



Mended Hearts™

HeartGuide

THE
JOURNEY
TO A
HEALTHY
HEART
STARTS
HERE.

What's Inside:

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- 12 Lifestyle and Risk Factors of Coronary Heart Diseases
- 20 Common Tests and Therapies
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IMPROVING
THE LIVES
OF PATIENTS
AND THEIR
FAMILIES
THROUGH
SUPPORT AND
EDUCATION

Access the online version of this guide at www.mendedhearts.org/heartguide

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The Journey to a Healthy
Heart Starts Here

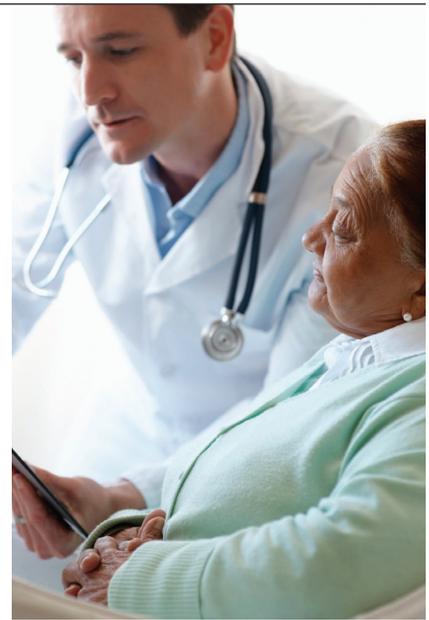
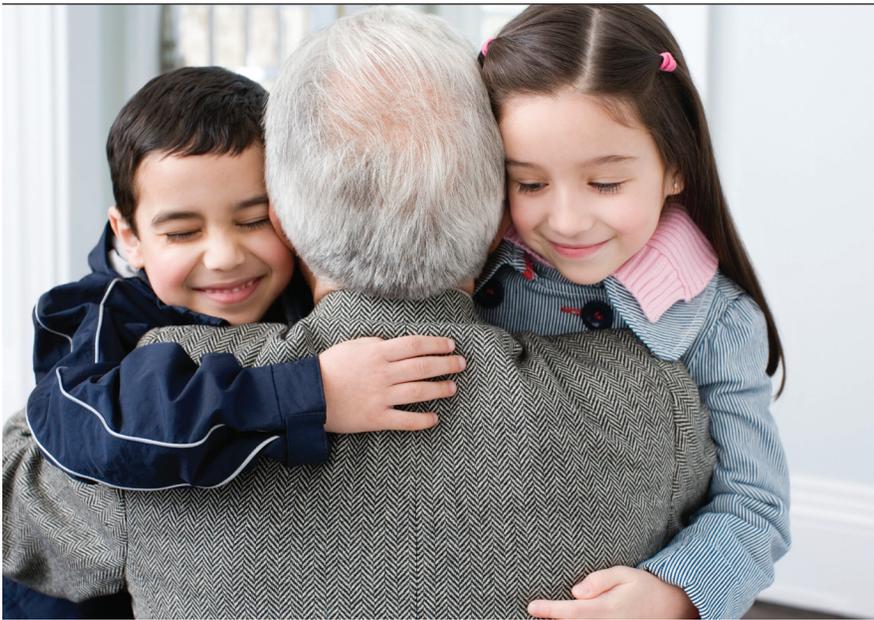
Learn more at www.mendedhearts.org

Thank You

Everyone at Mended Hearts extends a heartfelt thank you to our Medical Advisory Council and our sponsors for their contributions to the *HeartGuide* and to the education of heart patients around the country. We cannot do what we do without you!



Join Mended Hearts to connect with patients and caregivers and help us support others. Members receive timely educational guides, the quarterly magazine *Heartbeat*, and more. Join today at www.mendedhearts.org/get-involved/membership.



We are Heart Patients. We are Mended Hearts™. This is Your HeartGuide.

Adjusting to life after a heart event is challenging. Heart disease is complex and few patients and their caregivers experience it the same way. There may be appointments to track, new medicines to take, lifestyle changes to make, and many other issues to consider.

Luckily, you are not alone. Take the Mended Hearts *HeartGuide* with you on your journey to a healthy heart. Use it to navigate the world of heart disease and as a tool to take charge of your health now and plan for the future.

This guide is just one way that Mended Hearts, the nation's largest peer-to-peer support group for heart patients, assists patients and caregivers—from the time of a heart disease diagnosis through recovery. Founded on the principles of service, charity, and partnership, Mended Hearts is a physician-endorsed network providing social, emotional, and practical support to patients and their loved ones throughout the United States.

At Mended Hearts, we know that one-on-one support and encouragement improve outcomes for heart patients.

That's why our thousands of Mended Hearts volunteers visit hospital rooms and rehabilitation clinics throughout the country, host regular support groups at more than 300 community-based chapters, and provide online and phone visits, all to help you get back on your feet.

Mended Hearts' trained, accredited visitors conduct this work with the support of hospitals and clinics, serving nearly 215,000 patients and caregivers annually. We listen to you, share our experiences, and empathize with your concerns and those of your loved ones.

Just like Mended Hearts itself, our *HeartGuide* is a resource created for heart patients, by heart patients. Specialists in cardiovascular treatment and care—physicians, nurses, dietitians, and pharmacists—reviewed its content. You and your loved ones can use it to learn about recovery and health, heart disease, risk factors and symptoms of cardiovascular disease, treatment options, lifestyle and diet changes, and more. Learn more at www.mendedhearts.org.

Disclaimer: This guide contains general information about heart disease and heart health, but is not a substitute for the advice of your health care team. Always consult with trained health professionals for medical advice.

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Introduction



The Journey to a Healthy Heart Starts with Cardiac Rehabilitation

At Mended Hearts, we look at heart disease recovery as a marathon, not a sprint. The path to a healthier way of life after a heart disease diagnosis is best charted over a lifetime, not in weeks, months, or even years. Modern medicine can and does save lives. Yet much is left up to us to sustain our health over the long term.

The sobering fact is that heart disease is the leading cause of death among men and women in the United States. Nearly 600,000 people die of heart diseases in a typical year.

And so promoting heart health is serious business. But the millions of people thriving after a heart disease diagnosis show that we can mend our hearts and live long, active, fulfilling lives.

The journey to heart health often starts with cardiac rehabilitation, a medically supervised program to heal after a heart event and learn how to reduce heart problems in the future. These programs typically include four components: medical evaluation, physical activity, lifestyle education, and peer support, such as that offered by Mended Hearts.

Studies show that cardiac rehabilitation has dramatic benefits. Many patients experience an improved quality of life: They are more motivated, have a keener sense of enjoyment, possess strength and endurance, and feel a sense of well-being. Patients who stick to a rehab program also significantly reduce the likelihood of another serious heart event.

Here is what your health care team will typically look at before prescribing your cardiac rehabilitation program:

- **Overall health.** A medical assessment will determine your physical abilities and limitations, your risk factors for cardiovascular disease, and other health issues.
- **Exercise.** Near-daily exercise is the goal for optimal heart health, and so your health care team will assess your ability to exercise and tailor an exercise program to your needs. Your health care team will help you find the right mix of aerobic exercise and strength training. The program may start slowly and gradually increase as you build endurance.
- **Lifestyle.** Your health care team will help you set and meet goals for a healthier lifestyle, which is key to successful cardiac rehabilitation. This includes guidance about what foods to choose, how to stop smoking, how to manage the pain and fatigue that sometimes emerge during recovery, and much more.
- **Support.** Recovering from a heart event is a team effort. No one can go it alone. That's why family and friends are so important to helping you get back on your feet. But cardiac rehab might include other forms of support, too, such as social and learning activities with other heart patients, or counseling and therapy sessions. Mended Hearts and our *HeartGuide* are sources of support.

Heart Disease and Heart Events

YOU SAY CARDIO, I SAY VASCULAR

Chances are you've heard the phrases that describe "heart problems"—heart disease, heart failure, heart attack, or even peripheral artery disease (PAD) and cardiovascular disease. What do they all mean?

It helps to understand what *cardiovascular disease (CVD)* describes: *Cardio* refers to diseases of the heart, while *vascular* refers to conditions affecting the blood vessels, like arteries and veins. The circulation system consists of both the heart and blood vessels, and so anything that affects one part influences the other. CVD encompasses many heart and blood vessel conditions.

The phrase *heart disease* typically refers to cardio conditions like coronary artery disease. Vascular diseases—which affect the veins and arteries as well as the capillaries and lymphatics (the small vessels that carry the fluid from cells back into the blood stream)—include arteriosclerosis and atherosclerosis, high blood pressure/hypertension, and PAD.

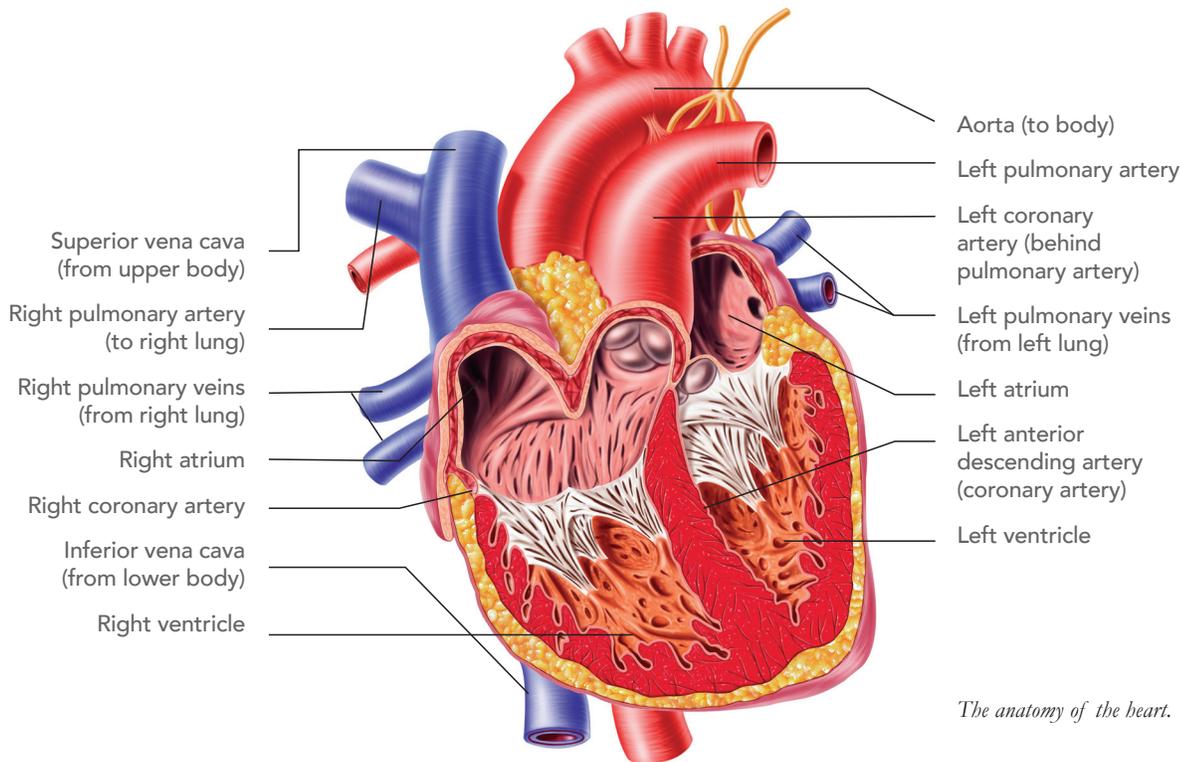
Understanding Heart Disease and Heart Events

We start our journey to heart health by learning about common heart diseases and heart events, such as heart attacks. Heart disease is a broad phrase that describes conditions that affect the heart's valves, muscle, and coronary arteries and the sac around the heart. Each of these components plays a critical role in heart function—the valves make sure the blood is pumped in the right direction, the muscle pumps the blood the body needs, and the coronary arteries carry blood to the heart muscle. When functioning properly, this system is like a well-oiled machine. Heart disease is the wrench in the gears. Heart events let us know we're in need of a serious tune up.

