



Metabolic syndrome is a condition where you have several problems with your metabolism all occurring at the same time. To be diagnosed with metabolic syndrome, you must have at least three of the following conditions: high blood pressure, high blood sugar, a high triglyceride level, a low HDL cholesterol level, and/or excessive fat in and around the abdomen.

Having one component of metabolic syndrome means you are more likely to have others and certainly, the more components you have, the greater the risk to your overall health. You are more likely to develop metabolic syndrome if you are overweight, lack physical activity, eat an unhealthy diet, or have a family history of type 2 diabetes.

Certainly, any one of these conditions alone can increase your health risk, but the combination of three or more can be very dangerous. When you have metabolic syndrome, your risk for heart disease and developing type 2 diabetes goes up dramatically.

### Metabolic syndrome causes

Metabolic syndrome is becoming more common due to a rise in obesity rates among adults in the United States and about one in four people are affected. Doctors are not sure whether the syndrome is due to one single cause, although many of the risks for the syndrome are related to obesity. Many people with metabolic syndrome have been told they had pre-diabetes, early hypertension (high blood pressure) or mild hyperlipidemia (high fats in the blood).

### THE TWO MOST IMPORTANT RISK FACTORS FOR METABOLIC SYNDROME ARE:

- **Extra weight around the middle** and upper parts of the body (central obesity). This body type may be described as “apple-shaped.”
- **Insulin resistance** — Insulin is a hormone produced in the pancreas. Insulin is needed to help control the amount of sugar in the blood. Insulin resistance means that some cells in the body use insulin less effectively than normal. As a result, blood sugar level rises, which causes insulin to rise. This may increase the amount of body fat.

### OTHER RISK FACTORS INCLUDE:

- Aging
- Genes that make you more likely to develop this condition or a family history of metabolic syndrome
- Changes in male, female, and stress hormones
- Lack of exercise

### PEOPLE WHO HAVE METABOLIC SYNDROME OFTEN HAVE ONE OR MORE OTHER FACTORS THAT MAY BE LINKED WITH THE CONDITION, INCLUDING:

- Increased risk for blood clotting
- Increased levels of blood substances that are a sign of inflammation throughout the body
- Small amounts of a protein called albumin in the urine

## Diagnosing metabolic syndrome

Your health care provider will diagnose metabolic syndrome based on the results of a physical exam and blood tests. You must have at least three of the risk factors to be diagnosed with metabolic syndrome:



- **Large waistline**, which is a waist measurement of
  - » 35 inches or more for women
  - » 40 inches or more for men
- **High triglyceride level**, which is 150 mg/dL or higher
- **Low HDL** cholesterol level, which is
  - » Less than 50 mg/dL for women
  - » Less than 40 mg/dL for men
- **High blood pressure**, which is a reading of 130/85 mmHg or higher.
- **High fasting blood sugar**, which is 100 mg/dL or higher

## Metabolic syndrome treatments

The goal of treatment is to reduce your risk for heart disease, stroke, and diabetes. Your provider will likely recommend lifestyle changes and/or medicines:

- **Weight.** The goal is to lose between 7% and 10% of your current weight, which means you will probably need to eat 500 to 1,000 fewer calories per day. A variety of diet options can help people achieve this goal. There is no single *best* diet to lose weight.
- **Physical activity.** Get 150 minutes a week of moderate intensity exercise such as walking. Do exercises to strengthen your muscles 2 days a week. High intensity exercise for shorter periods is another option. Check with your provider before starting a new exercise program.
- **Cholesterol.** Lower your cholesterol by eating healthier foods, losing weight, exercising, and taking cholesterol-lowering medicines, if needed.
- **Blood pressure.** Lower your blood pressure by eating less salt, losing weight, exercising, and taking medicine, if needed.

If you smoke, now is the time to quit. Ask your provider for help quitting. There are medicines and programs that can help you quit.



*It is possible to prevent or delay metabolic syndrome, mainly with lifestyle changes. A healthy lifestyle is a lifelong commitment. Successfully controlling metabolic syndrome requires long-term effort and teamwork with your health care providers. If you have questions or need more information about metabolic syndrome, speak to your doctor or other healthcare professional.*

**For more information, contact the National Kidney Foundation**

Toll-free help line: **855.NKF.CARES** or email: **[nkfcare@kidney.org](mailto:nkfcare@kidney.org)**