

Living with Heart Failure



Understanding Heart Failure

Heart failure is a serious long-term (chronic) condition. But you can live a full, active life with the right medical treatment and attention to your lifestyle. The most important thing to remember is that you're not alone.

The term "heart failure" means that your heart isn't pumping as strong as it should be. As a result, your body isn't getting enough of the oxygen-rich blood it needs to function properly. Heart failure occurs when the heart has been damaged and is weak. But heart failure isn't a hopeless condition. Many treatments can keep it from getting worse.

The best thing you can do for yourself is to follow all of your healthcare provider's instructions and make any needed changes in diet, physical activity and lifestyle. This will help give you the highest possible quality of life.

Living healthier with heart failure is why we've created this booklet to help you and your family learn about your condition and what you can do to control it.

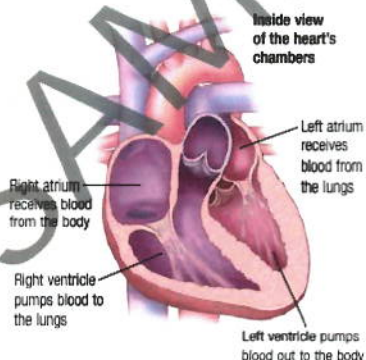


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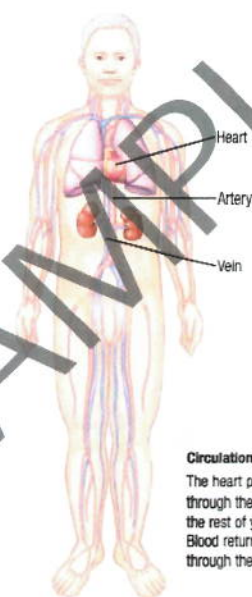
How the Normal Heart Works

The heart's main job is to pump the right amount of blood to all parts of the body. This is called **circulation**. The circulating blood takes nutrients (food) and oxygen to the body's tissues and comes away with waste products.

The amount of blood the heart pumps depends on how much oxygen each part of the body needs. When you're resting, your body doesn't need as much oxygen. During heavy activity, the tissues and organs need more oxygen and nutrients, so the heart pumps more blood. To meet the body's needs, the heart beats faster (or slower) and the vessels get bigger (or smaller). This helps get the right amount of oxygen where it needs to go.



Physical activity isn't the only thing that makes the heart work hard. Fever and some illnesses can also make the heart pump harder. This helps get the extra oxygen and nutrients to the parts of the body that need it. Under normal conditions, a healthy heart has more than enough pumping ability to circulate blood properly.



Circulation
The heart pumps blood through the arteries to the rest of your body. Blood returns to the heart through the veins.

Causes and Risk Factors of Heart Failure

Almost any form of heart disease can cause heart failure. In the United States, a major cause of heart failure is coronary artery disease (CAD). CAD occurs when arteries that supply blood to the heart muscle become narrowed by buildups of fatty deposits called **plaque**.

Other common risk factors that can lead to heart failure are:

- High blood pressure
- Diabetes
- Being obese or overweight
- Sleep apnea
- Alcohol or drug abuse

Other structural causes of heart failure include:

- Past heart attack (**myocardial infarction**)
- Heart valve disease
- Infection of the heart valves (**endocarditis**) and/or heart muscle itself (**myocarditis**)
- Heart muscle disease (**cardiomyopathy**)
- A heart defect present at birth (**congenital heart disease**)

Other less common causes of heart failure may include:

- Certain abnormal heart rhythms
- An overactive thyroid (hyperthyroidism)
- Low red blood cell count (severe anemia)

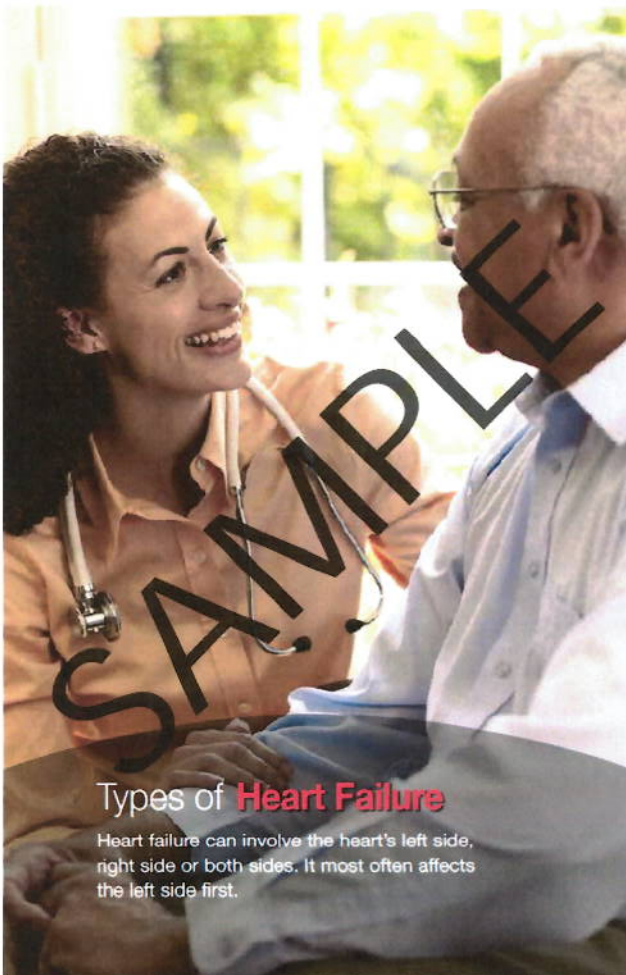
Each of these problems can lead to heart failure by:

- Reducing the heart's ability to pump blood.
- Limiting the amount of blood that fills the heart chambers.
- Filling the heart's pumping chambers with too much blood.

Many of these disorders can be present for years before heart failure occurs. Mild symptoms will worsen over time unless properly treated.



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Types of Heart Failure

Heart failure can involve the heart's left side, right side or both sides. It most often affects the left side first.

Left-Sided Heart Failure

There are two types of left-sided heart failure:

- **Systolic failure (also called HFrEF):** The left ventricle loses its ability to contract normally. The heart can't pump with enough force to push enough blood into circulation.
- **Diastolic failure (also called HFpEF):** The left ventricle loses its ability to relax normally because the muscle has become stiff. The heart can't properly fill with blood during the resting period between each beat.

Right-Sided Heart Failure

Right-sided or right ventricular heart failure usually occurs as a result of left-sided failure. When the left ventricle fails, increased fluid pressure is transferred back through the lungs, which damages the heart's right side. When the right side loses pumping power, blood backs up in the body's veins.

Congestive Heart Failure

Congestive heart failure (CHF) can occur with both right-sided and/or left-sided heart failure. CHF requires quick medical attention. As blood flow out of the heart slows, blood returning to the heart through the veins backs up. This causes congestion in the body's tissues. Fluid can collect in the lungs and surrounding body tissues and interfere with breathing, especially when a person is lying down.

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Diagnosing Heart Failure

To diagnose heart failure, your doctor will perform a physical exam. Your heart and lung function will be tested to decide if your symptoms are being caused by heart failure. The doctor will use your test results to determine the type and class of heart failure you may be dealing with, and what treatments would be most effective.

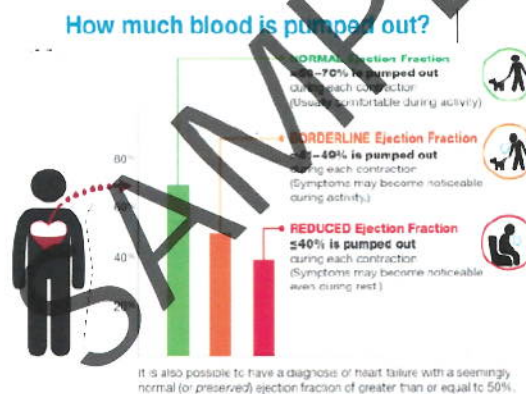
The following table describes the most commonly used classification system, the New York Heart Association (NYHA) Functional Classification. It places patients in one of four categories based on how much they are limited during physical activity.

Class	Patient Symptoms
I	No limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea (shortness of breath).
II	Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea (shortness of breath).
III	Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, or dyspnea (shortness of breath).
IV	Unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases.

Ejection Fraction (EF)

Your doctor may have discussed your **ejection fraction**. The ejection fraction (EF) is important in determining how well your heart is pumping out blood and in diagnosing and tracking heart failure.

The EF compares the **amount of blood in the heart to the amount of blood pumped out**. The percentage helps describe how well the heart is pumping blood to the body. For example, an EF of 60 percent means that 60 percent of the total amount of blood in the left ventricle is pushed out with each heartbeat. The following illustration shows what normal, borderline and reduced EF is and how it may affect you.



Many patients with heart failure have a normal ejection fraction during examination. Heart failure with **preserved ejection fraction (HFpEF)** is also referred to as diastolic heart failure. Heart failure with **reduced ejection fraction (HFrEF)** is also referred to as systolic heart failure.

The Symptoms of Heart Failure

The effects of heart failure can be felt throughout the body. You're likely to have one or more of the following symptoms.

Edema

If you have heart failure, your heart isn't emptying as it should, so blood returning from the body can't enter the heart and backs up in the veins. This forces fluid from the blood vessels into other tissues, causing swelling (**edema**). Swelling can occur in the feet, ankles, legs and fingers, as well as in the abdomen and in other tissues and organs. As a result, weight gain is common. (Note: Not all edema is caused by heart failure.)

