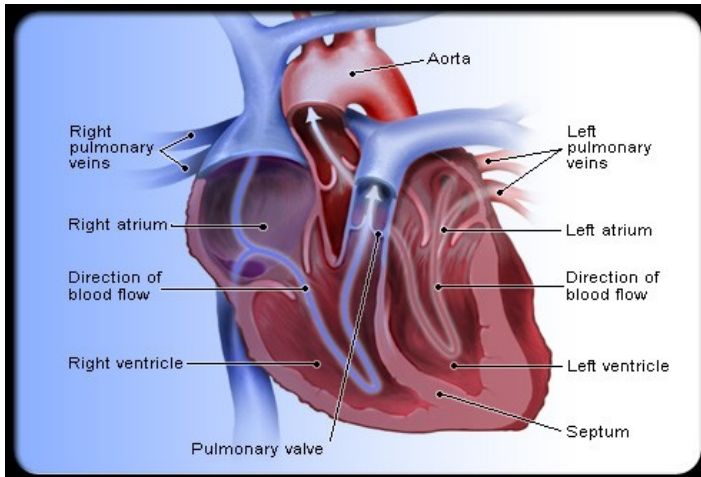


# Heart Disease (Coronary Artery Disease)



## Understanding how the heart works

To understand heart disease, you must first know how the heart works. The heart is like any other muscle, requiring blood to supply oxygen and nutrients for it to function. It beats about 100,000 times a day, pumping blood through your circulatory system. The cycle of pumping blood throughout your body carries fresh oxygen to your lungs and nutrients to your body's tissues. Blood also takes waste, such as carbon dioxide, away from your tissues. Without this process, we could not live.

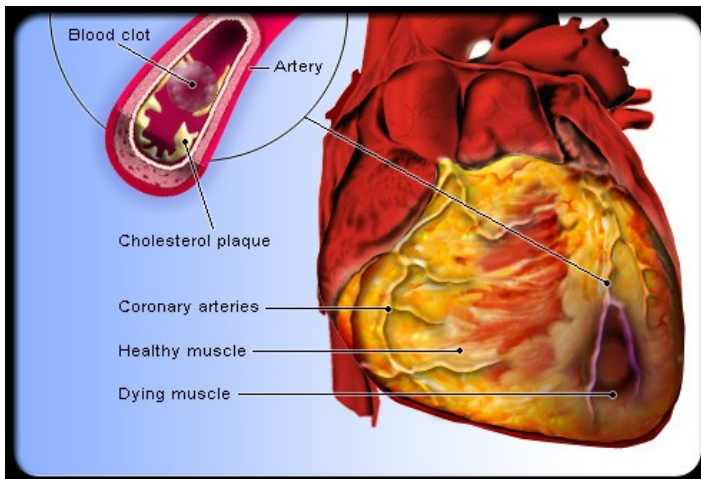
***Your heart is an amazing powerhouse that pumps and circulates 5 or 6 gallons of blood each minute through your entire body***



## What is heart disease?

Heart disease begins when cholesterol, fatty material, and calcium build up in the arteries. When this occurs in the arteries that supply the heart, this buildup, or plaque, causes the arteries to narrow, so that oxygen delivery to the heart is reduced. The reduction in oxygen delivery to the heart can create chest pain, also called angina.

***Heart disease begins when cholesterol, fatty material, and calcium build up in the arteries, a process known as atherosclerosis.***



## The link between heart disease and heart attack

When plaque builds up to the point that it ruptures, it causes a blood clot to form in the coronary artery. The blood clot blocks blood from flowing to the heart muscle, leading to a heart attack. In a worst-case scenario, sudden cardiac arrest or fatal rhythm disturbance can occur.

***Blockage of the coronary arteries by plaque may cause a heart attack (myocardial infarction) or a fatal rhythm disturbance (sudden cardiac arrest).***



## Heart disease: the number-one killer

Heart disease affects about 14 million men and women in the United States, and it has a high mortality rate. In fact, it takes more lives than the next seven leading causes of death combined.

***Cardiovascular disease is the leading cause of death for both men and women in the U.S.***

## What are the risk factors for heart disease?

Some of the common risk factors for heart disease include:

- smoking,
- high blood pressure (hypertension),
- high cholesterol,
- diabetes,
- family history of heart disease,
- peripheral artery disease, and
- obesity.

*Some of the risk factors for heart disease include smoking, high blood pressure, high cholesterol, diabetes, and obesity.*



## What are lifestyle risk factors for heart disease?

Lifestyle risk factors that contribute to heart disease include

- lack of exercise,
- high-fat diet,
- emotional stress, and
- having a "type A" personality (aggressive, impatient, competitive).

