

# Heart Disease

The term "heart disease" refers to several types of heart conditions. The most common type is coronary artery disease, which can cause heart attack, angina, heart failure, and arrhythmias.

## Signs and Symptoms

### Symptoms of a Heart Attack

The five major symptoms of a heart attack are

- Pain or discomfort in the jaw, neck, or back.
- Feeling weak, light-headed, or faint.
- Chest pain or discomfort.
- Pain or discomfort in arms or shoulder.
- Shortness of breath.

### Heart Attack Signs

If the blood supply to the heart muscle is cut off, a heart attack can result. Cells in the heart muscle do not receive enough oxygen and begin to die. The more time that passes without treatment to restore blood flow, the greater the damage to the heart. Having high blood pressure or high blood cholesterol, smoking, increased age, physical activity, unhealthy diet, and having had a previous heart attack or family history of stroke, obesity, or diabetes can increase a person's chances of having a heart attack.

It is important to recognize the signs of a heart attack and to act immediately by calling the ambulance. A person's chances of surviving a heart attack are increased if emergency treatment is given to the victim as soon as possible.

### Coronary Artery Disease (CAD)

Coronary artery disease occurs when a substance called plaque builds up in the arteries that supply blood to the heart (called coronary arteries). Plaque is made up of cholesterol deposits, which can accumulate in your arteries. When this happens, your arteries can narrow over time. This process is called atherosclerosis.

Plaque build up can cause angina, the most common symptom of CAD. This condition causes chest pain or discomfort because the heart muscle doesn't get enough blood. Over time, CAD can weaken the heart muscle. This may lead to heart failure, a serious condition where the heart can't pump blood the way that it should. An irregular heartbeat, or arrhythmia, can also develop.

For some people, the first sign of CAD is a heart attack. A heart attack occurs when plaque totally blocks an artery carrying blood to the heart. It also can happen if a plaque deposit breaks off and clots a coronary artery.

### Important Tests

Doctors can determine your risk for CAD by checking your blood pressure, cholesterol, and blood glucose, and by finding out more about your family's history of heart disease. If you're

at high risk or already have symptoms, your doctor can perform several tests to diagnose CAD including—

Test	What it Does
<b>ECD or EKG (electrocardiogram)</b>	Measures the electrical activity, rate, and regularity of your heartbeat.
<b>Echocardiogram</b>	Uses ultrasound to create a picture of the heart.
<b>Exercise stress test</b>	Measures your heart rate while you walk on a treadmill. This helps to determine how well your heart is working when it has to pump more blood.
<b>Chest X-ray</b>	Creates a picture of the heart, lungs, and other organs in the chest.
<b>Cardiac catheterization</b>	Checks the inside of your arteries for blockage by threading a thin, flexible tube through an artery in the groin, arm, or neck to reach the coronary artery. Can measure blood pressure and flow in the heart's chambers, collect blood samples from the heart, or inject dye into the coronary arteries.
<b>Coronary angiogram</b>	Monitors blockage and flow of blood through the heart. Uses X-rays to detect dye injected via cardiac catheterization.

## Treatment

If you have CAD, there are steps you can take to lower your risk for having a heart attack or worsening heart disease. Your doctor may recommend lifestyle changes such as eating a healthier diet, exercising, and not smoking.

Medications may also be necessary. Medicines can treat CAD risk factors such as high cholesterol, high blood pressure, an irregular heartbeat, and low blood flow. In some cases, more advanced treatments and surgical procedures can help restore blood flow to the heart.

## Heart Attack

A heart attack, also called a myocardial infarction, occurs when a section of the heart muscle dies or gets damaged because of reduced blood supply. Coronary Artery Disease (CAD) is the main cause of heart attack. A less common cause is a severe spasm of a coronary artery, which also can prevent blood supply from reaching the heart.

**It is important to seek treatment for a heart attack immediately.** Otherwise, further damage to the heart muscle can occur and an irregular heart rhythm may develop.

Sudden cardiac arrest—the stopping of the heart—occurs when the heart stops completely. Unless treated, a person whose heart has stopped can die within minutes.

### **Treatment**

People who experience a heart attack need emergency care such as cardiopulmonary resuscitation (CPR) or electrical shock (defibrillation). That's why you need to act quickly once you notice the signs and symptoms of heart attack.

If you think you or someone you know is having a heart attack, **call the ambulance (108) immediately**. Bystanders who have been trained to perform CPR or use a defibrillator may be able to help the victim until emergency medical personnel arrive. At the hospital, doctors can perform tests to determine whether a heart attack is occurring and decide on the best treatment.