Heart Diseases

There are many types of heart diseases. Here are a few of the major ones:

- **Coronary artery disease** – This refers to conditions that block blood flow in the arteries that supply the heart. The most common cause of this blockage is a condition called *atherosclerosis*, when the arterial walls thicken and stiffen due to the buildup of fatty deposits inside the arteries.
- **Coronary heart disease** – This describes coronary artery diseases and their complications, such as *angina* (pain related to the heart not getting enough oxygen) and *heart attack (myocardial infarction)*.
- **Cardiomyopathy** – This encompasses diseases that affect the heart's muscle. Some people are genetically disposed to these conditions; other causes are not clearly understood. One of the most common types of cardiomyopathy is *idiopathic dilated cardiomyopathy*, which is an enlarged and weak heart muscle for an undetermined reason.
- **Valvular heart disease** – This collective phrase refers to diseases that affect heart valves, which connect the four chambers of the heart and keep the blood flowing in the proper direction. Typical valve conditions include narrowing, leaking, or improper closing. Valve damage can be genetic or show up later in life, stemming from causes like rheumatic fever, infection, connective tissue disorders, certain medications, or radiation treatments for cancer.
- **Congenital heart defects** – These affect the growth and development of the heart's muscle, chambers, or valves. These are heart defects present at birth.



The anatomy of the heart.

- **Pericardium conditions** – The protective sac that surrounds the heart can also experience problems. Conditions of the pericardium include inflammation, collection of fluid, and stiffness. Each of these can occur alone or in combination with other conditions. The causes and effects of pericardial disease can vary.
- **Deep vein thrombosis** – This phrase describes the formation of a clot in a vein deep inside your body. This condition commonly occurs in the big veins in the lower legs and thighs.

Heart Attack

Heart attack—or, *myocardial infarction*—happens when the blood supply to the heart muscle (that’s the myocardium) is severely reduced or stopped. This is typically caused by a blockage in at least one of the arteries feeding the heart.

That blockage usually builds over time through the process described earlier called atherosclerosis. As fatty deposits—as in cholesterol/plaque—build inside the artery walls, they can burst and cause a blood clot to form. This blocks the artery and blood flow and damages the heart muscle. In time, heart muscle cells die, causing permanent damage and cardiac arrest. At that point, every second counts. Call 911 and get emergency care immediately if you or someone you know experience the symptoms of a heart attack (see sidebar at right).

AM I HAVING A HEART ATTACK?

Men and women may experience these common symptoms of heart attack:

- Chest discomfort that feels like uncomfortable pressure, squeezing, fullness, or pain
- Discomfort in other areas of the upper body
- Pain or discomfort in one or both arms, the back, neck, jaw, or stomach
- Shortness of breath, with or without chest pain, at rest or after minor physical activity
- Cold sweats, nausea, lightheadedness, or anxiety

Women are somewhat more likely to experience shortness of breath; nausea and vomiting; tiredness; and back, shoulder, and jaw pain. Silent heart attacks are those that occur with no or very few symptoms.



"Any angina is too much."

Donnette, angina patient

Angina is your heart's way of telling you it needs more oxygen.

Learn more about angina, including questions to ask your health care team, by visiting www.SpeakFromTheHeart.com.

Angina

If you have chronic stable angina (also known as “angina”), you are not alone. There are approximately 9 million people in the United States with chronic angina.

Angina—pain or discomfort in the chest or other areas of the body—is usually caused by blocked arteries in the heart. Plaque builds up over time in the arteries, which as we know is called coronary heart disease (CHD) or coronary artery disease (CAD).

In CHD, the arteries of the heart become stiff and narrow, making it difficult for oxygen-rich blood to reach your heart muscle. The lack of oxygen can cause the discomfort of angina. Angina is your heart's way of telling you it needs more oxygen.

Triggers of Angina

Episodes of angina are usually brought on by one of the four “E’s”—exercise, emotional stress, eating too much, or exposure to extreme cold. Angina usually goes away with rest or nitroglycerin, medicine used to open blood vessels. If you have angina that does not resolve with rest or nitroglycerin, you should seek immediate medical attention by calling 911.

People Experience Angina Differently

Symptoms of angina include discomfort or pain in the chest or surrounding areas (arm, shoulder, back, neck, or jaw). It can feel like tightness, pressure, squeezing, or crushing and can spread to the arm, back, jaw, neck, and shoulder. Some patients may experience feeling faint, tired, out of breath, or as if they have heartburn.

Diagnosis and Treatment

It's very important that you share all of the details about your condition with your health care team members so they can diagnose and manage your condition. Your doctor will discuss signs of angina to figure out if you have it or something else. Your health care team will review your personal and family history, assess risk factors, conduct a physical exam, and may run tests (see page 20 for common tests and therapies).

Once you are diagnosed with angina, your health care provider should ask you a number of questions to get a better understanding of your angina, including your pain level and which treatments made you feel better. Use the notes section of the *HeartGuide* to write down your angina symptoms, level of pain, and related issues and bring the information with you to every exam.

Acute Coronary Syndrome (ACS)

You've heard of heart attacks, but what is this ACS that your health care team keeps talking about? Conditions featuring a blockage of blood to the heart—most commonly, heart attack and unstable angina—are covered under the umbrella of acute coronary syndrome. These emergency situations require immediate treatment.

Risk Factors

Risk factors include smoking, high blood pressure, high blood cholesterol, diabetes, being overweight or obese, inactivity, family history of chest pain, heart disease, or stroke.

Symptoms

Any pain or discomfort in your chest may point to a problem with your heart and should be taken seriously. It can come on suddenly (as with a heart attack), be unpredictable, or get worse with rest.

ACS symptoms include:

- Chest pain or discomfort (may be accompanied by pressure, tightness, or fullness)
- Pain or discomfort in the arms (one or both), jaw, neck, back, or stomach
- Shortness of breath
- Feeling dizzy or light-headed
- Nausea
- Sweating

Diagnosis

Your health care provider will take a medical history and give you a physical exam. If ACS is suspected, these further tests may be ordered:

- A blood test to see if heart cells are dying
- An electrocardiogram (ECG or EKG) to measure the heart's electrical activity and heart rhythm

Treatment

If tests show a blockage of blood flow to the heart, further testing may confirm a diagnosis of ACS. The artery must then be reopened using medicines or angioplasty, in which a small balloon is inflated inside the artery to open it up. A wire mesh tube called a stent may also be placed in the artery to keep it open.

When you stop smoking it takes just two years for your heart attack risk to normalize.



“Weakness and fatigue are not always work-related.”

Fredonia, heart failure patient

WHAT IS HEART FAILURE?

Heart failure occurs when the heart can't pump enough blood to meet the needs of your body's organs and tissues. It does not mean your heart has stopped functioning, but that it isn't pumping as well as it should.

Heart Failure

Heart failure is a chronic disease with many potential causes. It can take years to develop, gradually worsening if left untreated. Heart failure usually progresses for some time before it's diagnosed.

Heart failure patients often experience weakness and fatigue. This is because aspects of the well-oiled heart machine are not firing on all cylinders.

The heart has two sides, each with two chambers. The upper chambers (the atria) receive blood, and the bottom chambers (ventricles) pump it back into the blood vessels and throughout the body. Heart failure occurs when any of the four chambers loses the ability to keep blood flowing normally. The condition often affects the left side of the heart first, although it can affect either or both sides at once. Congestive heart failure results in a large amount of fluid buildup in the lungs, feet, ankles, or legs.

Here are some common causes of heart failure:

- **Coronary artery disease** – When the heart's arteries are blocked, this slows the flow of blood to the heart muscle, sometimes causing serious damage. The healthy tissue also has to work that much harder to keep the blood flowing, which may enlarge and weaken the heart's chambers.
- **High blood pressure (hypertension)** – Uncontrolled high blood pressure—the force of blood against the artery walls—increases the risk of heart failure and stroke. High blood pressure forces your heart to pump harder to keep enough blood circulating, which can eventually expand and weaken the heart's chambers.
- **Abnormal heart valves** – When the heart's valves don't open or close as they should, the heart muscle has to work harder to compensate.
- **Heart muscle disease (cardiomyopathy) or inflammation (myocarditis)** – Damage to the heart muscle—from drug or alcohol abuse, viral infection, a heart defect at birth, or another cause—can lead to heart failure.
- **Heart defects present at birth (congenital heart defects)** – Some people are born with hearts that have defects in the chambers, valves, or arteries. In these individuals, the healthy parts of the heart must struggle to compensate, weakening the heart.
- **Severe lung disease** – Conditions that restrict lung function cause the heart to work harder.
- **Diabetes** – This disease strains heart function. People living with diabetes also tend to have conditions that increase their risk of heart disease, including being overweight or having high blood pressure and elevated cholesterol levels.

WHAT IS EJECTION FRACTION (EF)?

Ejection fraction is a measurement of heart failure. Ejection fraction is the percentage of blood that is pumped out with each heartbeat. The heart never empties all of the blood from the lower chambers, called ventricles. A normal ejection fraction in a person at rest is typically between 55 and 70 percent. If the heart muscle has been damaged by a heart attack, or heart muscle disease, the EF may be below normal.

Peripheral Artery Disease (PAD)

Peripheral artery disease (PAD) is another form of *atherosclerosis*, the hardening and narrowing of the arteries caused by the gradual buildup of fatty deposits and other substances, which restrict the flow of blood. PAD includes all disorders that affect the arteries outside the heart, such as deep vein thrombosis, which is a blood clot that forms in a vein inside the body. The most common form of PAD affects the legs and feet.

Risk Factors

The main risk factor for PAD is smoking. Other risk factors are nearly identical to those for other cardiovascular diseases, including high blood pressure, diabetes, high cholesterol, older age, and atherosclerosis in other arteries. Those with clogged arteries often have similarly damaged blood vessels in other parts of their bodies, which put them at a higher risk for heart attack and stroke.

Symptoms

Some people with PAD have no symptoms, particularly in the early stages. About one-third of patients report pain in their legs while they walk that goes away at rest. Due to the lack of symptoms—or the tendency to think symptoms are part of normal aging or arthritis—PAD may go undiagnosed.

Among those who have early-stage symptoms, the most common are cramping, hair loss on the feet or legs; cold legs or feet; fatigue; changes in leg color; heaviness, pain, or discomfort in the thighs, calves, buttocks, or hips during activity; and changes in toenails. The more the muscles demand from the bloodstream during intense physical activities, the worse the pain.

Diagnosis and Treatment

Physical exams and imaging tests are used to diagnose PAD. Treatments include lifestyle changes (e.g., smoking cessation and exercise), medicines to control cholesterol or blood clots, stents to open blocked arteries, and graft bypass surgery to go around blocked arteries.

AM I EXPERIENCING HEART FAILURE?

Fluid buildup in your body from heart failure commonly causes the following symptoms:

- Shortness of breath during activity, at rest, or while sleeping
- Constant tiredness (fatigue) and difficulty doing routine tasks
- Buildup of excess fluid in the body tissues (also known as edema), such as swelling in the feet, ankles, legs, abdomen, and veins in the neck; unexplained weight gain; and frequent urination

Fluid buildup may also result in coughing or wheezing that is dry or that produces a white or pink blood-tinged phlegm. This is typically worse at night and when you're lying down. This may also be a sign of acute pulmonary edema, or fluid buildup in the lungs, which requires emergency treatment.

