



LEARN ABOUT HEART DISEASE

If you have heart disease, or think you do, it's vital to take action to protect your heart health. Fortunately, there's a lot you can do. This fact sheet gives you the key steps, including how to survive a heart attack and prevent serious damage to heart muscle. Caring for your heart is worth the effort. Use the information here to start today to take charge of your heart health.

WHAT IS HEART DISEASE?

Coronary heart disease (CHD) is the most common form of heart disease. Usually referred to simply as "heart disease," it is a disorder of the blood vessels of the heart in which a waxy substance called plaque builds up in the coronary (heart) arteries. This condition is called atherosclerosis and can lead to a heart attack. A heart attack usually happens when an artery becomes blocked, preventing oxygen and nutrients from getting to the heart. If blood flow isn't restored quickly, the section of heart muscle begins to die.

Another type of heart disease is coronary microvascular disease (MVD), which affects the tiny coronary arteries. In coronary MVD, the walls of the heart's tiny arteries are damaged or diseased. Studies have shown that women are more likely than men to have coronary MVD. Many researchers think the disease is caused by a drop in estrogen levels during menopause combined with traditional heart disease risk factors. Both men and women who have coronary MVD often have diabetes or high blood pressure.

It is important to know that heart disease is a lifelong condition—once you get it, you'll always have it. What's more, the condition of your blood vessels will steadily worsen unless you make changes in your daily habits. But there is much you can do to control heart disease, prevent a heart attack, and increase your chances for a long and vital life.

RISK FACTORS FOR HEART DISEASE

If you already have heart disease, you'll need to work especially hard to control your risk factors. Risk factors are health conditions or habits that increase the chances of developing a disease, or having it worsen.

There are two types of heart disease risk factors—those you can't change and those you can control. Risk factors that cannot be changed are a family history of early heart disease and age (for women, age becomes a risk factor at 55). Another is preeclampsia,



which is a condition that can occur during pregnancy and is linked to an increased lifetime risk for heart disease, including CHD, heart attack, heart failure, and high blood pressure.

The risk factors for heart disease that you can do something about are:

- Smoking
- High blood pressure
- High blood cholesterol
- Overweight and obesity
- Lack of physical activity
- Unhealthy diet
- Diabetes and prediabetes
- Metabolic syndrome

Other conditions and factors also may contribute to CHD, including sleep apnea, stress, and alcohol.

To protect your heart health, it is important to find out your personal risk for heart disease. Be aware that every risk factor counts. If you have even one risk factor, you are much more likely to develop heart disease, with its many serious consequences. Having more than one risk factor is especially serious because risk factors tend to “gang up” and worsen each other’s effects.

Tests for Heart Disease

Your health care provider will look at your medical and family histories, your risk factors, and the results from a physical exam and tests to determine whether you have heart disease. Your primary care provider may also have you see a cardiologist—a doctor who specializes in diagnosing and treating heart disease.

Your health care provider may recommend one or more of the following tests to find out whether you have heart disease or to monitor your condition if you have the disease:

Noninvasive Tests

A noninvasive procedure is one that does not penetrate or break the skin or enter a body cavity.

Cardiac magnetic resonance imaging (MRI) is a test that creates detailed pictures of your organs and tissues. MRI uses radio waves, magnets, and a computer to create pictures of your organs and tissues. Unlike other imaging tests, MRI doesn’t use ionizing radiation or carry any risk of causing cancer. Cardiac MRI creates both still and moving pictures of your heart and major blood vessels. Doctors use cardiac MRI to get pictures of the beating heart and to look at its structure and function. These pictures can help them decide the best way to treat people who have heart problems.



Jennifer's Story

Jennifer didn’t realize the signs of her heart under distress until she was in a hospital bed recovering from a heart attack at the age of 36. A Washington, DC, crime reporter, her life revolved around the traumas, disasters, and heartache that plagued her community. Jennifer’s heart attack reset her priorities. She now takes time to manage stress and nourish herself with healthy food. Jennifer urges all women to know their risk for heart disease and take action to lower it.

Chest x ray is a simple, painless test that takes pictures of your heart, lungs, and blood vessels. An x ray can reveal signs of heart failure.

