

The Metabolic Syndrome

Since **cardiovascular** (heart and blood vessel) disease is the leading cause of death for adults in developed countries, many medical studies focus on treating or preventing heart disease and stroke. **The metabolic syndrome**, a collection of unhealthy body measurements and abnormal laboratory test results, may identify persons at high risk for developing cardiovascular disease. Aggressive lifestyle modification and possible use of medications to treat the conditions that make up the metabolic syndrome may reduce a person's chances of developing heart disease or stroke. The metabolic syndrome has also been called syndrome X or insulin resistance syndrome. The February 15, 2006, issue of *JAMA* includes an article about the metabolic syndrome.

DEFINITION OF THE METABOLIC SYNDROME

- Abdominal (waist) circumference greater than 40 inches for men or 35 inches for women
- High blood pressure (hypertension)
- Hyperglycemia (fasting blood sugar more than 110 mg/dL)
- Elevated triglycerides (a type of fat in the bloodstream)
- Low levels of high-density lipoprotein, also known as HDL or "good cholesterol"

Having at least 3 of the above measurements means that an individual has metabolic syndrome and is at risk for developing type 2 diabetes, coronary heart disease, heart attack, or stroke.

TREATING THE METABOLIC SYNDROME

Lifestyle modifications include weight loss, regular exercise, stopping smoking, and reducing dietary fat intake. Losing just 10% of excess body weight lowers blood pressure and improves insulin resistance. Some persons may be able to treat high blood pressure and hyperglycemia by altering their lifestyle alone. In many individuals, lifestyle modification is not adequate, and medications must be used to decrease blood pressure, lower triglycerides, and increase the level of HDL.

Because these problems are often linked, treating one aspect of the metabolic syndrome may help the other issues. For example, regular exercise can help you lose weight, reduce blood pressure, and manage hyperglycemia and insulin resistance. Combining healthful eating with a regular exercise program is the cornerstone of treating the metabolic syndrome and reducing risk for heart disease, stroke, diabetes, and other medical problems.

PREVENTION

- Exercise regularly throughout your life.
- Encourage children to have daily physical activity and make healthful food choices.
- Eat a healthful, balanced diet low in saturated fats and high in nutrient-rich fruits and vegetables.
- Do not smoke.
- Recognize that you may have a genetic (inherited) predisposition for diabetes, heart disease, and the metabolic syndrome.
- Have regular medical check-ups and initiate early treatment for high blood pressure.

Sources: National Heart, Lung, and Blood Institute; American Heart Association; National Cholesterol Education Program; American Diabetes Association

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FOR MORE INFORMATION

- National Heart, Lung, and Blood Institute
www.nhlbi.nih.gov
- American Heart Association
www.americanheart.org
- American Diabetes Association
www.diabetes.org

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To find this and previous JAMA Patient Pages, go to the Patient Page link on JAMA's Web site at www.jama.com. Many are available in English and Spanish. A Patient Page on coronary artery disease was published in the November 24, 2004, issue; and one on weight gain and diabetes was published in the August 25, 2004, issue.