4X = the factor by which your risk of PAD increases if you smoke.



5X = the factor by which people with AFib are at higher risk of stroke.

20% = the highest estimated percentage of AFib-related strokes in the United States.

STAY IN CONTROL: AFIB, DIET, AND LIFESTYLE

If you have AFib, eating a low-salt, heart-healthy diet, staying active, and quitting smoking are important.

Your doctor can give you information on eating right and exercising safely. You may also need to eliminate alcohol and caffeine, as both can trigger AFib episodes.

Also be careful in choosing over-the-counter (OTC) medications: Some contain stimulants that can trigger episodes or interact with anti-arrhythmic medications.

Heart Arrhythmias

Heart issues are not only structural; they can be electrical as well. An electrophysiologist tests the heart's electrical activity and pinpoints the cause of abnormal heartbeats.

Atrial Fibrillation

Atrial fibrillation (AFib) is the most common abnormal heart rhythm. If you've been diagnosed with AFib—an irregular, unusually rapid heartbeat affecting the body's blood flow—you have some company: More than 2.3 million Americans live full and active lives with this condition. The main risks of patients with AFib alone (and no other underlying heart issues) are stroke and heart failure. Many AFib patients take a blood thinner medication to decrease the risk of stroke.

Risk Factors

Several conditions and circumstances are major risk factors for AFib:

- Increased age (although half of those with AFib are under age 75)
- Any heart disease, including valve conditions and defects, previous heart attacks, or heart surgery
- Uncontrolled high blood pressure

Other conditions, such as thyroid problems, sleep apnea, obesity, diabetes, and lung disease can raise the risk of AFib. Drinking alcohol—especially large amounts—can trigger AFib in some people. Genetic factors in AFib are not well known.

Symptoms

Some of us with AFib have no symptoms. Those who do may experience mild fatigue or weakness, difficulty breathing or shortness of breath, heart palpitations (a racing or uncomfortable flopping of the heart), lower blood pressure, lightheadedness, confusion, and chest pain. For some, AFib comes and goes; for others, it's a chronic condition.

Diagnosis and Treatment

To diagnose AFib, your doctor may order one or more of the following tests (for detailed information on these tests, see page 20):

- **Electrocardiogram (ECG or EKG)** – Measures the heart's electrical activity
- **Echocardiogram** – Like a heart sonogram, this can be conducted at rest or while exercising (i.e., a stress echo)
- **Holter/event monitor** – Portable ECG machines worn to record heart activity
- **Blood tests** – These determine if substances in the bloodstream are affecting your heart's rhythm or if you have an overactive thyroid gland
- **Chest x-ray** – This can assess if problems other than AFib are causing irregular rhythms

GET YOUR GROOVE BACK: TREATING AFIB BY RESETTING THE HEART'S RATE AND RHYTHM

Treatment for AFib is important because it can prevent the conditions that lead to stroke or heart failure. And if AFib is caused by an underlying event, your doctor can treat it and see if that controls AFib. Effective management of the condition depends on the heart's condition, age, stroke risk, and the severity of AFib symptoms. The overall treatment goals are to reset the rhythm, control the rate, and prevent blood clots.

Restoring Your Heart Rate

Cardioversion restores your heart rate and rhythm. There are two ways to do it:

- **Medications** – An anti-arrhythmic medication can restore your heart's normal rhythm. The medication may be given intravenously or taken orally.
- **Electrical cardioversion** – Occurring while you are sedated, this procedure sends an electrical charge to your heart through paddles or patches placed on your chest. The charge stops your heart's activity for a moment, allowing it to reset to its normal rhythm.

After cardioversion, an anti-arrhythmic medication may be prescribed to prevent reoccurrences of AFib. Common medications are amiodarone, dronedarone, propafenone, sotalol, dofetilide, and flecainide. Some may produce side effects such as nausea, dizziness, and fatigue.

Controlling Heart Rate

If cardioversion doesn't create a normal rhythm, the heart rate is controlled in two other ways:

- **Medications** – Calcium-channel blockers, beta-blockers, and digitalis can be used to slow heart rate to less than 80 beats per minute at rest. Other types of drugs called ACE inhibitors may be prescribed to control blood pressure and reduce the risk of complications.
- **Atrioventricular (AV) node ablation** – This procedure is an option if medications don't work or produce difficult side effects. Radiofrequency energy is applied to the AV node through a catheter to destroy this small area of tissue. A pacemaker is then implanted to send electrical impulses to the ventricles.

Preventing Blood Clots

Blood clots are dangerous because they can lead to more serious conditions, such as stroke. Because the risk for blood clots is so high in people with AFib or who are undergoing procedures to treat AFib, doctors often prescribe anticoagulant (blood-thinning) medications (for more on these medications, see page 36).

WHAT IS SUDDEN CARDIAC ARREST?

At rare times, the heart can go into cardiac arrest without warning. This is called sudden cardiac arrest, an extremely dangerous condition leaving patients just minutes to receive emergency medical care. If you see a person suddenly lose consciousness and register no pulse, get immediate medical help. If the person is unresponsive, rescuers can administer cardiopulmonary resuscitation (CPR) and defibrillation using an automated external defibrillator (AED), if available, to restore blood flow.

BE INVOLVED: QUESTIONS FOR YOUR HEALTH CARE TEAM ABOUT HEART DISEASE AND HEART EVENTS

- What caused my heart problem?
- How serious is it?
- What medications or therapies will I need? Do they have side effects?
- How will my daily life change as a result of my heart problem?

Lifestyle and Risk Factors of Coronary Heart Diseases

WAIT, WE ALL NEED CHOLESTEROL?

We all need cholesterol—and we all have it in our bodies. Too much of this fat-like substance in our blood, though, is not a good thing. It can mix with other substances and create the stuff we don't need—artery-narrowing or -blocking plaque. Medicine and changes in diet can lower cholesterol and thus our risk of heart disease.

IS INFLAMMATION TIED TO HEART DISEASE?

Inflammation is how our body reacts to injury and infection, and researchers are exploring it as an emerging risk factor for heart disease. They are exploring whether damage to the arteries' inner walls sparks inflammation and fuels the growth of artery-clogging plaque. If so, it may be possible to reduce the risk of heart disease by lowering inflammation and C-reactive proteins in the blood, which indicate inflammation.

Don't Miss a Beat When It Comes to Good Health

The saying goes that we are what we eat, but we also are *who* we are.

Controlling our behaviors—diet, exercise, and daily habits—can protect us from the risk of heart disease. Other risk factors for developing heart issues, like age and family history, are baked in. Here we dig deeper into the risk and preventive factors for common heart diseases and cover cholesterol in depth. Use the information to learn what you can do to live well and feel great.

Risk Factors of Coronary Heart Disease (CHD)

Several factors increase the risk of coronary heart disease—also called coronary artery disease—and heart attack. Major risk factors are those that significantly increase the risk of heart and blood vessel (cardiovascular) disease. Some can be treated and controlled. Inflammation is an emerging risk factor.

Even though our control over risk factors varies, the more risk factors we have, the more chances we have of developing CHD. And a greater level of each risk compounds the overall risk. For example, if you have high blood pressure and also high cholesterol, your risk of CHD increases.

Risk Factors That Can't Be Changed

As we know, a few risk factors for CHD are out of our control, including family history. Given that some factors can't be changed, it's important to treat and control the ones we can. Here are some of the risk factors that may predispose us to heart disease:

- **Age** – Try as we might, we can't fight the aging process. As we age, our risks of coronary heart disease increase. The risk for men goes up after age 45. The risk for women increases after age 55.
- **Male gender** – Men have a greater risk of heart attack than women and tend to have attacks earlier in life.
- **Family history (heredity)** – Children of parents with heart disease are more likely to develop it themselves. Most people with a strong family history of heart disease have one or more other risk factors.
- **Insulin resistance** – Insulin is a hormone that helps blood sugar move to the cells. If your body can't use its own insulin, you have insulin resistance, which may lead to diabetes.

- **Type 1 diabetes** – This type of diabetes tends to emerge during childhood. (Type 2 diabetes, the onset of which can be prevented, is discussed below.) Diabetes seriously increases your risk of developing cardiovascular disease. Even when glucose (blood sugar) levels are under control, diabetes increases the risk of heart disease and stroke, but the risks are even greater if blood sugar is not well controlled. If you have diabetes, it's extremely important to work with your health care team to manage it and control any other risk factors you can.

Risk Factors That Can Be Changed

Let's turn to the many things we can do—or stop doing—to stave off heart disease:

- **Tobacco use** – Smokers' risk of developing coronary heart disease is two to three times that of nonsmokers. People with heart disease who smoke cigarettes are twice as likely to die from sudden death than nonsmokers. Cigarette smoking also acts with other risk factors to greatly increase the risk for coronary artery disease. Second-hand smoke increases the risk of heart disease, even for nonsmokers. Smokeless tobacco also increases the risk. Explore smoking cessation programs with your doctor; once you quit, it takes just two years for your heart attack risk to normalize.
- **High blood cholesterol** – As the “bad” blood cholesterol—LDL (low-density lipoprotein)—rises, so does risk of coronary artery disease. Most health experts agree that individuals with a total cholesterol level of greater than 200 mg/dl are at higher risk. When combined with other risk factors (e.g., high blood pressure and tobacco smoke), the risk is even greater. Age, gender, heredity, and diet also affect our cholesterol levels. (See page 14 for more about cholesterol.)
- **High blood pressure (hypertension)** – High blood pressure increases the heart's workload, causing the heart to thicken and become stiffer. It also increases your risk of stroke, heart attack, kidney failure, and heart failure. When high blood pressure exists with obesity, smoking, high blood cholesterol levels, or diabetes, the risk of heart attack or stroke increases.
- **Physical inactivity** – An inactive lifestyle is a risk factor for coronary artery disease. Regular, moderate-to-vigorous physical activity helps prevent heart and blood vessel disease. The more activity you can safely perform, the greater your benefits. However, even moderate-intensity activities, like walking in the mall or around the neighborhood, help if done regularly and over the long term. Exercise can help control blood cholesterol, diabetes, and obesity, and it can even lower blood pressure in some people.
- **Weight and obesity** – People who have excess body fat—especially if a lot of it is at the waist—are more likely to develop heart disease and stroke even if they have no other risk factors. Excess weight increases the heart's work. It also raises blood pressure and blood cholesterol and triglyceride levels, and lowers “good” HDL (high-density lipoprotein) cholesterol levels. It can also make you more likely to develop diabetes. Many obese

CAN I DRINK IN MODERATION?

Some studies have found that the risk of heart disease in people who drink moderate amounts of alcohol is lower than nondrinkers. Moderate means an average of one drink for women or two drinks for men per day. One drink is defined as one-and-a-half ounces of 80-proof spirits, 5 ounces of wine, or 12 ounces of beer. It's not recommended that nondrinkers start using alcohol or that drinkers increase the amount they drink.