Coronary calcium scan (or cardiac calcium score) is a test that looks for specks of calcium (called calcifications) in the walls of the coronary arteries. Calcifications in the coronary arteries are an early sign of CHD. The test can show whether you're at increased risk for a heart attack or other heart problems before other signs and symptoms occur.

Echocardiography (echo) uses sound waves to make moving pictures that show the heart's size and shape. The sound waves also show how well your heart's chambers and valves are working and how much blood is pumped out by the heart when it contracts.

Electrocardiogram (ECG or EKG) is a simple, painless test that detects and records the heart's electrical activity. This test can show abnormal heartbeats, problems with the heart valves, blood flow problems, and heart enlargement.

Stress testing (or treadmill test or exercise ECG) provides information about how your heart works during physical stress. Exercise ECG can show signs of heart disease not present on the resting ECG. During stress testing, you exercise (walk or run on a treadmill or pedal a stationary bike) to make your heart work hard and beat fast. Tests are done on your heart while you exercise. These imaging stress tests (i.e., echo, RNI, or cardiac MRI) can show how well blood is flowing in your heart and how well your heart pumps blood when it beats. If you have arthritis or another medical problem that prevents you from exercising during a stress test, your doctor may give you medicine to make your heart work hard, as it would during exercise or stress.

Invasive Tests

An invasive procedure is one that penetrates or breaks the skin or enters a body cavity.

Cardiac catheterization and coronary angiogram or arteriography uses dye and special x rays to find blood flow problems and blockages in the coronary arteries. A procedure called cardiac catheterization is used to get the dye into the coronary arteries. For this procedure, a thin, flexible tube (catheter) is

threaded into the coronary arteries of the heart. The dye is then injected into the tube, allowing the heart and blood vessels to be filmed.

Intracoronary/intravascular ultrasound can be done during a cardiac catheterization. The procedure uses high-frequency sound waves to look inside the coronary arteries to evaluate the blood flow through the heart and look for areas of plaque buildup.

Radionuclide imaging (RNI) can be used for three main purposes: to see how well your heart pumps blood to your body (ventricular functioning scan), to check how blood is flowing to the heart muscle (myocardial perfusion scanning), or to look for damaged heart muscle (myocardial viability testing). A small amount of radioactive material is injected into a vein, and special cameras outside your body create pictures of your heart.

Ventriculogram is another test that can be done during a cardiac catheterization that examines the left ventricle, which is the heart's main pumping chamber. During this test, a dye is injected into the inside of the heart and x ray pictures are taken. The test can show the ventricle's size and how well it pumps blood. It also shows how well the blood flows through the aortic and mitral valves.

Other Testing Considerations

Unfortunately, standard noninvasive tests for CHD aren't designed to detect coronary MVD. These tests look for blockages in the large coronary arteries. Coronary MVD affects the tiny coronary arteries.

If test results show that you don't have CHD, your health care provider might still diagnose you with coronary MVD. This could happen if signs are present that not enough oxygen is reaching your heart's tiny arteries.

Coronary MVD symptoms often first occur during routine daily tasks. Thus, your health care provider may ask you to fill out a questionnaire called the Duke Activity Status Index (DASI). The questionnaire will ask you how well you're able to do daily activities, such as shopping, cooking, and going to work.

The DASI results will help your health care provider decide which kind of stress test you should have. The results also give your health care provider information about how well blood is flowing through your coronary arteries.

TREATMENTS

Treatments for CHD include lifestyle changes, medications, medical procedures and surgery, and cardiac rehabilitation. Treatment goals may include:

- Relieving symptoms.
- Reducing risk factors in an effort to slow, stop, or reverse the buildup of plaque.
- Lowering the risk of blood clots forming. (Bloodclots can cause a heart attack.)
- Widening or bypassing clogged arteries.
- Preventing complications of CHD.

MAKE CHANGES FOR A MORE HEALTHY LIFE

- Set realistic, specific goals for a heart healthy lifestyle.
- Act on your goals—take one step at a time.
- Figure out what's stopping you from making or sticking to healthy lifestyle changes. Keeping a record of your daily food intake and physical activity may help you identify barriers and inspire you to reach your goals.
- Don't give up—get back on track when you slip up.
- Reward yourself for the gains you've made—with something you like to do, not with food.
- Make a plan to maintain your healthy lifestyle changes. Involve friends and family!

