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The National Women's Health Information Center

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Frequently Asked Questions about Coronary Artery Disease

What is coronary artery disease (CAD)?

Coronary artery disease is a type of heart disease. The *coronary arteries* are blood vessels that carry blood and oxygen to the heart muscle. When these arteries become clogged with fatty deposits called *plaque*, it is called coronary artery disease (CAD). CAD is sometimes called coronary heart disease (CHD). Clogged arteries can keep the heart from getting enough blood and oxygen and can cause chest pain (*angina*). If a blood clot forms, it can suddenly cut off blood flow in the artery and cause a heart attack.

Plaque forms in the arteries over many years in a process called *atherosclerosis*. One cause of plaque in the arteries is too much *cholesterol* in the blood. As plaque builds up, the artery opening gradually narrows and becomes clogged. The artery can also become less elastic (called “hardening of the arteries”).

What are the risk factors for CAD?

Two of the main risk factors for getting CAD are aging and being male. Women tend to get heart disease later than men do. It is thought that female hormones help protect women from heart disease before *menopause*. After menopause, women have heart disease as often as men do.

Other things that raise your chances of heart disease include:

- high cholesterol levels
- high blood pressure
- diabetes
- a diet too high in saturated fat
- being overweight
- not exercising
- too much stress
- smoking
- having close relatives with heart disease at younger ages

What are the symptoms of CAD?

You may not know that you have CAD until you begin to have symptoms from clogged arteries. Chest pain (angina) and shortness of breath are often the first signs of coronary artery disease. Some people don't know that they have CAD until they have a heart attack.

If you have several risk factors for CAD, you should talk with your health care provider even if you have no symptoms. There are things you can do to lower your risks and improve the health of your heart and blood vessels.

What tests are used to diagnose CAD?

Some of the tests used in diagnosing CAD include:

- *Electrocardiogram* (ECG or EKG). This commonly used test records your heart's electrical activity and can show certain problems such as abnormal heartbeats or damage to the heart.
- Stress tests. In a simple stress test, your heart, breathing, and blood pressure are monitored while you exercise using a treadmill. An ECG is usually done before, during and after the stress test.
- *Echocardiography*. An echocardiogram is an exam of the heart using sound waves.
- *Coronary angiography* or *arteriography*. This is a computerized x-ray of the coronary arteries. A *catheter* (a thin plastic tube) is inserted into an artery in the groin or arm and threaded into a coronary artery. After a fluid is injected, the x-ray reveals blockages in the coronary arteries.

Other kinds of tests may help find CAD early, before symptoms appear. *Ultrasound* and *computed tomography* (CT) are examples. If you are at high risk for CAD, your health care provider may suggest that you be tested even if you have no symptoms.

What are the treatments for CAD?

There are three main treatments for CAD – medicine, surgical procedures like angioplasty that open blocked arteries, and bypass surgery. With each of these treatments, the results may not be the same in women as compared to men. None of these treatments cures heart disease. In addition, it is important to make lifestyle changes: eat a healthy, low-saturated-fat diet, get lots of exercise, and don't smoke. People with diabetes, high blood pressure, or high cholesterol need to be careful to follow the treatment plan prescribed by their health care providers.

What medicines are used to treat CAD?

Medicine is often the first step in treating heart disease. Medicine can relax the arteries that carry blood to the heart, lower the heart rate, and lower blood pressure. Other medicines can "thin" the blood and prevent blood clots. Common types of medicines used are nitroglycerin, beta-blockers, and calcium antagonists. Medicines are also used to treat an elevated blood cholesterol level and to control diabetes, if needed.

Thrombolytics are "clot-busting" medicines that are used to treat heart attacks. These drugs can quickly dissolve clots that clog arteries, open up the artery, and restore blood flow to the heart. When used soon enough, they can prevent or limit heart muscle damage and stop a heart attack in its tracks. However, clot-busting drugs must be given immediately after heart attack symptoms begin. To be most effective, they need to be given within 1 hour of the start of heart attack symptoms.

