gaining weight, particularly around your waist. This lifestyle can lead to insulin resistance, a condition in which the body is unable to respond normally to insulin. If you have insulin resistance, your body cannot use insulin properly, and your blood sugar will begin to rise. Over time, this can lead to type 2 diabetes.

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### What are the symptoms?

If you have metabolic syndrome, you have several disorders of the metabolism at the same time, including obesity (usually around your waist), high blood pressure, low HDL cholesterol, and resistance to insulin.

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### Why is metabolic syndrome important?

This syndrome raises your risk for coronary artery disease (CAD), even beyond that caused by high LDL cholesterol alone.<sup>1</sup> It also increases your risk for diabetes.

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### What increases your chance of developing metabolic syndrome?

The things that make you more likely to develop metabolic syndrome include:<sup>2 1</sup>

- Insulin resistance. This means that your body cannot use insulin properly.
- Abdominal obesity. This means having too much fat around your waist.
- Age. Your chances of developing metabolic syndrome increase as you get older.
- Lack of exercise. If you do not exercise, you are more likely to be obese and develop metabolic syndrome.
- Hormone imbalance. A hormone disorder such as polycystic ovary syndrome (PCOS), a condition in which the female body produces too much of certain hormones, is linked with metabolic syndrome.

- Family history of type 2 diabetes. Having parents or close relatives with diabetes is associated with metabolic syndrome.
  - A history of diabetes during pregnancy (gestational diabetes).
  - Race and ethnicity. People with Indigenous, African, Hispanic, Asian, and Pacific Islander backgrounds are at higher risk than whites for type 2 diabetes.
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## How is metabolic syndrome diagnosed?

Your doctor can diagnose metabolic syndrome with a physical examination, your medical history, and some simple blood tests.

You may be diagnosed with metabolic syndrome if you have three or more of the risk factors listed in the table below.

**Note:** These criteria were developed by the National Heart, Lung, and Blood Institute. Other organizations may have different criteria for diagnosis.

**Criteria for metabolic syndrome <sup>2</sup>**

<b>Central obesity or abdominal obesity (waist measurement)</b>	<b>Defining level</b>
People of European descent	Men: 94 cm or more; women: 80 cm or more
South Asians	Men: 90 cm or more; women: 80 cm or more
Chinese	Men: 90 cm or more; women: 80 cm or more
Japanese	Men: 90 cm or more; women: 80 cm or more
People of South and Central American descent	Men: 90 cm or more; women: 80 cm or more
Indigenous peoples	Men: 90 cm or more; women: 80 cm or more
People of African descent	Men: 94 cm or more; women: 80 cm or more
People of Eastern Mediterranean and Middle Eastern descent	Men: 94 cm or more; women: 80 cm or more
Plus two of the following	
Triglycerides	Higher than 1.7 mmol/L
High-density lipoprotein (HDL) cholesterol	Men: Less than 1.03 mmol/L Women: Less than 1.3 mmol/L
Blood pressure	Higher than 130/85 mm Hg or taking medicine for high blood pressure
Fasting blood sugar	Higher than 5.6 mmol/L

## How is it treated?

The main goal of treatment is to reduce your risk of coronary artery disease (CAD) and diabetes. The first approaches in treating metabolic syndrome are:

- Weight control. Being overweight is a major risk factor for CAD. Weight loss lowers LDL cholesterol and reduces all of the risk factors for metabolic syndrome.
- Physical activity. Lack of exercise is a major risk factor for CAD. Regular exercise can help improve cholesterol levels. It can also lower blood pressure, reduce insulin resistance, lower blood sugar levels, and improve heart function.
- Assessing risk category for CAD and diabetes. Then you and your doctor may discuss other treatments to lower LDL, high blood pressure, or high blood sugar.

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## **A** Is it an emergency?

If you or someone in your care has chest pains, difficulty breathing, or severe bleeding, it could be a **life-threatening emergency**. Call **9-1-1** or the local emergency number immediately.

If you are concerned about a possible poisoning or exposure to a toxic substance, call **Poison Control** now at **1-800-567-8911**.