Lifestyle Changes

Making lifestyle changes can help prevent or treat CHD. These changes may be the only treatment that some people need.



Kick the Smoking Habit

There is nothing easy about giving up cigarettes, but with a plan of action, you can do it. Become aware of your personal smoking “triggers”—the situations that typically bring on the urge to light up—and replace them with new activities. Eat

healthfully, get regular physical activity, and ask friends and family for support. You also may want to participate in an organized program to help people quit smoking, offered by many hospitals, health organizations, and workplaces. Also, several medications are now available to help people stop smoking. Ask your health care provider whether you should try any of these medications.



Eat for Health

You can greatly improve the condition of your heart by eating healthfully. Put together an eating plan that offers the balance of calories that is right for you, including vegetables, fruits, whole grains, and low-fat or fat-free dairy products. The number of calories you need each day depends on your age and how physically active you are. Add seafood, lean meats, poultry, beans, eggs, and unsalted nuts for protein. Limit saturated and *trans* fats, sodium (salt), and added sugars. Grill, steam, or bake instead of frying, and flavor with spices, not sauces.



Learn New Moves

Regular physical activity is a powerful way to keep your heart healthy. Aim for a total of 2 hours and 30 minutes of moderate-intensity aerobic activity each week—spending at least 10 minutes at a time. This level of activity can reduce your risk for heart disease and your chances of developing other risk factors, such as high blood pressure, diabetes, and being overweight. Other lifestyle benefits include providing energy, reducing stress, and building confidence.

Talk with your health care provider before you start an exercise plan. Ask him or her how much and what kinds of physical activity are safe for you.



Aim for a Healthy Weight

If you are overweight, taking off pounds can directly lower your chances of developing heart disease. Even a small weight loss will help lower your risk for heart disease and other medical conditions.

When it comes to weight loss, there are no quick fixes. Lasting weight loss requires a change of lifestyle, which includes adopting a healthy,

lower-calorie eating plan and getting regular physical activity. Aim to lose no more than 1 to 2 pounds per week. If you have a lot of weight to lose, ask your health care provider, a registered dietitian, or a qualified nutritionist to help you develop a sensible plan for gradual weight loss.



High Blood Pressure and the DASH Eating Plan

If you have high blood pressure or high normal blood pressure, you can help lower it by adopting the DASH eating plan. DASH, which stands for “Dietary Approaches to Stop Hypertension,” emphasizes fruits, vegetables, whole grains, and fat-free or low-fat dairy products. It is rich in potassium, calcium, and magnesium, as well as fiber and protein. It is low in saturated and *trans* fats and limits red meat, sweets, and sugar-containing beverages. Salt (sodium chloride) and other forms of sodium affect blood pressure. You should consume no more than 2,300 mg of sodium a day—1,500 mg per day is even better. If you follow the DASH eating plan and cut down on sodium, you will get even greater blood pressure benefits.



High Blood Cholesterol and the TLC Program

If you need to lower your LDL cholesterol (sometimes called “bad” cholesterol), you may want to consider a program called TLC, which stands for “Therapeutic Lifestyle Changes.” The TLC program calls for increased physical activity, weight control, and a special eating plan. On the TLC eating plan, you should have less than 7 percent of your day’s calories from saturated fat; no more than 25–35 percent of your daily calories should come from all fats, including saturated, *trans*, monounsaturated, and polyunsaturated fats; less than 200 mg of dietary cholesterol per day; and just enough calories to achieve or maintain a healthy weight. If cholesterol-lowering medications are needed, they’re used with the TLC program to help lower your LDL cholesterol level.

Medications

Sometimes, lifestyle changes alone aren’t enough to control heart disease and its risk factors. Medications are often used to treat high blood cholesterol, high blood pressure, or heart disease itself. For example, medication may be

used to relieve angina, the chest pain that often accompanies heart disease. Medication also can help lower your heart’s workload, prevent blood clots, and prevent or delay the need for a procedure or surgery.

Medications used to treat CHD include anticoagulants, also called blood thinners; aspirin and other anticlotting medicines; ACE inhibitors; beta blockers; calcium channel blockers; nitroglycerin; glycoprotein IIb-IIIa; statins; and fish oil and other supplements high in omega-3 fatty acids.

