



What Is Metabolic Syndrome?

This syndrome is a group of metabolic risk factors that exist in one person. Some of the underlying causes of this syndrome that give rise to the metabolic risk factors include:

- being overweight or obese
- having insulin resistance
- being physically inactive
- genetic factors

Metabolic syndrome is a serious health condition. People with it have a higher risk of diseases related to fatty buildups in artery walls. Coronary heart disease, which can lead to heart attack, is an example. Stroke and peripheral vascular disease are other examples.

People with the metabolic syndrome are also more likely to develop type 2 diabetes.

Who has metabolic syndrome?

In recent years this syndrome has become much more common in the United States. About 20 to 25 percent of adult Americans are estimated to have it.

The syndrome is associated with central obesity and insulin resistance. Obesity contributes to hypertension, high blood cholesterol, low HDL (“good”) cholesterol and hyperglycemia (high blood sugar).

Abdominal obesity especially correlates with metabolic risk factors. Metabolic syndrome is considered a clustering of metabolic complications of obesity.

In insulin resistance, the body can’t use insulin efficiently. That’s a problem because the body needs insulin to convert sugar and starch into energy for daily life. If the body can’t do this, diabetes can result.

Some people inherit a tendency toward insulin resistance. In these people, acquired factors (excess body fat and physical inactivity) can trigger insulin resistance and the metabolic syndrome. Most people with insulin resistance have central (abdominal) obesity.

How is the metabolic syndrome diagnosed?

The most current and widely used criteria identify this syndrome by the presence of three or more of these metabolic risk factors:

- Central obesity. This is measured by waist circumference:
 - More than 40 inches for men.
 - More than 35 inches for women.
- Fasting blood triglycerides are 150 mg/dL or more or taking medicine for high triglycerides.
- Low HDL cholesterol levels or taking medicine for low HDL cholesterol:
 - Men — Less than 40 mg/dL
 - Women — Less than 50 mg/dL
- Elevated blood pressure of 130/85 mm Hg or higher or taking medicine for high blood pressure.
- Fasting glucose (blood sugar) of 100 mg/dL or more or taking medicine for high blood glucose.

How is metabolic syndrome treated?

People who have the metabolic syndrome can reduce their risk for cardiovascular disease and type 2 diabetes by controlling risk factors. The best way is for them to lose weight and increase their physical activity.

Here are some important steps for patients and their doctors in managing the metabolic syndrome:

- Routinely monitor body weight (especially the index for central obesity). Also monitor blood glucose, lipoproteins and blood pressure.

- Treat individual risk factors (hyperlipidemia, high blood pressure and high blood glucose) according to established guidelines.
- Carefully choose anti-hypertensive drugs because different drugs have different effects on insulin sensitivity.

We need more research to understand how drug therapy might help people with the metabolic syndrome. It's important to focus on the five components of this syndrome to properly manage it.

How can I learn more?

1. Talk to your doctor, nurse or other health-care professionals. If you have heart disease or have had a stroke, members of your family also may be at higher risk. It's very important for them to make changes now to lower their risk.
2. Call 1-800-AHA-USA1 (1-800-242-8721) or visit americanheart.org to learn more about heart disease.
3. For information on stroke, call

1-888-4-STROKE (1-888-478-7653) or visit StrokeAssociation.org.

We have many other fact sheets and educational booklets to help you make healthier choices to reduce your risk, manage disease or care for a loved one.

Knowledge is power, so *Learn and Live!*

What are the warning signs of heart attack and stroke?

Warning Signs of Heart Attack

Some heart attacks are sudden and intense, but most of them start slowly with mild pain or discomfort with one or more of these symptoms:

- Chest discomfort
- Discomfort in other areas of the upper body
- Shortness of breath with or without chest discomfort
- Other signs including breaking out in a cold sweat, nausea or lightheadedness

Warning Signs of Stroke

- Sudden weakness or numbness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden, severe headache with no known cause

Learn to recognize a stroke. Time lost is brain lost.

Call 9-1-1 ... Get to a hospital immediately if you experience signs of a heart attack or stroke!

Do you have questions or comments for your doctor?

Take a few minutes to write your own questions for the next time you see your healthcare provider. For example:

How can I reduce my weight?

Can physical activity affect my HDL cholesterol?

Your contribution to the American Heart Association supports research that helps make publications like this possible.

The statistics in this sheet were up to date at publication. For the latest statistics, see the Heart Disease and Stroke Statistics Update at americanheart.org/statistics.

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