IDEAL NUMBERS FOR HEART HEALTH

- Body Mass Index = 25 kg/m²
- Blood Pressure = Less than 120/80 mmHg
- Total Cholesterol = Less than 200 mg/dl
- LDL Cholesterol = Less than 100 for most people and less than 70 for anyone with a history of heart disease or diabetes

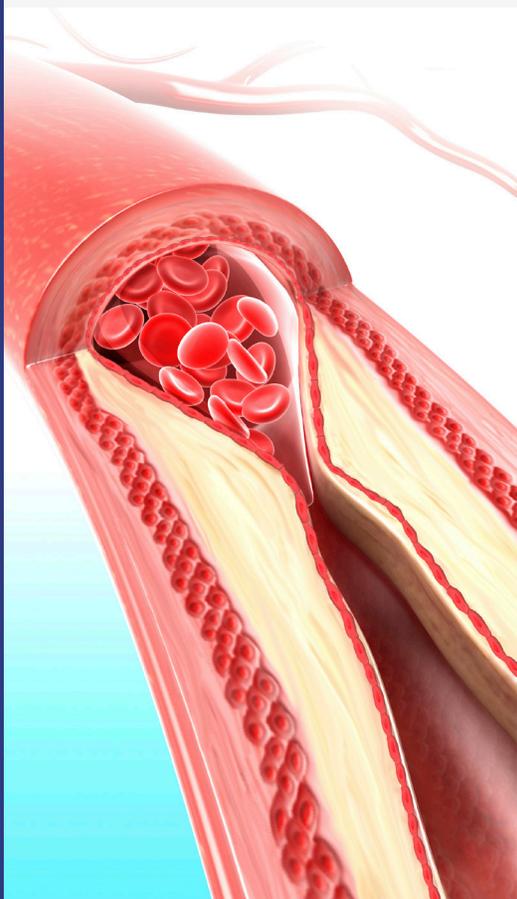
and overweight people may have difficulty losing weight. But by losing even as few as 10 pounds, you can lower your heart disease risk.

- **Type 2 diabetes** – Formerly called adult-onset diabetes, type 2 diabetes can be prevented through moderate weight loss and exercise in adults at high risk for the disease.

Contributing Factors of CHD

The medical community consensus is that these factors contribute to heart disease:

- **Stress** – Individual response to stress may be a contributing factor. Some scientists have noted a link between coronary artery disease risk and stress in a person's life. People under stress may overeat, start smoking, or smoke more than they otherwise would.
- **Heavy alcohol use** – Drinking too much alcohol can raise blood pressure, cause heart failure, and lead to stroke.



Cholesterol

Cholesterol is highly connected to heart disease. Here we discuss the many facets of cholesterol and what you can do to control it.

What is Cholesterol?

Cholesterol is a substance your body makes naturally. It is soft and waxy, similar to fat, and is present in your body's cells and in your bloodstream. Cholesterol is necessary to your survival—it's what your body uses to make new cells. Much of the cholesterol in your body occurs naturally, but you also get a lot from the food you eat.

The truth is that cholesterol in itself is a good thing. The problem comes when your body has too much of the wrong kind of cholesterol. This creates an increased risk of cardiovascular disease, such as coronary heart disease and stroke—the No. 1 and No. 4 killers in the nation. In fact, people who have high levels of cholesterol are at twice the risk of developing heart disease as those with lower levels. Although high cholesterol is a clear health concern, it can be treated effectively.

Cholesterol build up in the arteries can block blood flow and lead to heart disease.

How It Works

Cholesterol travels through the bloodstream to reach the cells. When there's too much cholesterol in the bloodstream, it can bind with other substances in the blood to form a buildup on the interior walls of the arteries that carry blood to the heart. As plaque continues building up inside artery walls, it slowly starts to clog them (the process of atherosclerosis referenced throughout the *HeartGuide*).

Types of Cholesterol

There are three main types of cholesterol:

- **Low-density lipoprotein (LDL)** – Sometimes referred to as “lousy” or “bad” cholesterol, LDL helps substances stick to the inner walls of your arteries. Keeping LDL at lower levels is a healthy heart goal.
- **High-density lipoprotein (HDL)** – HDL is the “happy” or “good” type of cholesterol. It helps your arteries keep cholesterol from sticking to the artery walls and moving through the bloodstream. HDL cholesterol even helps remove cholesterol from your bloodstream. Higher levels of HDL are associated with good heart health.
- **Triglycerides** – These can also clog our arteries. Triglycerides are made by the body, but too many can be a bad thing for your health. Being overweight or obese or physically inactive, smoking, drinking too much alcohol, and eating too many simple carbohydrates can all increase triglyceride levels in your bloodstream. Diabetes and a family history of high triglyceride levels can also contribute to higher levels in your body.

Understand The Risks

- **Diet** – Eating foods low in saturated fat, triglycerides, and cholesterol can help you control your blood cholesterol and LDL.
- **Weight and obesity** – Carrying too much weight can also increase your risk. Being overweight or obese can raise LDL, total cholesterol, and triglyceride levels.
- **Smoking** – Tobacco smoke is terrible for your health. Among many other problems, it can raise your triglyceride levels and lower your levels of HDL.
- **Physical activity** – Your body needs physical activity for your overall health. People who don't get enough physical activity can become overweight or obese. Getting the physical activity you need can actually help you lose weight and raise your level of HDL.

STEP IT UP TO KEEP CHOLESTEROL DOWN

If you're inactive ...

- Join a gym or recruit an exercise partner
- Walk on your lunch hour or coffee break
- Take the stairs

If you're somewhat active ...

- Increase the frequency of your exercise activities
- Explore a new sport
- Take Fido out for an extra walk

If you're active ...

- Exercise at least five times a week for 30 to 60 minutes
- Choose activities like biking and swimming that use large muscle groups
- Vary your routine to avoid burnout
- Create an exercise schedule and stick to it

WHAT IS FH?

Familial hypercholesterolemia (FH) is a genetic disorder in which LDL cholesterol is present in very high levels from birth. The severity of FH depends on a person's genetic profile. If a person with FH inherited one faulty gene from a parent, that person's LDL cholesterol level can be two to three times higher than normal. But if a person inherits two faulty genes (one from each parent), it can be worse—LDL levels three to six times higher than normal. Talk to your doctor to see if you should be tested for FH. Learn more at www.thefhfoundation.org.

- **Genes** – Yes, you can inherit high levels of LDL and triglycerides, or low levels of HDL cholesterol, from your parents or other family members.
- **Age** – The older you get, the more likely you are to have abnormal cholesterol levels. Past the age of 65, the risk increases significantly.

Other health conditions can also put you at risk of high cholesterol, including liver disease, diabetes, underactive thyroid, kidney disease, and pancreatic disease. If you have two or more of any of the risk factors, you're more apt to develop high cholesterol.

How to Check My Blood Cholesterol Level

The most common method for determining your cholesterol number is the fasting lipoprotein profile. The “fasting” part of the profile means that prior to the blood test, you had no food or drink for a period of time beforehand—usually eight hours.

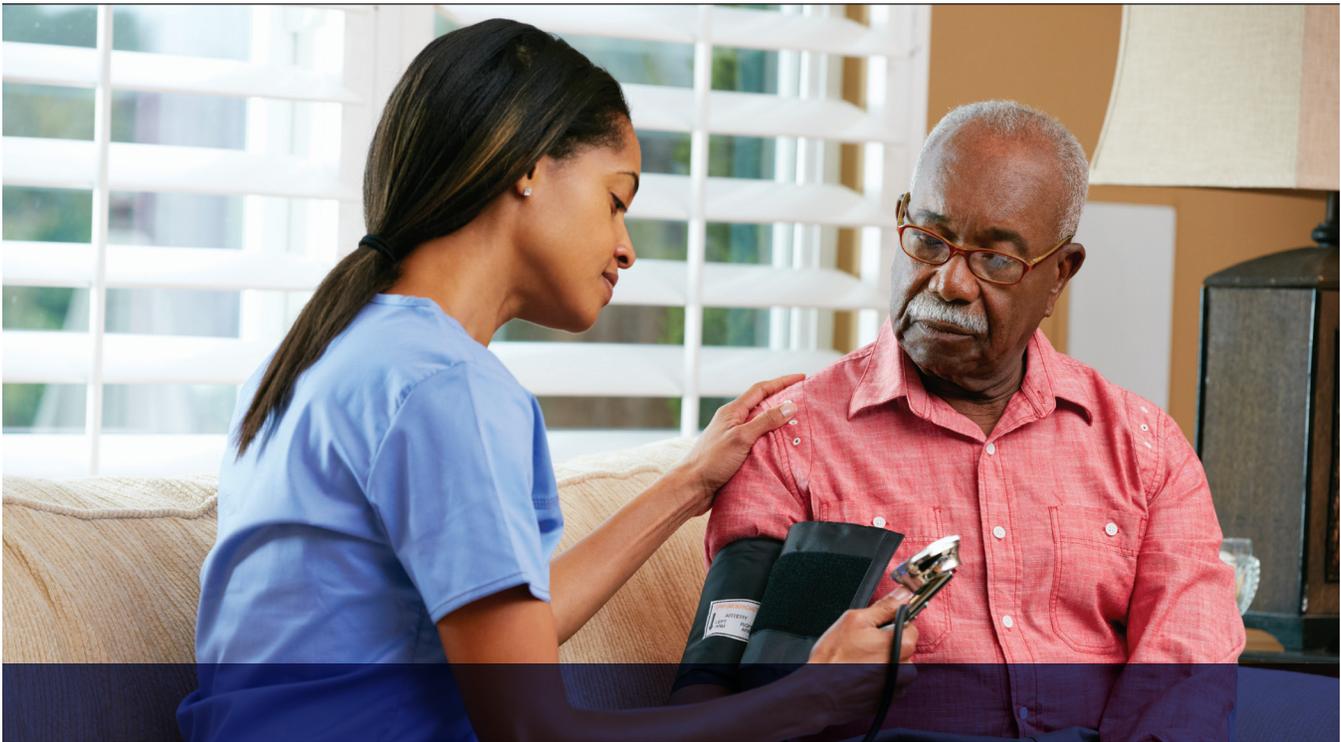
This simple blood test measures total cholesterol, LDL cholesterol, HDL cholesterol, and triglyceride levels to get an overall picture of the presence of cholesterol in your bloodstream. The blood test itself takes only a few minutes and your health care team will usually go over the results with you in a future office visit or over the phone.

Understand the Cholesterol Numbers

Health care teams use one or more sets of clinical guidelines to determine your cholesterol situation and relative risk of cardiovascular disease. Talk with your health care team about your numbers and what they mean, as well as any other medical conditions and risk factors you may have. And ask what your goal should be.

Treatment for High Cholesterol

If your critical numbers are not within healthy ranges, you may very well be at a higher risk for cardiovascular disease. Your health care team will work with you to help you make improvements to your overall health and keep your risks for serious conditions at bay. Although medicine can be necessary to lower your cholesterol, it's always important to maintain a healthy lifestyle, which includes eating right and getting regular exercise. Talk with your doctor before starting any diet or exercise program.



Blood Pressure

Blood pressure refers to the amount of force your heart has to use to push blood through your arteries. If the arteries become clogged, narrowed, or otherwise damaged, the heart has to use more force to pump the blood your body needs. This condition is called hypertension, which simply means that your blood pressure is too high.

Blood pressure is measured by two numbers:

- **Systolic** – If your blood pressure is 120/80 mmHg, the first (top) number is called the systolic number. It signifies the pressure your arteries bear during a heartbeat.
- **Diastolic** – The second (bottom) number shows how much pressure your arteries bear when the heart is resting between beats.
- Optimal is less than 120 systolic/80 diastolic.

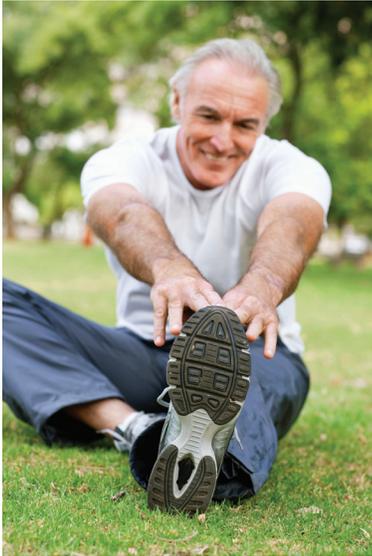
Risk Factors You Can't Control

- **Race** – African-Americans are more likely to develop high blood pressure than Caucasians.
- **Heredity** – If close relatives (i.e., parents, brothers, and sisters) have high blood pressure, you're more likely to develop it, too.