If you do take medications, it is vital to also keep up your heart healthy lifestyle, because it can help keep doses of some medications as low as possible. Be sure to take your medications exactly as your health care provider advises. (This includes aspirin and other over-the-counter medicines.) If you have uncomfortable side effects, let your health care provider know. You may be able to change the dosage or switch to another medication.

If you’ve had a heart attack or stroke, aspirin can help lower the risk of a second one. It can also help keep arteries open in individuals who have had a heart bypass or angioplasty. However, aspirin can cause serious side effects and mix dangerously with other medications.

If you are thinking about using aspirin for heart problems, talk with your health care provider first. If your health care provider thinks aspirin is a good choice for you, be sure to take the recommended dosage.

Procedures and Surgery

Advanced heart disease may require procedures or surgery to ease severe chest pain or to clear blockages in blood vessels. Two common procedures are coronary angioplasty (or balloon angioplasty) and coronary artery bypass graft.

Angioplasty is a nonsurgical procedure that opens blocked or narrowed coronary arteries. This procedure also is called percutaneous coronary intervention, or PCI. A thin, flexible tube with a balloon or other device on the end is threaded through a blood vessel to the narrowed or blocked coronary artery. Once in place, the balloon is inflated to compress

the plaque against the wall of the artery. This restores blood flow through the artery.

During the procedure, the doctor may put a small mesh tube called a stent in the artery. The stent helps prevent blockages in the artery in the months or years after angioplasty.

Coronary artery bypass grafting (CABG) is a type of open-heart surgery. In CABG, arteries or veins from other areas in your body are used to bypass (that is, go around) your narrowed coronary arteries. CABG can improve blood flow to your heart, relieve chest pain, and possibly prevent a heart attack.

Cardiac Rehabilitation

Your health care provider may prescribe cardiac rehabilitation (rehab) for angina or after CABG, angioplasty, or a heart attack. Almost everyone who has CHD can benefit from cardiac rehab.

Cardiac rehab is a medically supervised program that may help improve the health and well-being of people who have heart problems.

The cardiac rehab team may include doctors, nurses, exercise specialists, physical and occupational therapists, dietitians or nutritionists, and psychologists or other mental health specialists.

Rehab has two parts:

- **Exercise training.** This part helps you learn how to exercise safely, strengthen your muscles, and improve your stamina. Your exercise plan will be based on your personal abilities, needs, and interests.
- **Education, counseling, and training.** This part of rehab helps you understand your heart condition and find ways to reduce your risk for future heart problems. The rehab team will help you learn how to cope with the stress of adjusting to a new lifestyle and deal with your fears about the future.

GETTING HELP FOR A HEART ATTACK

If you have heart disease, you are at a high risk for having a heart attack. But planning ahead so you know what to do if one occurs will help you get treatment fast—when it can save heart muscle and maybe even your life.

The symptoms of a heart attack can vary from person to person. Some people can have few symptoms and are surprised to learn they've had a heart attack. If you've already had a heart attack, your symptoms may not be the same for another one. It is important for you to know the most common symptoms of a heart attack and also remember these facts:

- Heart attacks can start slowly and cause only mild pain or discomfort. Symptoms can be mild or more intense and sudden. Symptoms also may come and go over several hours.
- People who have high blood sugar (diabetes) may have no symptoms or very mild ones.
- The most common symptom, in both men and women, is chest pain or discomfort.
- Women are somewhat more likely to have shortness of breath, nausea and vomiting, unusual tiredness (sometimes for days), and pain in the back, shoulders, and jaw.

Some people don't have symptoms at all. Heart attacks that occur without any symptoms or with very mild symptoms are called silent heart attacks.

Most Common Symptoms

The most common warning symptoms of a heart attack for both men and women are:

- **Chest pain or discomfort.** Most heart attacks involve discomfort in the center or left side of the chest. The discomfort usually lasts for more than a few minutes or goes away and comes back. It can feel like pressure, squeezing, fullness, or pain. It also can feel like heartburn or indigestion. The feeling can be mild or severe.
- **Upper body discomfort.** You may feel pain or discomfort in one or both arms, the back, shoulders, neck, jaw, or upper part of the stomach (above the belly button).
- **Shortness of breath.** This may be your only symptom, or it may occur before or along with chest pain or discomfort. It can occur when you are resting or doing a little bit of physical activity.



