Heart attacks

What is heart attack

A heart attack, also called a myocardial infarction, happens when a part of the heart muscle doesn't get enough blood.

The more time that passes without treatment to restore blood flow, the greater the damage to the heart muscle.

Coronary artery disease (CAD) is the main cause of heart attack. A less common cause is a severe spasm, or sudden contraction, of a coronary artery that can stop blood flow to the heart muscle.

Symptoms

The major symptoms of a heart attack are:

- Chest pain or discomfort. Most heart attacks involve discomfort in the center or left side of the chest that lasts for more than a few minutes or that goes away and comes back. The discomfort can feel like uncomfortable pressure, squeezing, fullness, or pain.
- Feeling weak, light-headed, or faint. You may also break into a cold sweat.
- Pain or discomfort in the jaw, neck, or back.
- Pain or discomfort in one or both arms or shoulders.
- Shortness of breath. This often comes along with chest discomfort, but shortness of breath also can happen before chest discomfort.

Other symptoms of a heart attack could include unusual or unexplained tiredness and nausea or vomiting. Women are more likely to have these other symptoms.

Heart Disease Risk Factors

Several health conditions, your lifestyle, and your age and family history can increase your risk for heart disease. These are called risk factors. Key risk factors for heart disease include:

- High blood pressure[1]
- High cholesterol[1]
- Smoking[1]

Some risk factors for heart disease cannot be controlled, such as your age or family history. But you can take steps to lower your risk by changing the factors you can control.

Conditions that can increase risk

High blood pressure. High blood pressure is a major risk factor for heart disease. It is a medical condition that happens when the pressure of the blood in your arteries and other blood vessels is too high. The high pressure, if not controlled, can affect your heart and other major organs of your body, including your kidneys and brain.

High blood pressure is often called a "silent killer" because it usually has no symptoms. The only way to know whether you have high blood pressure is to measure your blood pressure. You can lower your blood pressure with lifestyle changes or with medicine to reduce your risk for heart disease and heart attack.

Unhealthy blood cholesterol levels. Cholesterol is a waxy, fat-like substance made by the liver or found in certain foods. Your liver makes enough for your body's needs, but we often get more cholesterol from the foods we eat.

If we take in more cholesterol than the body can use, the extra cholesterol can build up in the walls of the arteries, including those of the heart. This leads to narrowing of the arteries and can decrease the blood flow to the heart, brain, kidneys, and other parts of the body.

There are two main types of blood cholesterol:

- **LDL (low-density lipoprotein) cholesterol**, which is considered to be "bad" cholesterol because it can cause plaque buildup in your arteries.
- **HDL (high-density lipoprotein) cholesterol,** which is considered to be "good" cholesterol because higher levels provide some protection against heart disease.

High blood cholesterol usually has no signs or symptoms. The only way to know whether you have high cholesterol is to get your cholesterol checked. Your health care team can do a simple blood test, called a "lipid profile," to measure your cholesterol levels. Learn more about getting your cholesterol checked.

Diabetes mellitus. Your body needs glucose (sugar) for energy. Insulin is a hormone made in the pancreas that helps move glucose from the food you eat to your body's cells for energy. If you have diabetes, your body doesn't make enough insulin, can't use its own insulin as well as it should, or both.

Diabetes causes sugar to build up in the blood. The risk of death from heart disease for adults with diabetes is higher than for adults who do not have diabetes.2 Talk with your doctor about ways to prevent or manage diabetes and control other risk factors.

Obesity. Obesity is excess body fat. Obesity is linked to higher "bad" cholesterol and triglyceride levels and to lower "good" cholesterol levels. Obesity can lead to high blood pressure and

diabetes as well as heart disease. Talk with your health care team about a plan to reduce your weight to a healthy level.

Behaviors that can increase risk

Your lifestyle can increase your risk for heart disease.

Eating a diet high in saturated fats, trans fat, and cholesterol has been linked to heart disease and related conditions, such as atherosclerosis. Also, too much salt (sodium) in the diet can raise blood pressure.

Not getting enough physical activity can lead to heart disease. It can also increase the chances of having other medical conditions that are risk factors, including obesity, high blood pressure, high cholesterol, and diabetes. Regular physical activity can lower your risk for heart disease.

Drinking too much alcohol can raise blood pressure levels and the risk for heart disease. It also increases levels of triglycerides, a fatty substance in the blood which can increase the risk for heart disease.

- Women should have no more than 1 drink a day.
- Men should have no more than 2 drinks a day.

Tobacco use increases the risk for heart disease and heart attack. Cigarette smoking can damage the heart and blood vessels, which increases your risk for heart conditions such as atherosclerosis and heart attack. Nicotine raises blood pressure. Carbon monoxide from cigarette smoke reduces the amount of oxygen that your blood can carry. Exposure to secondhand smoke can also increase the risk for heart disease, even for nonsmokers.

Other factors that can increase risk

Genetics and family history

When members of a family pass traits from one generation to another through genes, that process is called *heredity*.