- **Age** – The older you are, the more likely you are to develop high blood pressure, especially past the age of 60.

Risk Factors You Can Control

- **Weight and obesity** – The body mass index (BMI) is a measurement of your weight in relation to your height. It gives health care teams an idea of whether or not you're overweight or obese. You're considered overweight if you have a BMI of 25 to 29.9, and obese if your BMI is 30 or higher. Ask your health care team about your BMI, and what you can do to reduce it if you need to.
- **Physical inactivity** – Try to get at least 30 minutes of moderate to vigorous physical activity on most days. Ask your doctor how you can start a simple exercise program that's right for you.
- **How much salt you eat** – Too much sodium in your diet can increase blood pressure. Keep your salt intake to a minimum, and read food labels to see how much sodium is in the foods you buy. Patients with established hypertension (systolic blood pressure of 140 or greater) should limit their daily sodium intake to less than 1,500 mg per day. More severe salt restriction may be needed if you require multiple medications to control hypertension.



Stretching can help relieve stiffness, soreness, and stress.

- **How much alcohol you drink** – The healthy limit for men is two drinks per day; for women, one drink per day. But if you don't drink, don't start.
- **Your stress levels** – Stress can be a contributing risk factor for high blood pressure and heart disease. People under too much stress can tend to overeat, start smoking, or smoke more than they otherwise would. It's important to keep your stress under control by taking steps to relax, such as deep breathing, having quiet time, listening to relaxing music and sounds, and stretching.

Ways to Relieve Stress

Stop! Take a deep breath and allow yourself to feel air slowly leave your body. Do it again! You just experienced one form of stress reduction. Reduce or cut out caffeine, alcohol, nicotine, and sugar, which can worsen stress. Deep breathing can often give you immediate relief from stress. Reduce stress in these other ways:

- Quiet time – Find a place where you can get away from everyone.
- Relaxation media – Listen to music.
- Stretching – Tense muscles can cause headaches, stiff neck, sore shoulders, and a knotted back. Stretching can help relieve stiffness and soreness.

You can also use problem-solving skills to better handle stress:

- Be creative with new ideas and solutions.
- Take direct steps to set goals.
- Communicate well with others.

Also, open up. There is a link between expressed and unexpressed emotions and adverse health outcomes.

- Express your frustration or disappointment regularly.
- Be clear about your feelings.
- Stay in control of your feelings.
- Assert your needs and emotions.

The more you can accept and adapt to the aspects of your life you can't change, the more satisfaction you may find in your life.

Get Support

Get support from those who know what you're going through. Consult with your health care team about support group opportunities in your community. Attend community-based social events.

Mended Hearts is a source of support. We are a community-based, nationwide network of heart patients dedicated to inspiring hope in heart patients and their families. Partnering with local hospitals and rehabilitation clinics, we offer visiting programs, support group meetings, and educational forums to patients of all ages. Call us at 1-888-HEART99 (1-888-432-7899), send an email to info@mendedhearts.org, or visit www.mendedhearts.org.



BE INVOLVED: QUESTIONS FOR YOUR HEALTH CARE TEAM ABOUT LIFESTYLE AND RISKS

- How often do I need to have my cholesterol checked?
- What steps can I take to reduce my cholesterol level?
- Do I need to take medicine? What are the risks of medication?
- What makes up a heart-healthy diet?
- How do I read food labels?
- What role does salt play in a heart-healthy diet? What other ways can I flavor my food?
- Where can I find more information about heart-healthy eating?
- What sort of exercise should I do to improve my cholesterol levels?
- How often and how much should I exercise?

Common Tests and Therapies



A patient undergoes a CT scan.

Diagnosing and Treating Heart Disease

Imaging and testing are used with other diagnostic tools to find out what's going on with your heart. These can be quick scans or more involved tests that provide your doctor with a closer look at the mechanisms of your heart. Some tests combine the ability to treat heart diseases; others help your health care team recommend the next course of action to get you on the road to recovery. This section reviews tests, interventions, and surgeries most often used for patients with signs of heart disease.

Imaging and Testing

Here are some of the most common methods used to diagnose heart issues:

Stress Test

The most common test that can be done right in your doctor's office is an exercise treadmill test, also called a stress test. During this test, you walk on a treadmill to see how your heart handles exercise. Sometimes instead of a treadmill, your doctor will have you ride a stationary bike.

Stress Imaging

Stress imaging is another common test. This provides your doctor with a picture of your heart and shows how well your heart pumps and the blood flow to your heart during exercise.

Computerized Tomography (CT) Scans

Computerized tomography (CT) scans produce x-rays that generate cross-sectional images of the tissues and bones in your body. They can help diagnose heart disease and many other problems.

What to Expect

CT scans usually take about 15 minutes, although preparation time may take more than an hour. During a CT scan, you lie on a narrow table while a large, doughnut-shaped scanner moves over the area being scanned. Contrast dyes are sometimes used to illuminate blood vessels or other structures being scanned. You may be required to swallow or inhale the contrast dye, or it may be injected.

Precautions

CT scans use more radiation than conventional x-rays, but the benefits of accurate diagnosis usually outweigh the risks of radiation.

Cardiac Catheterization (Also Called a “CATH”)

A CATH is also used to diagnose heart disease. A thin tube is inserted into your arm, neck, or groin and is guided to your heart. The doctor then injects dye to see your blood flow in and around the heart.

What to Expect

The cardiac catheterization is a 30- to 60-minute procedure done in a hospital setting. You may be given medicine to help you relax, but the procedure is done while you're awake so you can follow any instructions. You may also be given a contrast dye to enhance the picture. After numbing the insertion area, the catheter is inserted and moved to the heart guided by live x-rays. Once the catheter is in place, the health care team can conduct a number of tests and treatments, including:

- Collect blood samples from the heart
- Measure blood pressure and blood flow in the large arteries around the heart and in the heart's chambers
- Measure the oxygen levels in different parts of your heart
- Examine the heart's arteries
- Biopsy the heart muscle
- Conduct angioplasty or stenting to open the artery and restore blood flow to the heart

This common procedure is safe for most patients. The rare risks include bleeding at the insertion site, blood vessel damage, and allergic reaction to the contrast dye.

Echocardiograms

Like a sonogram, these procedures use sound waves from a transducer (wand) to bounce off your heart, which produce a reflection of your heart in motion. That reflection is captured in a video image, which can help detect structural problems in the heart. Echocardiograms can be conducted while at rest or while exercising (a stress echo). There are a few different types of these tests:

- **Transthoracic Echocardiography (TTE)** – TTEs use ultrasound to get a fuller picture of the heart's size, structure, and motion. In this simple, painless procedure, you lie on your left side while a technician moves a device over your chest. The device collects images of your beating heart.
- **Transesophageal Echocardiography (TEE)** – TEE is often used before or during heart surgery to guide post-operative treatment or see if additional work is needed before you leave the operating room. A physician



Cardiac Catheterization



Echocardiogram

OTHER HEART TESTS

Blood tests like a fasting lipoprotein profile can determine your cholesterol level or if substances in the bloodstream are affecting your heart's rhythm, or if you have an overactive thyroid gland.

Chest x-rays can identify underlying problems other than atrial fibrillation that may be causing irregular rhythms.

places a long tube with an ultrasound probe in your esophagus while you are under sedation. The probe creates an ultrasound “movie” of your heart at work, giving a much clearer picture than is possible with an electrocardiogram (below) alone.

Electrocardiogram (ECG or EKG)

This test measures the heart’s electronic activity to assess its electrical output and see if there are problems.

What to Expect

This simple, painless procedure involves placing patches with electrodes to locations on your skin to measure electrical activity of the heart, either while you’re at rest or during activity. The activity is charted on a small screen or printed on paper. The test lets your doctor know how fast and steadily your heart is beating and the strength of the signals at each stage of your heart’s beating. The consensus is that this procedure is low risk for most patients.

Myocardial Perfusion Imaging (MPI)

MPI, also referred to as a nuclear stress test, takes pictures of the blood flow pattern to the heart muscle using a radioactive tracer and special imaging equipment. Nuclear medicine is a powerful way to catch diseases in their earliest stages by letting doctors see molecular changes in the body.

What to Expect

A radioactive tracer is swallowed, inhaled, or injected and in time gathers near the examination site. Imaging equipment picks up on the radioactive emissions from the tracer and provides a detailed image of the area. The consensus is that this procedure is low risk for most patients.

Positron Emission Tomography (PET) Scan

PET scans also use a radioactive tracer to identify issues with the body’s organs and tissues. A PET scan of the heart allows your doctor to assess if your heart is receiving enough blood, see heart damage or scar tissue, and observe buildup in the heart muscle.

What to Expect

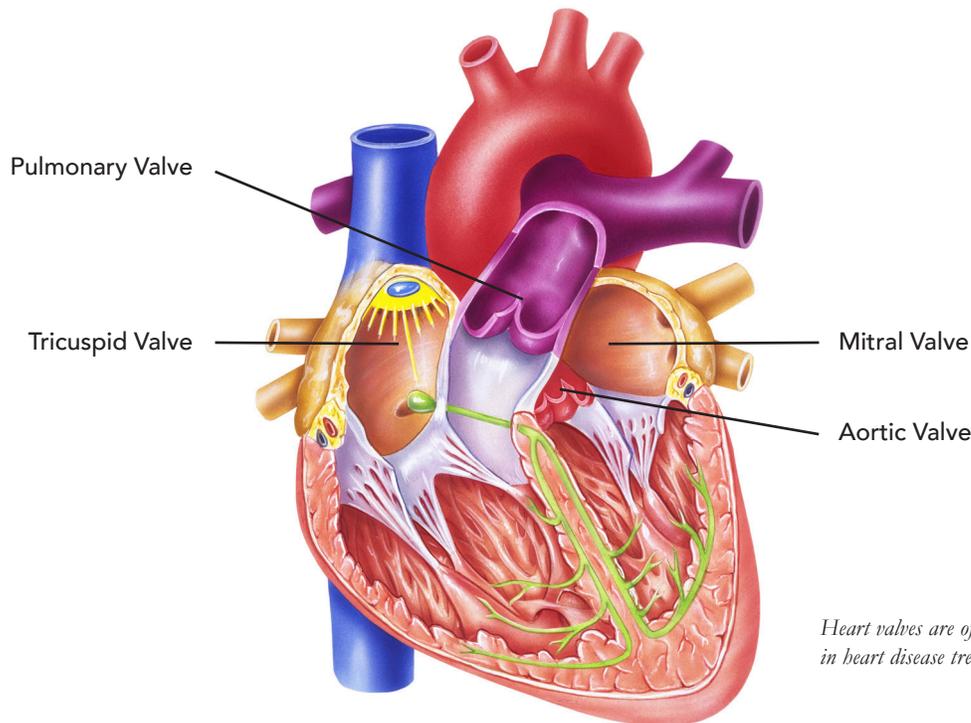
A heart PET scan takes about 90 minutes and is done in a facility with a PET scanner. You’ll first receive a tracer by injection. It takes an hour to travel through your bloodstream and gather in your organs and tissues. Then you lie on a table that moves into a tunnel-shaped scanner, which picks up signals from the tracer and generates 3-D pictures of your heart.

PET scans are generally safe—the radiation use is similar to that of a CT scan, and it doesn’t stay in your body for long. Some experience pain or irritation at the injection site. Women who are pregnant or breastfeeding should let their doctor know.