Yaskary's Story

When Yaskary was 15, her mother died in the hospital 2 days after a massive heart attack. Her aunt and father later died of heart disease, and her sister survived a heart attack. Yaskary realized her life would be no different unless she took action. At 49, Yaskary noticed slight pressure around her left shoulder, and hours later, she underwent a quintuple bypass. Yaskary knows her life was spared because she understood the risk she inherited. For her, the scar on her chest serves as a symbol of life.

The symptoms of angina can be similar to the symptoms of a heart attack. Angina is chest pain that occurs in people who have CHD, usually when they're active. Angina pain usually lasts for only a few minutes and goes away with rest and/or medication.

Chest pain or discomfort that doesn't go away or changes from its usual pattern (for example, occurs more often or while you're resting) can be a sign of a heart attack.

All chest pain should be checked by a doctor.

Other Common Symptoms

Pay attention to these other possible symptoms of a heart attack:

- Breaking out in a cold sweat
- Feeling unusually tired for no reason, sometimes for days (especially if you are a woman)
- Nausea (feeling sick to the stomach) and vomiting
- Light-headedness or sudden dizziness
- Any sudden, new symptoms or a change in the pattern of symptoms you already have (for example, if your symptoms become stronger or last longer than usual)

Not everyone having a heart attack has typical symptoms. If you've already had a heart attack, your symptoms may not be the same for another one. However, some people may have a pattern of symptoms that recur.

Quick Action Can Save Your Life: Call 9-1-1

The symptoms of a heart attack can develop suddenly. However, they also can develop slowly—sometimes within hours, days, or weeks of a heart attack.

Any time you think you might be having heart attack symptoms or a heart attack, don't ignore it or feel embarrassed to call for help. Call 9-1-1 for emergency medical care, even if you are not sure whether you're having a heart attack. Here's why:

- Acting fast can save your life.
- An ambulance is the best and safest way to get to the hospital. Emergency medical services (EMS) personnel can check how you are doing and start life-saving medications and other treatments right away. People who arrive by ambulance often receive faster treatment at the hospital.
- The 9-1-1 operator or EMS technician can give you advice. You might be told to crush or chew an aspirin if you're not allergic, unless there is a medical reason for you not to take one. Aspirin taken during a heart attack can limit the damage to your heart and save your life.

THE HEART TRUTH®

The Heart Truth® (www.hearttruth.gov), sponsored by the National Heart, Lung, and Blood Institute (NHLBI), part of the National Institutes of Health, is a national education program for women that raises awareness about heart disease and its risk factors and educates and motivates them to take action to prevent the disease.

The centerpiece of *The Heart Truth* is the *Red Dress*®, which was created by the NHLBI and introduced as the national symbol for women and heart disease awareness in 2002. The *Red Dress* is a powerful red alert that inspires women to learn more about their personal risk for heart disease and take action to protect their heart health.

Many women delay getting help for a possible heart attack because they don't want to bother others, especially if their symptoms turn out to be a "false alarm." But when you're facing something as serious as a possible heart attack, it is much better to be safe than sorry.

Every minute matters. Never delay calling 9-1-1 to take aspirin or do anything else you think might help.

Have an Emergency Action Plan

Make sure that you have an emergency action plan in case you or someone in your family has a heart attack. This is very important if you're at high risk for a heart attack or have already had a heart attack.

Write down a list of medications you are taking, medications you are allergic to, your health care provider's phone numbers (both during and after office hours), and contact information for a friend or relative. Keep the list in a handy place to share in a medical emergency.

Talk with your health care provider about the symptoms of a heart attack, when you should call 9-1-1, and steps you can take while waiting for medical help to arrive.

NHLBI RESOURCES

NHLBI website: www.nhlbi.nih.gov

The Heart Truth website: www.hearttruth.gov

Health Topics, which provides science-based, plain-language information related to heart, lung, and blood diseases and conditions and sleep disorders: www.nhlbi.nih.gov/health/health-topics/by-alpha

Deliciously Healthy Eating Web pages, which feature healthy recipes, tools, and cooking resources: healthyeating.nhlbi.nih.gov

NHLBI Health Information Center:

Email: NHLBIinfo@nhlbi.nih.gov

Phone: 301-592-8573



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