Aspirin helps to lower the risk of a heart attack for those who have already had one. It also helps to keep arteries open in those who have had a previous heart bypass or other artery-opening procedure such as coronary angioplasty. But aspirin can cause stomach bleeding and has other risks. The Food and Drug Administration has not approved aspirin to prevent heart attacks in healthy people. Talk to your health care provider about whether taking aspirin is right for you.

What are angioplasty and stent procedures?

Coronary or balloon angioplasty is often used to open blocked arteries. In this procedure, a catheter (a thin tube) is inserted into a forearm or groin artery and threaded into the narrowed heart artery. The catheter has a tiny balloon at its tip that is repeatedly inflated and deflated to open and stretch the artery, improving blood flow. The tube is removed and often a *stent* (a small metal mesh tube) is put in to keep an artery open after an angioplasty. The stent stays permanently in the artery. There are other procedures sometimes used to open the arteries. However, none of these procedures results in a cure for coronary artery disease and there is a chance that the blockage could return.

What is coronary artery bypass surgery?

Coronary artery bypass surgery (or bypass surgery) is an operation to bring blood to the heart. A blood vessel is taken from another part of the body and then attached above and below (bypasses) the narrowed part of the artery. A bypass can be done for each blocked artery. Bypass surgery can make chest pain better and lower the risk of heart attack. However, a bypass can also become blocked. This happens in more than 10 percent of bypass surgeries, usually after 10 or more years.

Bypass surgery may be needed due to various reasons, such as an angioplasty that did not widen the blood vessel enough, or blockages that cannot be treated by angioplasty. In certain cases, bypass surgery may be preferred. For instance, it may be used for persons who have both coronary artery disease and diabetes.

What is heart revascularization?

A relatively new kind of treatment is called heart *revascularization*. These procedures are sometimes used in people for whom other treatments haven't worked well or can't be used. They can be done through surgery or by using a catheter, as in angioplasty. A laser or a needle is used to make tiny holes or channels in the heart muscle. This seems to promote the growth of new blood vessels (*angiogenesis*) that help provide blood to the heart muscle.

How can I prevent CAD?

The best way to prevent heart disease is to live a healthy lifestyle. Don't smoke, eat a healthy diet (avoiding foods high in saturated fat) and don't overeat, get regular exercise, and keep your weight under control. If you have high blood pressure, high blood cholesterol, or diabetes, follow your treatment plan. If you have any signs of heart disease such as chest pain (angina), see your health care provider right away.

Will taking estrogen help prevent heart disease?

It was thought in the past that estrogen could protect women from heart disease. But a recent study has found that *hormone therapy* or *HT* (taking estrogen and a particular synthetic progesterone together) can increase a woman's risk for heart disease, as well as breast cancer, stroke, and blood clots. In addition, another recent study has found that taking *estrogen replacement therapy* or *ERT* (taking estrogen only) can increase a woman's chances of developing ovarian cancer, especially if taken for 10 years or more. If you are in menopause and taking estrogen, talk with your health care provider about whether estrogen is best for you and about other treatments available to help you manage menopause and protect your health as you age.

For more information...

You can find out more about heart disease by contacting the National Women's Health Information Center (800-994-9662) or the following organizations:

National Heart, Lung, and Blood Institute

Phone Number (s): (301) 592-8573

Internet Address: <http://www.nhlbi.nih.gov/index.htm>

The Heart Truth National Awareness Campaign for Women about Heart Disease National Heart, Lung and Blood Institute (NHLBI)

Internet Address: <http://www.nhlbi.nih.gov/health/hearttruth/index.htm>

National Cholesterol Education Program, National Heart, Lung, and Blood Institute (NHLBI)

Internet Address: <http://www.nhlbi.nih.gov/chd/>

American Heart Association

Phone Number (s): (800) 242-8721

Internet Address: <http://www.americanheart.org>

American College of Cardiology

Phone Number (s): (800) 253-4636

Internet Address: <http://www.acc.org/>

The information in this FAQ was adapted in part from publications of the National Heart, Lung, and Blood Institute.

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