**Remember, the chances of surviving a heart attack are greater when emergency treatment begins quickly.**

### **Life After an Attack**

If you've had a heart attack, your heart may still be damaged. This could affect your heart's rhythm, pumping action, and blood circulation. You may also be at risk for another heart attack or conditions such as stroke, kidney disorders, and peripheral arterial disease. But, there are steps you can take to lower your chances of having future health problems.

Your doctor may recommend cardiac rehabilitation, which is a program that can help you make lifestyle changes to improve your heart health and quality of life. These changes may include taking medication, changing what you eat, increasing your physical activity, stopping smoking, and managing stress. Also, be sure to talk with your doctor about everyday activities. He or she may want you to limit work, travel, sex, or exercise.

### **Other Related Conditions**

**Acute coronary syndrome** is a general term that includes heart attack and unstable angina.

**Angina**, a symptom of CAD, is chest pain or discomfort that occurs when the heart muscle is not getting enough blood. Angina may feel like pressure or a squeezing pain in the chest. The pain may also occur in the shoulders, arms, neck, jaw, or back, and it may feel like indigestion.

There are two forms of angina—stable or unstable. Stable angina happens during physical activity or under mental or emotional stress. Unstable angina is chest pain that occurs even while at rest, without apparent reason. This type of angina is a medical emergency.

**Aortic aneurysm and dissection** are conditions in which the aorta, the major artery that carries blood from the heart to the body, stretches (aneurysm) and ruptures (dissection). A rupture is a medical emergency.

**Arrhythmias** are irregular, or abnormally fast or slow, heartbeats. Some arrhythmias are serious. One example is ventricular fibrillation. This type of arrhythmia causes a severely abnormal heart rhythm that leads to death unless treated right away with an electrical shock

to the heart (called defibrillation). Other arrhythmias are less severe, but can develop into more serious conditions such as atrial fibrillation.

**Atrial fibrillation** is a type of arrhythmia that can cause rapid, irregular beating of the heart's upper chambers. Blood may pool and clot inside the heart, increasing the risk for heart attack and stroke.

**Cardiomyopathy** occurs when the heart muscle becomes enlarged or rigid. This can lead to inadequate heart pumping or other problems. Cardiomyopathy has many causes, including family history of the disease, prior heart attacks, and viral or bacterial infections.

**Congenital heart defects** are malformations of heart structures that are present at birth. They are the most common type of major birth defect. Examples include abnormal heart valves or holes in the heart's walls that divide the chambers. Congenital heart defects range from minor to severe.

**Heart failure**—often called congestive heart failure because of fluid buildup in the lungs, liver, gastrointestinal tract, and the arms and legs—is a serious condition that occurs when the heart can't pump enough blood to meet the body's needs. It does not mean that the heart has stopped. The majority of heart failure cases are chronic heart failures.

The only cure for heart failure is a heart transplant. However, heart failure can be managed with medications or medical procedures.

**Peripheral arterial disease (PAD)** is hardening of the arteries that supply blood to the arms and legs. PAD usually results from atherosclerosis, the buildup of plaque and narrowing of the arteries. With this condition, blood flow and oxygen to the arm and leg muscles are low or even fully blocked. Signs and symptoms include leg pain, numbness, and swelling in the ankles and feet.

**Rheumatic heart disease** is damage to the heart valves caused by a bacterial (streptococcal) infection called rheumatic fever.

### **Heart Disease Risk Factors**

Some conditions as well as some lifestyle factors can put people at a higher risk for developing heart disease. All persons can take steps to lower their risk of heart disease and heart attack by addressing these risk factors. Control of risk factors is especially needed by people who already have heart disease.

- Heart disease Conditions
- Behavior
- Heredity

### **Heart Disease Conditions**

#### **Blood Cholesterol Levels**

Cholesterol is a waxy substance produced by the liver or consumed in certain foods. It is needed by the body, and the liver makes enough for the body's needs. When there is too much cholesterol in the body—because of diet and the rate at which the cholesterol is processed—it is deposited in arteries, including those of the heart. This can lead to narrowing of the arteries, heart disease, and other complications.

Some cholesterol is often termed "good," and some often termed "bad." A higher level of high-density lipoprotein cholesterol, or HDL, is considered "good," and gives some protection against heart disease. Higher levels of low-density lipoprotein, or LDL, are considered "bad" and can lead to heart disease. A lipoprotein profile can be done to measure several different forms of cholesterol, as well as triglycerides (another kind of fat) in the blood.