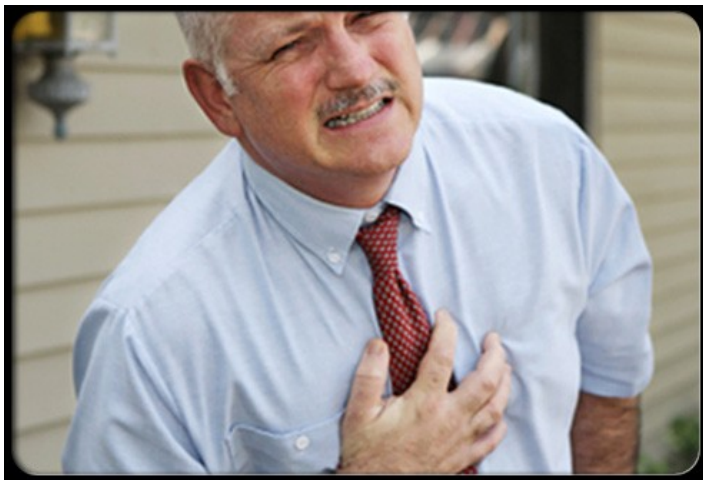
*Additional heart disease risk factors include lack of exercise, an unhealthy diet, stress, and a "type A" personality*



## Sudden cardiac death - a fatal consequence of heart disease

Everyone's experience with heart disease is different. Some people experience shortness of breath or chest pain and make it to the hospital in time to be treated. Others are not as lucky. **For some people, sudden cardiac arrest can be the first symptom they experience, and it is often deadly unless treated immediately.**

*One of the most devastating consequences of heart disease can be sudden cardiac arrest.*



## What are common symptoms of heart disease?

Symptoms of heart disease usually occur during exercise or activity. That's because the heart experiences increased demand for nutrients and oxygen that cannot be met because the coronary arteries are blocked. **Other symptoms of heart disease include**

- chest pain (angina),
- shortness of breath,
- jaw pain, and
- back pain, especially on the left side.

*Besides chest pain (angina) and shortness of breath, some other common symptoms of heart disease include jaw pain, back pain, and heart palpitations.*





## What are other symptoms of heart disease?

Other symptoms of heart disease may include

- dizziness or light-headedness,
- weakness when at rest,
- irregular heartbeat,
- nausea, and
- abdominal pain.

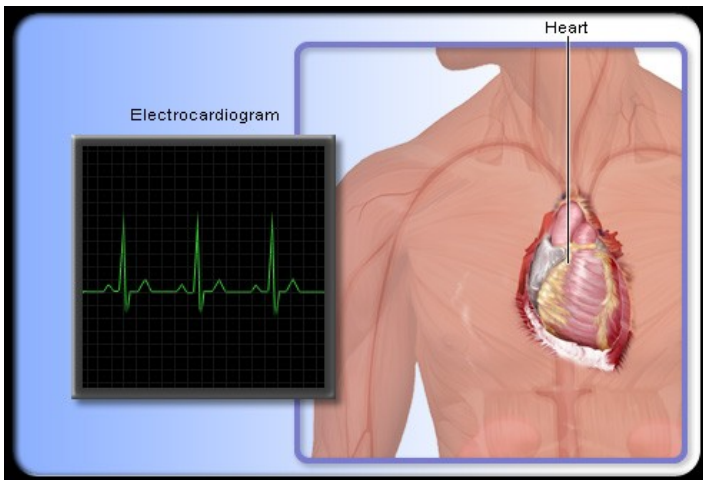
*Other symptoms of heart disease may include dizziness, weakness, irregular heartbeat, nausea, and abdominal pain.*



## What are the heart disease symptoms in women, seniors, and people with diabetes?

For many women, seniors, and people with diabetes, pain is not a symptom of heart disease at all. Instead of experiencing discomfort, they often have symptoms of malaise or fatigue.

*Women, seniors, and people with diabetes tend to experience heart disease differently than men.*



## What is an electrocardiogram (EKG)?

A healthy heart works as an "electrical pump" and needs a strong blood supply to conduct electricity. People with heart disease, however, have a weak blood supply, so their hearts conduct electricity poorly. An electrocardiogram (EKG) is a noninvasive test that measures the electrical activity of the heart. An EKG takes approximately five minutes and is painless. Many other heart conditions can be diagnosed with an EKG, for example:

- abnormal heart rhythms,
- evidence of prior heart attack,
- evidence of an evolving heart attack,
- unstable angina,
- congenital heart abnormalities,
- evidence of abnormal blood electrolytes, and
- evidence of inflammation of the heart (myocarditis, pericarditis).