Genetic factors likely play some role in high blood pressure, heart disease, and other related conditions. However, it is also likely that people with a family history of heart disease share common environments and other factors that may increase their risk.

The risk for heart disease can increase even more when heredity combines with unhealthy lifestyle choices, such as smoking cigarettes and eating an unhealthy diet.

Find out more about genetics and disease on CDC's Office of Public Health Genomics website.

Age and sex
Heart disease is the number one killer of both men and women. Heart disease can happen at any age, but the risk goes up as you age.

Preventing from heart attacks

- Stop smoking

If you smoke, quit. If someone in your household smokes, encourage them to quit. We know it's tough. But it's tougher to recover from a heart attack or stroke or to live with chronic heart disease. Commit to quit. We're here to help if you need it.

- **Choose good nutrition**

A healthy diet is one of the best weapons to fight heart disease. The food you eat can affect other controllable risk factors: cholesterol, blood pressure, blood sugar levels and weight.

- Choose nutrient-rich foods over nutrient-poor foods. Nutrient-rich foods have vitamins, minerals, fiber and other nutrients but are lower in calories.
- Choose a healthy diet high in vegetables, fruits and whole grains.
- Include low-fat dairy products, skinless poultry, fish, legumes, nontropical vegetable oils and nuts.
- Limit saturated and trans fats, red and processed meats, added sugars, sugar-sweetened beverages and sodium.

To stay at a healthy weight, balance your diet with your physical activity so you burn up as many calories as you take in.

- **Lower high blood cholesterol**

You've got to reduce your intake of saturated fat, avoid trans fat and get moving. If diet and physical activity alone don't get those numbers down, then medication may be needed.

> **Total cholesterol**
> Your total cholesterol score includes LDL, HDL and triglycerides.
>
> **Low-density-lipoprotein (LDL) cholesterol = "bad" cholesterol**
> A low LDL cholesterol level, less than 70 mg/dL, is considered good for your heart health. However, your LDL number should not be the main factor in guiding treatment. If you have an increased risk for heart disease or stroke, your health care professional may recommend lifestyle changes and medication to lower your LDL.

High-density-lipoprotein (HDL) cholesterol = "good" cholesterol
With HDL (good) cholesterol, higher levels are typically better. Low HDL cholesterol puts you at higher risk for heart disease. People with high blood triglycerides also usually have lower HDL cholesterol. Lower HDL cholesterol can come from:

- Genetic factors
- Type 2 diabetes
- Smoking
- Being overweight
- Being inactive

Triglycerides
Triglycerides are the most common type of fat in the body. Normal triglyceride levels vary by age and gender. A high triglyceride level combined with low HDL cholesterol or high LDL cholesterol can lead to atherosclerosis. Atherosclerosis is the buildup of fats in artery walls, raising the risk for heart attack and stroke.

- **Be physically active**

Sit less and move more. Try to be physically active every day. At least 150 minutes per week of moderate-intensity physical activity can help lower blood pressure and cholesterol. It can also help you keep your weight at a healthy level. If you're inactive now, start slow. Even a few minutes at a time may offer some health benefits.

- **Manage diabetes**

Diabetes is a lifelong condition. Even when blood glucose levels are kept under control, diabetes greatly increases heart attack and stroke risk. If you have diabetes, regular medical checkups are critical to help keep blood sugar under control. Work with your health care team to eat healthy, manage your weight and stay active. You also may need medications to help control your blood sugar or insulin levels.

- **Get enough sleep**

Getting a good night’s sleep every night is vital to your heart health. The amount and quality of sleep you get can affect your eating habits, mood, memory, internal organs and more. Too much or too little sleep can be harmful. Adults should aim for an average of seven to nine hours a night. You can improve the quality of your sleep by:

Being physically active during the day

Creating a bedtime routine

Keeping your electronic devices out of the bedroom

- **Limit alcohol**

Drinking too much alcohol can:

Raise blood pressure

Increase cardiomyopathy, stroke, cancer and other diseases

Contribute to high triglycerides

Cause irregular heartbeats

Contribute to obesity, alcoholism, suicide and accidents

If you don't drink, don't start. If you drink, limit yourself to one drink per day if you're a woman, two drinks if you're a man.

Heart attack diagnosis

Diagnostic tests and procedures help your medical team determine:

- If a heart attack occurred
- How much your heart was damaged
- What degree of coronary artery disease (CAD) you might have

The tests help the health care team decide which treatment is needed right away. They can also help decide which lifestyle changes will you improve your heart health and prevent future medical events. There are two main ways to diagnose a heart attack: blood tests and imaging tests.

Blood tests check for enzymes that are increased in the body after a heart attack. The most common tests are for troponin and creatine kinase.

Imaging tests take pictures of your heart and surrounding parts of the body. These tests include:

- Electrocardiogram (ECG or EKG)
- Echocardiogram (Echo)
- Coronary angiogram
- Heart computed tomography (CT) scan

- Heart MRI
- Exercise stress test
- Positron emission tomography (PET) scan