### **High Blood Pressure**

High blood pressure is another major risk factor for heart disease. It is a condition where the pressure of the blood in the arteries is too high. There are often no symptoms to signal high blood pressure. Lowering blood pressure by changes in lifestyle or by medication can lower the risk of heart disease and heart attack.

### **Diabetes Mellitus**

Diabetes also increases a person's risk for heart disease. With diabetes, the body either doesn't make enough insulin, can't use its own insulin as well as it should, or both. This causes sugars to build up in the blood. About three-quarters of people with diabetes die of some form of heart or blood vessel disease. For people with diabetes, it is important to work with a healthcare provider to help in managing it and controlling other risk factors.

### **Heart Disease Behavior**

#### **Tobacco Use**

Tobacco use increases the risk of heart disease and heart attack. Cigarette smoking promotes atherosclerosis and increases the levels of blood clotting factors, such as fibrinogen. Also, nicotine raises blood pressure, and carbon monoxide reduces the amount of oxygen that blood can carry. Exposure to other people's smoke can increase the risk of heart disease even for non smokers.

#### **Diet**

Several aspects of peoples' dietary patterns have been linked to heart disease and related conditions. These include diets high in saturated fats and cholesterol, which raise blood cholesterol levels and promote atherosclerosis. High salt or sodium in the diet causes raised blood pressure levels.

#### **Physical Inactivity**

Physical inactivity is related to the development of heart disease. It also can impact other risk factors, including obesity, high blood pressure, high triglycerides, a low level of HDL (good) cholesterol, and diabetes. Regular physical activity can improve risk factor levels.

#### **Obesity**

Obesity is excess body fat. It is linked to higher LDL (bad) cholesterol and triglyceride levels and to lower HDL (good) cholesterol, high blood pressure, and diabetes.

## Alcohol

Excessive alcohol use leads to an increase in blood pressure, and increases the risk for heart disease. It also increases blood levels of triglycerides which contributes to atherosclerosis.

## Heart Disease Heredity

Heart disease can run in the family. Genetic factors likely play some role in high blood pressure, heart disease, and other vascular conditions. However, it is also likely that people with a family history of heart disease share common environments and risk factors that increase their risk. The risk for heart disease can increase even more when heredity is combined with unhealthy lifestyle choices, such as smoking cigarettes and eating a poor diet

## Heart Disease Prevention

You can help prevent heart disease by making healthy choices and managing any medical conditions you may have.

## Live a Healthy Lifestyle

- **Eat a healthy diet.** Choosing healthful meal and snack options can help you avoid heart disease and its complications. Be sure to eat plenty of fresh fruits and vegetables. Eating foods low in saturated fat and cholesterol and high in fiber can help prevent high blood cholesterol. Limiting salt or sodium in your diet can also lower your blood pressure.
- **Maintain a healthy weight.** Being overweight or obese can increase your risk for heart disease. To determine whether your weight is in a healthy range, doctors often calculate a number called the body mass index (BMI). Doctors sometimes also use waist and hip measurements to measure a person's excess body fat.
- **Exercise regularly.** Physical activity can help you maintain a healthy weight and lower cholesterol and blood pressure. The Surgeon General recommends that adults should engage in moderate-intensity exercise for at least 30 minutes on most days of the week.
- **Don't smoke.** Cigarette smoking greatly increases your risk for heart disease. So, if you don't smoke, don't start. If you do smoke, quitting will lower your risk for heart disease. Your doctor can suggest ways to help you quit.
- **Limit alcohol use.** Avoid drinking too much alcohol, which causes high blood pressure.

## Prevent or Treat Your Medical Conditions

If you have high cholesterol, high blood pressure, or diabetes, there are steps you can take to lower your risk for heart disease.

- **Have your cholesterol checked.** Your health care provider should test your cholesterol levels at least once every five years. Talk with your doctor about this simple blood test.

- **Monitor your blood pressure.** High blood pressure has no symptoms, so be sure to have it checked on a regular basis.
- **Manage your diabetes.** If you have diabetes, closely monitor your blood sugar levels. Talk with your health care provider about treatment options.
- **Take your medicine.** If you're taking medication to treat high cholesterol, high blood pressure, or diabetes, follow your doctor's instructions carefully. Always ask questions if you don't understand something.
- **Talk with your health care provider.** You and your doctor can work together to prevent or treat the medical conditions that lead to heart disease. Discuss your treatment plan regularly and bring a list of questions to your appointments.