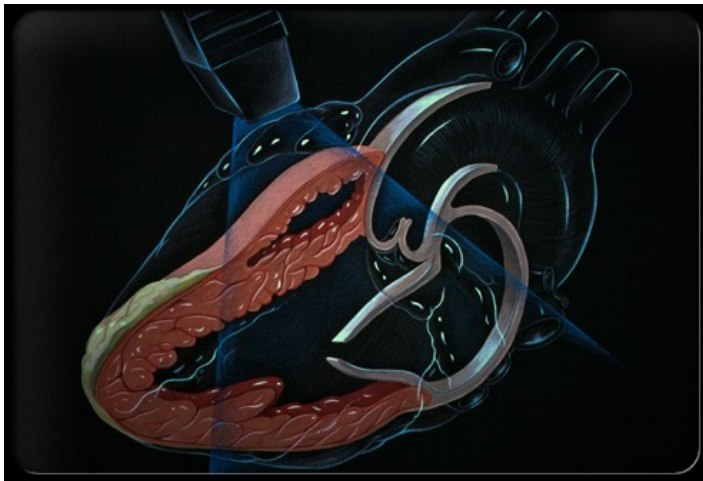
*Doctors use a variety of tests to detect heart disease. One common test is the electrocardiogram (ECG or EKG).*



## What is a stress test?

Symptoms of heart disease tend to show up when the person is exercising because that's when the heart needs a higher level of oxygen delivery. However, for a person with heart disease, the coronary arteries can't deliver the amount of oxygenated blood needed because of the coronary artery blockage. That's why stress tests require the patient to perform a strenuous activity under a doctor's supervision, such as walking or running on a treadmill. An EKG is taken of the person before, during, and after the stress tests. Stress tests have a 60%-70% accuracy rate for detecting blockages in the coronary arteries. If a patient is unable to walk on a treadmill, a stress test can be used with medication that mimics the physiology of exercise without the patient needing to walk, and the heart can be imaged with nuclear techniques or ultrasound, and this is as good as exercise.

***Sometimes, if an electrocardiogram comes back normal, doctors will use stress tests to detect heart disease.***



## What is echocardiography?

Doctors may want to use echocardiography to detect heart disease. Echocardiography uses sound waves to generate images of the heart. The test serves as a tool to see how well the heart muscle is functioning. A normal heart pushes at least 50%-60% of the blood in the ventricle out to the body when it beats. Echocardiography can show if the heart muscle is weaker than this, which could indicate heart disease.

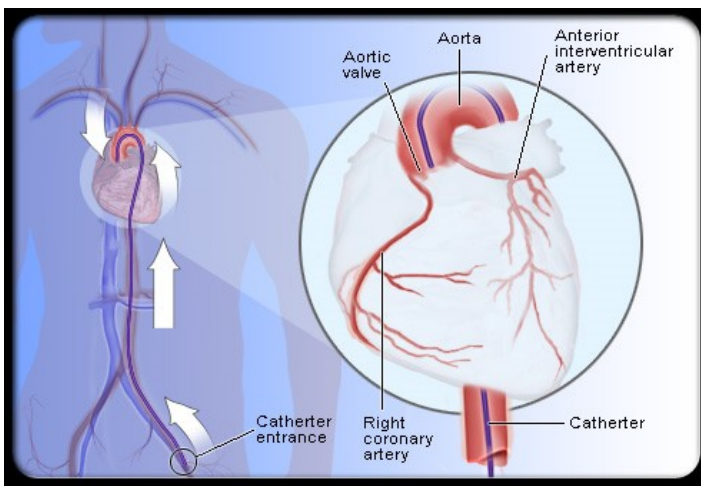
***Another test option is echocardiography, which uses sound waves to generate images of the heart.***



## Why use computerized tomography tests (CT scans)?

Computerized tomography tests, also known as CT scans, take detailed images of blood vessels to show whether they have narrowed. In general, this test is used to show that heart disease is not present.

***Computerized tomography (CT) scans are used to show that heart disease is not present and that the coronary arteries are normal.***



## What makes coronary angiography a superior test compared to the others?

During coronary angiography, doctors guide a catheter into the coronary arteries. Next, a small amount of radiographic contrast (a solution containing iodine, which is easily visualized with X-ray images) is injected into each coronary artery. X-ray images are then taken, which are called the angiogram. Angiographic images accurately reveal the extent and severity of all coronary arterial blockages

**Coronary angiography via cardiac catheterization is considered the "gold standard" of heart disease tests.**



## There is no single treatment method for heart disease

Each person experiences heart disease differently, and **no one treatment method works for everyone**. A multi-faceted approach of dietary changes, lifestyle changes, exercise, and medications may be combined,, depending on the patient's individual situation and needs.