Heart Monitors

Small, portable monitoring devices are also used to detect heart issues or see if heart treatments are working. Holter and event monitors are most often prescribed to diagnose and assess arrhythmias in your heart or detect silent cardiac ischemia (heart disease without symptoms). They can be worn under clothes while you perform normal activities. Here are the two main types:

- **Holter Monitor** – This one records all your heartbeats continuously. Electrodes are attached to your chest, and the monitor picks up the electrical activity of your heart at all times, even while sleeping.
- **Event Monitor** – Similar to a Holter monitor, this one records activities only at certain times.



Heart valves are often central players in heart disease treatment.

Interventions and Surgeries

High-tech imaging and testing may reveal that one or more parts of your heart are in need of a surgical repair. This often feels like a big step, and a scary one. Although there is risk with any medical procedure, thanks to technological and medical advances, millions of people who have undergone heart procedures are living long, full lives. Here are some of the options your doctor may discuss with you:

Valve Surgery

Valve surgery involves a repair or replacement, and can prevent lasting damage to your heart and sudden death.

A heart with proper function has four valves (see illustration at right) that keep the blood flowing in one direction only. They open and close, causing the “heartbeat” sound. These are the two most common valve problems that may require surgery:

- **Stenosis**, when the heart valve “doors” or “leaflets” thicken, stiffen, or become fused and prevent

adequate blood flow through the valve. Surgery can open or replace the valve.

- **Regurgitation**, when the leaflet doesn’t close properly, allowing blood to leak backward. Surgery repairs or replaces the faulty valve.

Considerations

Your doctor will consider a few factors to determine if heart valve repair or replacement surgery is necessary, including the severity of the valve disease; your age and general health; and whether you need heart surgery for other conditions, such as coronary artery bypass surgery (see page 25), that can be done simultaneously.

How it Works

Valve Repair: Valve repair comes with fewer risks of complications and is therefore the preferred option over replacement. In this scenario, valve surgeons rebuild the valve so it works correctly.



WHAT'S NEW IN VALVE REPLACEMENTS?

Transcatheter Aortic Valve Replacement (TAVR) is a newer, minimally invasive procedure for treating faulty aortic valves. This technique inserts a catheter into the groin artery or under the left breast and pushes it to the heart. The tip of the catheter has a deflated balloon with a folded replacement valve around it. Once the valve is in place, the balloon is inflated to expand the new valve so it fits snugly within the old valve. Then the balloon is deflated and removed along with the catheter.

Generally reserved for patients at high risk to undergo valve replacement surgery, these procedures tend to result in shorter hospital stays, ranging from three to five days, as opposed to five or more days for traditional heart valve surgery. Recovery time also tends to be shorter, from two to four weeks compared with six to eight weeks for traditional surgery.

Balloon Valve Repair: A balloon valvuloplasty is a less-invasive valve repair for stenosis. A surgeon inserts a catheter with a balloon at its tip through a blood vessel to the faulty valve in the heart. The doctor inflates the balloon to widen the valve's opening. It is then deflated and removed along with the catheter. Balloon valvuloplasty patients typically have a shorter recovery time than surgery, but although effective at treating the symptoms of heart valve disease, it may not cure it. This also doesn't work as well for adult patients with aortic valve stenosis.

Valve Replacement: If a repair is not an option, a surgeon may need to replace the valve. He or she will remove the damaged valve and replace it with either a biological valve constructed of human or animal tissue, or a mechanical valve made of plastic, carbon, or metal. There are trade-offs with each type: Biological valves generally last from 10 to 20 years, but then require replacement; mechanical valves generally don't need replacement, but patients must take blood-thinning medications for life to prevent blood clots from forming on the valve.

Angioplasty

Angioplasty—with or without a stent—may be an option for patients who are unable to reduce the effects of plaque buildup in the arteries through medication and lifestyle changes alone. This simple, less invasive, nonsurgical procedure involves the insertion of a tiny “balloon” in the coronary artery that is inflated at the blockage site to compress the plaque and stretch open the artery.

Considerations

Often seen as a possible treatment short of coronary artery bypass surgery, angioplasty does not require the doctor to make an incision or put you under anesthesia. Recovery time is shorter. If stents are used, they may turn out to be a temporary solution and also carry risks of blood clots (see page 37 on medicines, anticoagulants, and antiplatelets).

How it Works

Depending on your condition, one or more stents—small wire mesh tubes put over the balloon catheter—may be implanted to keep the artery open and reduce re-narrowing. When the balloon is inflated, the stent expands and locks in position to help keep the artery open. Stents coated with medicine to prevent the artery from re-narrowing may also be used.

The procedure is often performed using an artery in your arm or groin called the femoral artery. A local anesthetic is usually injected into the area where the balloon catheter is inserted, and the patient's heart rate and rhythm are monitored through small electrode pads placed on the chest. The entire process usually takes anywhere from 30 minutes to several hours, depending on the type and amount of blockage.

Coronary Artery Bypass Graft Surgery (CABG)

This surgery most often comes into play when less invasive procedures and treatments do not open up the arteries to the heart. The procedure creates new paths for blood flow to the heart, reducing symptoms of chest pain and improving the heart's ability to function.

Considerations

One of the main reasons bypass surgery is done is that a coronary angiogram—a test to see how well blood is flowing to your heart—shows a narrowing of the left main coronary artery. This procedure is also used in the following situations:

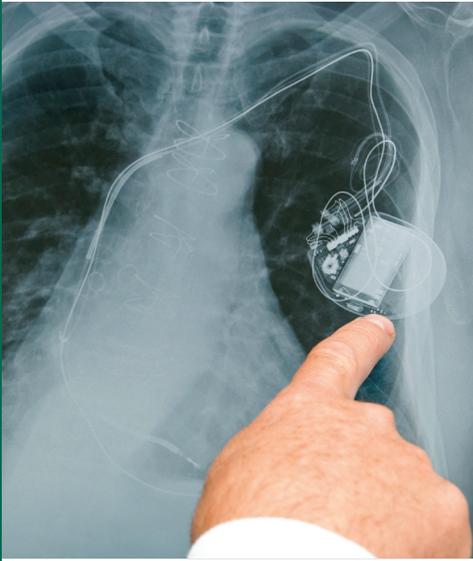
- You take medication for chest pain or discomfort (angina) but your activities remain limited.
- Your heart was damaged by a heart attack and you are experiencing symptoms of heart failure, such as shortness of breath and fatigue.

How it Works

Patients undergoing coronary artery bypass surgery are given general anesthesia for a procedure that lasts from three to six hours. CABG surgery uses segments (grafts) of veins or arteries from the leg or chest to bypass arteries in the heart that are blocked or narrowed. The bypass allows more blood and oxygen to flow to the heart. A patient may undergo one or more bypass grafts, depending on how many coronary arteries are blocked. After surgery, patients usually stay in intensive care for a day or two and in the hospital for a week or so. Recovery from immediate surgery generally takes from four to six weeks. Full recovery takes a few months or more. Keeping the heart healthy also requires eating well, exercising, and quitting smoking.



2.9 million = the number of U.S. patients receiving permanent pacemakers between 1993 and 2009



A health provider points to an image showing a patient with a pacemaker.

Devices and Therapies

Many of us benefit from implantable devices that keep our heart beating normally. Here are the most common ones:

Pacemakers

The sinoatrial (SA) node is our heart's natural pacemaker, creating the electrical impulses that cause our heart to beat. For the heart to beat properly, the SA node's signal must move down a specific path to the heart's ventricles (lower chambers).

When something damages or weakens the heart's electrical conduction system it starts to beat too fast, too slow, or irregularly. Causes include birth defects, heart disease or heart attack, nervous system issues, medication, aging, or a blockage in the heart's electrical pathways.

Artificial pacemakers are an effective solution for many patients. They can be implanted temporarily or permanently to stimulate the heart muscle correctly, allowing it to beat as it should. Your doctor will check it regularly to make adjustments and replace the battery. You must also be careful when using cell phones, at places like airports that use electromagnetic security systems, and when undergoing medical procedures, such as MRIs and therapeutic radiation.

Implantable Cardioverter Defibrillators (ICDs)

These devices have been shown to prevent sudden death in patients with known, sustained ventricular tachycardia or fibrillation. Biventricular cardioverter defibrillators are also used to treat advanced heart failure.



BE INVOLVED: QUESTIONS FOR YOUR HEALTH CARE TEAM ABOUT TESTS AND THERAPIES

- If I have a valve repair or replacement procedure, how quickly can I resume normal activity? Do I need to watch what I eat?
- If I need a valve replacement, what type of valve is best, mechanical or biological?
- I've heard stents are less invasive than heart surgery. Am I a candidate for this procedure?
- After heart bypass surgery, how long will it take for my incisions to heal and other side effects to pass?
- When will I be able to resume activity? When is it safe to have sex?
- I've heard that a pacemaker can interfere with electronics. How will my normal routines be changed by this device?

Depression

DO YOU HAVE SUICIDAL THOUGHTS AND FEELINGS? GET HELP NOW.

If the idea of suicide has entered your thinking, immediately make an appointment with a health care professional. Meantime, talk to a friend or family member, or to your spiritual leader, about how you're feeling.

Call the toll-free National Suicide Prevention Lifeline any time, 24 hours a day, at 1-800-273-8255, where trained counselors are ready to help. However you handle these thoughts and feelings, don't go it alone.

Depression and Heart Disease: Awareness and Treatment

Depression is actually a fairly common condition among people who have had a heart event. As many as one in three of us who've had a heart attack report feelings of depression. Women, people who've already experienced depression, and people without a social network or emotional support are at higher risk for depression following a heart event. Depression isn't a character flaw, nor is it something you can just shake off or snap out of. It's a serious condition that requires medical care. And treatment works. Here we review symptoms and treatments for depression that you should know.

Be Aware of the Symptoms of Depression

It's normal to feel sad on occasion. But sometimes you may feel sad for extended periods of time, with or without a reason. If these sad feelings interfere with your daily activities, this could be depression. Here are the definite symptoms associated with depression:

- Feeling sad or having a depressed mood, including crying
- Losing interest in activities you used to enjoy
- Noticeable changes in appetite or weight
- Sleeping too much or too little
- Feeling agitated, cranky, or sluggish
- Not seeing a clear, purposeful future
- Losing energy
- Feeling guilty or worthless
- Having trouble concentrating or making decisions
- Having thoughts of death or suicide

Depression is often described as having symptoms from this list nearly every day, all day, for two or more weeks. That's part of what distinguishes the symptoms of depression from ordinary feelings of sadness. The first two symptoms are especially common in people with depression. For patients who've had a heart event, the symptoms of depression can be more severe. That's why it's especially important to seek treatment if you believe you are experiencing depression.

Know the Effects of Depression

Depression affects everything in your daily life, including your recovery from a heart event. In fact, depression can make recovery more difficult because it can lead to the following conditions:

- A lower desire to follow the treatment plan
- Greater likelihood to smoke and drink
- Greater risk for another heart event
- Lower desire for physical activity
- Bad eating habits
- Anxiety
- Problems at work or school
- Family and relationship problems
- Social isolation
- Suicide

Get Diagnosed

See your health care team if you suspect you are depressed. Prepare to answer some questions about your symptoms. It helps to write down basic information beforehand, such as:

- Any symptoms, even if they don't seem related to the depression
- Personal information, such as major changes in your life (including your heart event) or anything that is causing you stress
- Medications, including over-the-counter medicines, vitamins, and supplements

Also note questions to ask your health care team. Inquire about symptoms, treatment options, and anything else you need clarified (see page 31, for suggestions).