*Heart disease treatment is different for everyone.*

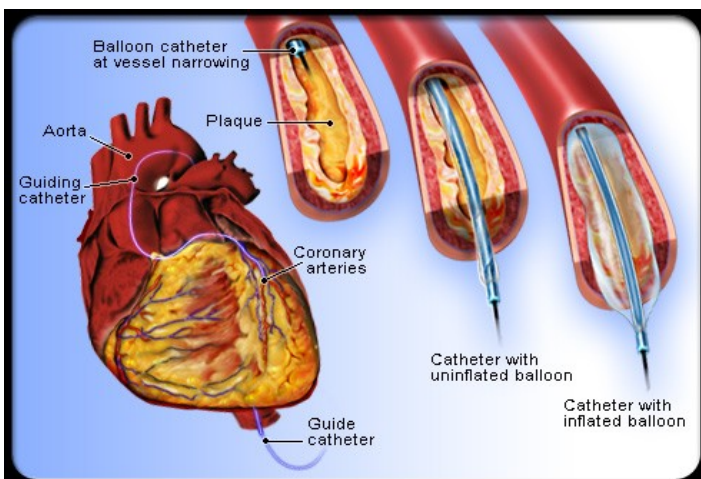


## What are some common medications used to treat heart disease?

Common heart disease medications can include:

- **beta blockers** which reduce heart rate and blood pressure;
- **nitroglycerin**, which dilates the coronary arteries, making it easier for blood to flow;
- **calcium channel blockers**, which help slow the heart rate, allowing the heart to beat more efficiently;
- **ACE Inhibitors**, which dilate blood vessels to increase blood flow and relieve stress on the heart; and
- **statins**, which reduce the number of lipids (found in cholesterol) in the blood to reduce the likelihood of plaque forming on the arteries.

*For some patients with heart disease, medications may be necessary.*



## What are some of the procedures performed to treat heart disease?

The following are common procedures used to treat heart disease.

- **Coronary (balloon) angioplasty:** A thin catheter is inserted into the blocked artery with a tiny balloon on the end. When the balloon is in the spot of the blockage, it is expanded to keep the artery open so blood can flow more freely, and the catheter is removed.
- **Stents:** The insertion of a stent is similar to coronary angioplasty except that over the balloon is a small metallic tube (a stent) that stays in place to keep the artery open while the catheter and the balloon are removed.
- **Atherectomy:** A drill-like device or laser cuts away the plaque covering the arteries.
- **Brachytherapy:** Radiation is applied to the blockages to remove them from recurring after angioplasty.

*When medications aren't enough, sometimes invasive procedures are used to help treat heart disease.*



**The key to preventing heart disease is through a healthy lifestyle, starting with a healthy diet.**

Although heredity is a risk factor for heart disease, and an individual cannot control this factor, other factors can be modified to decrease the risk of heart disease. What you eat can reduce your chances of developing heart disease. A heart-healthy diet includes lots of whole grains, vegetables, and fruits. Chickpeas, beans, and soy products can help lower your cholesterol as well as olive oil, garlic, and avocados. Nuts, such as almonds, walnuts, and pecans, can boost "good" cholesterol (nuts are high in calories, so limit the amount you eat). Incorporate fish and seafood into your meals a few times a week. Also, try to avoid sweets.

*Heart disease is a highly preventable and reversible disease. A healthy diet is a major factor in controlling heart disease.*



**Lifestyle changes: using alcohol in moderation and quitting smoking**

To raise good cholesterol levels (HDL), it is recommended that women have only one drink per day, while men should have no more than two. In addition, smoking has been linked to heart disease, so the sooner you quit, the better. In fact, after just three years of not smoking, your risk of developing heart disease becomes equal to that of a nonsmoker.

*Other lifestyle changes that can be made to help prevent heart disease include drinking alcohol in moderation and quitting smoking.*



**Lower the risk of heart disease with exercise, aspirin, and by controlling high blood pressure and diabetes.**

The following steps may help reduce your risk of heart disease:

- **Regular exercise** strengthens the heart, lowers bad cholesterol (LDL), raises good cholesterol (HDL), and lowers blood pressure. The AHA recommends exercising at least 30 minutes of exercise at least three to five days a week.
- **Control high blood pressure and diabetes:** If you have diabetes, keep blood sugars under control.
- **Take a low-dose aspirin daily;** This can reduce your risk of heart attack.

Talk with your doctor before taking any new medications or starting an exercise program.

*Exercise, controlling high blood pressure and diabetes, and taking daily aspirin are more ways to reduce your chances of developing heart disease.*

Source: [http://www.medicinenet.com/heart\\_disease\\_pictures\\_slideshow/article.htm](http://www.medicinenet.com/heart_disease_pictures_slideshow/article.htm)