To diagnose depression, your health care team will probably conduct a physical exam and take a medical history. In some cases, a blood test or other lab procedure may be the next step. You will probably be asked about your thoughts and feelings, what you've noticed about your own behavior patterns, and whether you've had such symptoms before.

Get Treatment

Treatment for depression works for most people. Think of treating depression as part of your overall treatment plan after a heart event. Below are some of the treatment approaches used for depression. Your doctor will assess the best approach for you.

NOT THE NEW NORMAL

You should know that depression isn't a "normal" part of recovering from a heart event. It needs to be treated, along with the heart event itself. Depression affects the mind and the body. Left untreated, it can take a terrible toll on every aspect of your life.

DON'T GO IT ALONE

For more information about depression, consult these sources:

- **National Association of Social Workers**
www.socialworkers.org
- **The National Alliance on Mental Illness**
www.nami.org
1-800-950-NAMI (6264)
- **MedlinePlus**
www.medlineplus.gov
- **National Institute of Mental Health**
www.nimh.nih.gov
- **National Suicide Prevention Lifeline**
1-800-273-8255

Medication

Antidepressant medication can reduce symptoms of depression. Some antidepressants can interact with heart medications, and so ask your health care team before starting any new medications. Many medications work relatively quickly and have few side effects. Be aware that most medications have to build up in the bloodstream to become effective, so be patient.

Ask about any side effects when reviewing possible therapies and report any that you experience from the medication.

Talk Therapy

Another important treatment option is psychotherapy, or “talk therapy.” Counseling sessions with a mental health provider can be a very effective part of your treatment plan. In fact, research has demonstrated that a combination of medication and talk therapy works best for most people with depression.

The goal of such therapy is usually to help you better understand your condition, and to develop approaches for coping with depressed thoughts and feelings when they arise.

Social Support

Many people find that having a social network helps them cope. This can include group therapy or a support group, or it can be something unrelated to depression itself, such as a church group or Mended Hearts. Many Mended Hearts volunteers have reported improvement in their depression symptoms because of their involvement in the organization.

Lifestyle

It may not surprise you to learn that diet and exercise play a key role in combating depression. It's important to eat a healthy diet as part of your treatment plan following your heart event. Sticking to that diet can keep depression at bay.

Likewise, exercise is important in controlling depression symptoms. It needn't be strenuous exercise, either; physical activities such as walking or gardening can help. Avoid alcohol and illicit drugs in treating depression. Although they may seem to help with symptoms, they generally make depression worse in the long run and can lead to severe health consequences, among other problems.

Battle depression by getting plenty of sleep. If you are having trouble sleeping, talk with your health care team about your options for improving your sleep.



BE INVOLVED: QUESTIONS FOR YOUR HEALTH CARE TEAM ABOUT DEPRESSION

- How can I get screened for depression?
- My family has a history of depression. Does that mean I'll be diagnosed with depression too?
- When will I see the benefits of my medications? When will I know it's not working?
- What should I do if my anti-depression medication doesn't seem to work?

Caregivers

CAREGIVER TIPS

- Communicate how you are feeling.
- Allow time to grieve the lack of normal.
- Reflect on the journey—in writing.
- Educate yourself about the disease.
- Get involved in your loved one's care.
- Involve others who can help.
- Visit with other Mended Hearts members.
- Eat right.
- Rest—get sleep and take breaks.

Learn more at www.mendedhearts.org and at the Caregiver Action Network, www.caregiveraction.org.

The Caregiver's Role in Recovery

Heart patients count on medical experts, nurses, and rehabilitation staff to be with us on our journey to heart health. Often our friends and family are with us too—listening to our diagnoses, reviewing test results, waiting for us after surgery, picking up medications, and doing so much more. Caregivers help us cope with new or evolving health issues and get well. This section covers ways that caregivers can stay strong, healthy, and positive throughout this journey.

Stay Informed

Heart disease is no doubt unfamiliar territory for many caregivers. This *HeartGuide* will help you, as a caregiver, get familiar with this new world and what your loved ones can expect before and after treatment. As a partner with the patient and medical staff, you can listen and learn alongside your loved one as they go through this process.

Acknowledge Your Experiences

Caregivers to heart patients may be affected physically and emotionally by this experience. It's frightening when a loved one gets this diagnosis. And suddenly being around machines and health professionals in a busy medical setting can be stressful.

All of this can create feelings of anxiety and depression or resentment at the disruption to your life. You may at times feel guilty, thinking you are somehow responsible for your loved one's heart condition.

We've experienced these issues too and gotten past them with time and support. If you think counseling would alleviate any of these feelings, ask your health team for a referral. Ask questions. Don't go it alone.

Stay Cool

We can become overprotective of loved ones in heart recovery. Our mission becomes protecting them from further harm. These sentiments are also normal, but can cause feelings of anger, frustration, and worthlessness if the patient cannot live up to our expectations. So try to understand the recovery process and be there for support, but don't overdo it. Balance your love and support with a willingness to step back and let your family member chart his or her own course to heart health.



Know that You Can Make a Difference

After treatment, every heart patient receives recovery information about diet, exercise, medication, and activities. One essential role is to sift through that information so that instructions are understood and followed.

Part of this process is having an honest conversation about changes in responsibilities and roles in your household regarding budgets, chores, child care, and other tasks. Together, talking about solutions to potential problems can help you manage well as a family.

Look Ahead

Every family has its own way of handling a heart diagnosis and the recovery process. Each family has its own support system. For many, it helps to think positively and not assume or assign blame for anyone's heart condition. If possible, accompany the patient during health care office visits—together, you will learn and hear more. Write down your questions in advance. If you plan well and look forward to the future with confidence, you'll get through it, together.

10 TIPS FOR EFFECTIVE CAREGIVING

1. Talk to other caregivers at a Mended Hearts support meeting.
2. Stay healthy.
3. Accept offers of help and suggest ways people can help you.
4. Start a journal and write down questions for your health care team.
5. Take breaks.
6. Watch for signs of depression.
7. Be open to using technology to help you care for your loved one.
8. Organize care documents.
9. Get legal documents in order.
10. Thank yourself for doing a challenging job well.

From the Caregiver Action Network at www.caregiveraction.org/resources/ten-tips.

AM I EXPERIENCING CAREGIVER BURNOUT?

WebMD writes about a syndrome called caregiver burnout, which describes a type of fatigue and even depression that can set in among caregivers. Those who are burned out are not the most effective caregivers and can run the risk of experiencing serious health issues themselves.

Learn more about the symptoms and strategies for overcoming burnout at www.webmd.com/heart-disease/heart-disease-recognizing-caregiver-burnout.

BE INVOLVED: QUESTIONS FOR YOUR HEALTH CARE TEAM ABOUT CAREGIVING

- What are the most important things I can do to support my loved one's recovery?
- What should I expect to happen in the weeks and months ahead?
- What appointments will need to be scheduled?
- What if I become stressed out or lost? What support is available to me?
- I feel so isolated and that no one understands what I'm going through. Where do I turn?

Medicines

125,000 = the number of people estimated to die each year from failing to take medications as directed.

\$100 billion = the cost to the nation resulting from failing to take medications as directed.

Get the Most Out of Your Medicines

On your journey to a healthy heart, you may be prescribed medicines and therapies to help you recover and maintain heart health. Here we discuss the importance of taking medications as directed, methods to get the most out of your “meds,” and options for paying for therapies that have proven successful in helping patients live well after a heart disease diagnosis.

Medication Adherence and Safety

One of your health care team’s roles is to prescribe medicines and therapies known to help us recover from heart disease and maintain cardiovascular health. Our role is to take them as directed. But we don’t always play our part the way we should. This is a nationwide problem with high personal and societal costs.

Medication adherence—a fancy phrase for taking your pills as directed—can be just as important to your recovery after a heart event as complying with diet and exercise guidance. Medications are often expensive but the costs of hospitalization are far higher to our pocketbooks and our overall health.

When we don’t take our medicines as instructed, we could wind up back in the hospital. These readmissions are financially costly and put us at risk for more cardiovascular events in the future.

With expanded insurance options and other assistance, medications for heart disease are more accessible to patients than ever (see page 38).

Common Heart Medications

Your heart issues are unique to you, and only your health care team knows which specific medications you need. However, most heart medications fall under certain broad categories. The table below describes the most common heart medications and their uses.



Anticoagulants	By reducing your blood’s ability to clot, these prevent blood clots or prevent existing clots from getting larger.
ACE-Inhibitors and Angiotensin Receptor Blockers (ARBs)	These affect a hormone called angiotensin-II in your body and can lower your blood pressure and reduce the stress on your heart.
Antiplatelet Agents	These prevent clotting caused by sticky platelets in your blood and reduce the chance of heart attack and stroke caused by clots. They also help keep stents open.
Beta-Blockers	Used to lower blood pressure, fix abnormal heart beats (arrhythmias), and treat angina, these lessen the work your heart has to do by, among other things, decreasing your heart rate and relaxing your blood vessels.
Calcium Channel Blockers	Often prescribed to treat high blood pressure, angina, and coronary artery spasms, these reduce the flow of calcium into your heart muscle and blood vessels, lowering blood pressure and putting less strain on your heart. Some also decrease heart rate.
Digitalis	Typically prescribed to treat certain types of irregular heart rhythms or the symptoms of heart failure, this increases the heart’s pumping function and slows heart rate.
Diuretics (“Water Pills”)	Used to treat high blood pressure or heart failure, these help your body remove excess fluid and salt buildup through increased urination.
Nitrates and Antianginal Agents	These agents—of which nitrates are the most common—are used to prevent, diminish, or relieve angina discomfort by increasing the flow of blood and oxygen to your heart and relaxing your blood vessels.
Statins	Statins help lower your cholesterol level (also see page 37).

FOUR STEPS TO PRESCRIPTION SUCCESS

1. Fill your prescriptions on time.
2. Take the medication according to the label's instructions.
3. Keep your doctor informed about how you feel while taking the medication.
4. Refill your prescriptions on time.

TOOLS AND RESOURCES FOR TAKING MEDICATION

Visit www.ScriptYourFuture.org—operated by the National Consumers League—for resources and tools to help you take medications as directed.

Important Steps to Taking Medications

Review the Prescription

Review your prescription before you have it filled and make sure it is correct. Pay special attention to the name, dose, and when and how often the doctor tells you to take the medicine. Review prescriptions with your physician, nurse, or pharmacist to make sure you're both reading off the same label. Understand the purpose and importance of taking a specific medicine.

Read the Label

Check that your prescription is filled properly before leaving the pharmacy. It is important to read, understand, and follow the information on the medicine label. Any medicine label tells you some basic facts about the medicine, including:

- Name, address, and phone number of the pharmacy that filled the prescription
- Prescribing physician's name
- The generic or brand name of the medication
- The dosage
- Storage instructions and expiration date
- Instructions for when and how often to take the medication

Labels may also provide warnings about drug, food, or drink interactions with the medication, and activities and situations to avoid while using it. Ask the pharmacist to review the label to make sure you take the medication exactly as the doctor prescribed.

Stay Safe

You want your medications to be as safe and effective as possible. Develop a routine by taking medications at the same time, every day. Store your medications properly in a cool, dry place out of sunlight and out of reach of children and pets. Do not share your medications or take medications prescribed for others.

A Word About Warfarin (And Other Blood Thinners)

Blood thinners—anticoagulants—reduce blood clots. They work on chemical reactions in your body to slow the time it takes to form clots (although they do not break up formed clots). They can stop clots from traveling to your brain and reduce your risk of stroke. Taking these medicines also comes with risks: Because they slow clotting, they can cause severe bleeding in case of injury, during surgery, or during pregnancy. Here's a primer on certain blood thinners:

Heparin, Low-Molecular-Weight Heparin, and Warfarin

The best known and longest used anticoagulants are heparin, low-molecular-weight heparin (e.g., enoxaparin), and warfarin. Heparin must be injected intravenously and administered in a hospital setting over several days. Frequent blood tests are used to make sure it is working properly. Low-molecular-weight heparin is injected once or twice a day under the skin. It can be self-injected and used both in the hospital and at home. Before heparin or low-molecular-weight heparin therapy concludes, warfarin is usually introduced and given orally. Warfarin therapy also requires regular blood tests to see how the blood is clotting. If warfarin causes the blood to thin too much during bleeding, it may need to be reversed by your doctor.

Apixaban, Dabigatran, Edoxaban, and Rivaroxaban

A newer generation of medicines, such as apixaban, dabigatran, edoxaban, and rivaroxaban, also works to slow your blood's clotting action. These are prescribed for people who have atrial fibrillation without heart valve disease or who have certain blood clots. Unlike warfarin, these blood thinners do not require regular blood testing, and research indicates a lower risk of bleeding and stroke. A key consideration in using these newer blood thinners is making sure you don't stop taking them before talking to your doctor.

Talk To Your Health Care Team (Cardiologist, Nurse, or Pharmacist)

It is important to talk to your health care team about which anticoagulant medication is right for you. Talk about all the medicines you take—including over-the-counter medicines, vitamins, and herbal supplements—because these can interact with anticoagulants. Report any side effects to your health care team. Avoid injury while taking this medicine, and go to the emergency room immediately in such cases. Call your doctor if you notice any bleeding or bruising. Don't stop taking your medicine unless your doctor tells you to, even if you're engaging in potentially risky behavior such as riding a motorcycle or going out in icy conditions.



WHAT ARE ANTIPLATELETS?

Antiplatelet medicines— aspirin, clopidogrel, prasugrel, and ticagrelor—are used as antithrombotic therapies. This means that they prevent types of blood cells called platelets from sticking to each other at the site of a potential blood clot and prevent the clot from forming. This can lower the risk of heart attack or stroke, particularly in patients who have already had one or the other, and those who have certain cardiovascular conditions.

Excessive bleeding and other side effects can occur, and so talk with your doctor to weigh the risks and benefits of taking these medicines.

STATIN ISLAND: HOW CHOLESTEROL MEDICATIONS WORK

Not everyone can bring cholesterol levels down to a healthy range with diet and exercise. Your health care provider may prescribe medication to achieve a healthier cholesterol level. Statins are usually go-to medications to treat abnormal cholesterol levels. These help your body process and remove cholesterol. They're most effective in lowering LDL ("bad") cholesterol. As with any medication, statins can have side effects. The most common are constipation, stomach pain, cramps, or gas. People may also experience muscle pain, weakness, or brown urine. Learn more by getting the Why Cholesterol Matters online brochure from Mended Hearts at www.mendedhearts.org.



Get Help Paying for Your Medicine

Let's face it: heart medications can be expensive. This is a common reason many people don't take them as directed. The good news is that help may be available.

Health Insurance and Government Assistance

Under the Affordable Care Act (ACA), private health plans offered through the health insurance marketplace must cover the same set of 10 essential health benefits, and prescription drug coverage is one of them (learn more at www.healthcare.gov).

For those who qualify for Medicare, the ACA reduced prescription drug costs available under the Medicare Part D program (learn more at www.medicare.gov/part-d and www.whitehouse.gov/sites/default/files/uploads/careact.pdf).

Medicare beneficiaries may also qualify for the Extra Help program, which assists individuals in paying for their Medicare prescription drug plan costs. Under this Social Security Administration program, qualifying beneficiaries may receive assistance worth up to \$4,000 per year. Learn more at www.ssa.gov/medicare/prescriptionhelp.

Resources

- NeedyMeds.org – This site offers an array of information about private and government prescription assistance. It also provides a comprehensive database of free and low-cost prescription medicine programs, a drug discount mobile phone app, and more.
- GoodRx.com – Among other tools, this site lets you compare prices for government-approved prescription drugs offered at most U.S. pharmacies.

Discounts and Assistance

Check to see if your supermarket or pharmacy offers discount cards or generic medications at a lower price than your health plan co-payment. Check the pharmacy's website and ask your doctor or pharmacist if you could benefit from discounts.

Patient Assistance Programs (PAPs)

Pharmaceutical companies may cover some or all of a medication's cost through its PAP. Learn more at the following websites:

- **Partnership for Prescription Assistance (PPA), www.pparx.org** – This program, a collaboration of many pharmaceutical companies, helps qualifying patients without prescription drug coverage search for and obtain medicines for free or nearly free.
- **RxAssist.org** – This is another site to help find and apply for PAPs. It also offers a searchable database of programs offered by states and pharmaceutical companies to offset (or eliminate) the costs of medications for those who qualify. RxAssist.org also offers its own drug discount card for people who don't have prescription insurance.

BE INVOLVED: QUESTIONS FOR YOUR HEALTH CARE TEAM ABOUT MEDICATIONS

- Why are you prescribing this medicine?
- What are both the brand and generic names of the medicine?
- How do you spell the name of that medicine?
- What does the medicine do? What are the side effects?
- How and when do I take it? For how long? Are there refills?
- What food, drink, other medicines or supplements, and activities should I avoid while taking this medicine?
- Does this medication replace another one I'm taking?
- Should I continue to take all of the other medications that are prescribed to me?
- What happens if I miss a dose?

Glossary and References

Glossary

Below are common terms and acronyms used for cardiovascular-related diagnoses and that may be referenced in this guide.

Term	Description
Ablation	Procedure to cure irregular heartbeats (arrhythmia) using a catheter placed within a beating heart that creates a small scar using an energy source to stop the arrhythmia
Acute MI	Acute myocardial infarction (heart attack)
AFib (AF)	Atrial fibrillation (upper chambers beat much faster than the lower heart chambers in an irregular and rapid fashion that places a patient at risk of stroke)
Angina	Pain or discomfort that comes when your heart does not get enough oxygen; angina is usually a symptom of a heart problem known as coronary artery disease (CAD) or coronary heart disease (CHD)
Angiogram	Image of artery blood vessels that can be seen after the patient receives an injection of dye to outline the vessels
Arrhythmia	Erratic heartbeats or heartbeats that are too slow, too rapid, irregular, or too early
Atherosclerosis	Buildup of waxy plaque inside the artery walls that is restricting blood flow
Bradycardia	Abnormally slow heartbeat
CABG	Coronary artery bypass graft (bypass surgery, a type of open-heart surgery)
CAD	Coronary artery disease (see arteriosclerosis and atherosclerosis)
Cardiac Arrest	Sudden stoppage of the heart pumping function, due to a very irregular heart beat that is often caused by a heart attack
Cardiac Catheterization	Diagnostic procedure to gather information about potential heart artery blockages, heart pumping functions, or problems with the heart valves (a left heart catheterization involves a coronary artery angiogram; see angiogram)
Cardiac CT	Cardiac computerized tomography takes detailed images of the heart and its blood vessels and stacks the images to create a three-dimensional picture of the heart
Cardiomyopathy	Cardiomyopathy is a disease involving changes in the heart muscle that can lead to a chronic condition called heart failure
Cardioversion	Electrical shock to the heart to restore normal heart rhythm
CHF	Congestive heart failure is when the heart fails to pump blood properly, causing fluid to build up around heart and in the lungs
CVD	Cardiovascular disease affects the heart structure or blood vessels
Deep Vein Thrombosis	When blood clots form in a vein deep inside your body

Term	Description
Defibrillator	Surgically implanted medical device that restores heart rhythm by delivering an electrical shock to the heart
Echocardiogram	Echocardiogram uses sound waves (ultrasound) to generate moving images to assess the chambers and valves of your heart
EKG	Electrocardiogram (also ECG) is a painless test that uses electrodes placed on the skin to record the heart's rhythm (electrical activity)
Endocarditis	Bacterial infection of one or more of the heart valves
Fibrillation	Fibrillation is the rapid, irregular, and unsynchronized contraction of muscle fibers within the upper or lower or both chambers of the heart
HF	Heart failure (HF) means the heart can't pump enough blood to meet the body's needs
ICD	Implantable cardioverter defibrillator (ICD) is a device that is put within the body to recognize and correct certain types of life-threatening heart rhythms
Low EF	Low ejection fraction (insufficient amount of blood pumping out of the heart's ventricle)
LVAD	Left ventricular assist device (LVAD) is a mechanical device placed inside or outside the body that "assists" the heart to pump oxygen-rich blood from the left ventricle to the body
MI	Myocardial infarction (heart attack)
Pacemaker	Surgically implanted device that assists the heart in maintaining normal rhythm
Palpitations	Palpitations are unpleasant sensations of irregular and/or forceful or fast beating of the heart
PCI	Percutaneous coronary intervention (PCI) is a nonsurgical procedure that relieves narrowing and obstruction of the arteries to the muscle of the heart usually by placing a coronary artery stent
Pericarditis	Inflammation of the outer membranes and sac around the heart
Prolapse	Drooping down or abnormal bulging of the mitral valve's leaflets backward into the heart's atrium during the contraction of the heart
Restenosis	The reclosing or renarrowing of an artery that has been previously opened in a PCI and is supported by an inserted stent
SCA	Sudden cardiac arrest (SCA) is when the heart abruptly stops beating
Sinus Rhythm	The normal regular rhythm of the heart set by the natural pacemaker of the heart called the sinus node
Stent	Medical device made of expandable metal mesh inserted into a coronary artery, via a catheter, to hold the artery open
Tachycardia	A very rapid and often uncontrolled heartbeat
TEE	Transesophageal echocardiogram (TEE) is a diagnostic test that employs ultrasound waves to make images of the heart chambers, valves, and surrounding structures and is done through the esophagus
Valve	A heart valve problem usually involves damage to the one-way-doors within the heart itself caused by abnormal structure of one or more of the heart valves (tricuspid, pulmonary, mitral [bicuspid], and aortic)

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The Promise of Heart Health: Additional Support from Mended Hearts

Group Meetings

Communication is key to coping after diagnosis, treatment, or surgery for heart disease. Your local Mended Hearts chapter hosts regular support group meetings, where heart patients and families support one another. Chapters also regularly host meetings with health care professionals who can provide valuable information and answer questions.

Visiting Program

Accredited visitors, with the support of hospitals and clinics, serve heart patients by listening, sharing their experiences, and empathizing with their anxieties and concerns. Heart patients and families gain hope by meeting members who have survived heart disease and are now healthy.

Internet Visiting Program

Get back on your feet after your heart diagnosis! When you get home, get online to get our help and support. Virtual visits via email with heart patients, caregivers, and families are available. Connect with an Internet visitor by emailing support@mendedhearts.org.

Toll-Free Help Line

We're also a toll-free phone call away. Dial 1-888-HEART99 (1-888-423-7899) to speak to a representative who can answer questions, address any concerns you have, and connect you with a Mended Hearts chapter and fellow heart survivor in your area.

Mended *Little* Hearts

We also have groups to support and encourage families of children with congenital heart disease or defects. Learn more at www.mendedlittlehearts.org.

Get Involved

www.mendedhearts.org/get-involved

Join our 20,000-strong Mended Hearts member community! Learn more about heart disease, meet other members through local chapter meetings, volunteer, and receive special event invites. Mended Hearts membership comes with the following benefits:

- *Heartbeat*, our quarterly magazine
- Access to the “members only” area of our national website with even more helpful information and advice
- Eligibility to participate in the visiting program for heart patients and their families (a benefit of chapter membership)

Your contribution also helps thousands of heart disease patients and families get support and encouragement on their way to heart health. Join us today.

“It’s great to be alive ... and to help others!”



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