The heart's left side receives oxygen-rich blood from the lungs. The heart then pumps this blood to the rest of the body. When the heart's left side isn't pumping well, blood backs up in vessels of the lungs. Sometimes fluid is forced out of the lungs into the breathing spaces themselves. This is called **pulmonary edema**. Pulmonary edema often leads to shortness of breath and a lack of stamina (energy).

Call your healthcare provider

if you have new or worsening edema based on swelling and/or weight gain. Signs of too much fluid in your body include feeling that your shoes, pants or rings are too tight.

The kidneys rely on proper blood circulation to rid the body of extra sodium (salt) and water. When you have heart failure, sodium that would normally be removed in the urine stays in the body and holds in water. Since too much fluid is already a problem, this makes edema even worse.

Shortness of Breath

A very common symptom of heart failure is shortness of breath. It may be caused by fluid in the lungs or by poor heart function. Shortness of breath is most often a problem during physical activity. But it can also happen during rest. Sometimes it may come on suddenly at night, making it very hard to breathe unless you get up and move around. You may need several pillows to raise your upper body so you can breathe more easily.

Call your healthcare provider

if you have symptoms that you have not had before such as shortness of breath after mild to moderate physical activity or while resting. These are signs your heart failure may be getting worse. Other signs include sudden episodes of shortness of breath, needing to use extra pillows when you lie down, wheezing or an "asthma" attack.

Fatigue

Another effect of heart failure is **fatigue** (tiredness). You feel tired because your tissues and organs aren't getting enough oxygen and nutrients. You may feel sleepy after eating, feel weak in the legs when walking and get short of breath while being active.

Other Symptoms of Heart Failure

Other ways to tell that your heart might not be working the way it should be include:

- Coughing up pinkish, blood-tinged mucus.
- Confusion, difficulty thinking, dizziness or lightheadedness.
- Changes in your appetite or nausea.

Call 9-1-1 if you:

- Feel lightheaded or you feel as if you might pass out (known as **syncope**).
- Have a fluttering or racing heart, known as a **palpitation**.
- Feel sudden chest pain or sudden chest heaviness.

Any of these could mean your heart failure is getting worse or that you're having a heart attack.

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- Rinse canned vegetables and tuna with water before eating.
- Read food labels to learn the sodium content of foods you buy. Look for serving size and sodium per serving.
- Look for low-sodium versions of your favorite foods.
- Choose over-the-counter heartburn and headache medicines that don't contain sodium bicarbonate or sodium carbonate.
- Talk to your healthcare provider before using salt substitutes. These can have extra potassium, which may be dangerous for some conditions.

Away From Home

- Ask for dressings and sauces to be served on the side instead of mixed with food. Then you can control how much you use.
- Choose foods that are fresh (such as salads) over frozen or prepared foods when possible.
- Ask the waiter to make sure your food is prepared without salt or MSG.
- Watch out for foods from vending machines; many are high in sodium.
- Stay away from most dips, chips, salsa, pizza, soups and foods with a lot of sauce.
- Bring your own fruit, yogurt or other healthy choices when you go to events.

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Managing Your Heart Failure Symptoms

It's important to monitor your symptoms and make certain lifestyle changes to help you better manage your heart failure.

Limiting Sodium (Salt) Intake

Excess salt plays a part in water buildup. With more fluid in the blood vessels, the heart has to work harder. Over time, this fluid buildup can cause shortness of breath and edema.

You'll likely be told to lower your sodium intake. The specific limit depends on your health. Patients with milder forms of heart failure should reduce the amount of sodium in their diet to 1,500 mg a day or less. If you have more severe heart failure, talk with your healthcare provider regarding your individual needs. Based on your condition, he or she may place additional restrictions on your sodium intake.

One teaspoon of salt contains 2,300 mg of sodium. Most packaged and processed foods also contain high amounts of sodium. You may have to work hard to limit foods with a lot of salt. Here are some ways to start.

At Home

- Take the saltshaker off the table.
- Use spices and low-salt seasonings for flavor.
- Use fresh vegetables and fruits instead of canned and processed foods when possible.



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Monitoring Your Blood Pressure

It's important to track your blood pressure and know your numbers. There is a strong relationship between high blood pressure and heart failure. Some people at risk for heart failure may be prescribed medication to keep their blood pressure below 130/80 mm Hg. If you have been diagnosed with heart failure, your doctor will recommend the appropriate blood pressure level and treatment plan for you.

Managing Anemia

Many heart failure patients are anemic (iron deficient). If you have NYHA Class II and III heart failure and have iron deficiency, iron replacement therapy may be recommended.

Improving Sleep

People with heart failure often wake up tired. This may happen because lying flat makes it harder to breathe or causes coughing. Also, some medications (diuretics) cause people to wake up throughout the night to go to the bathroom (urinate).

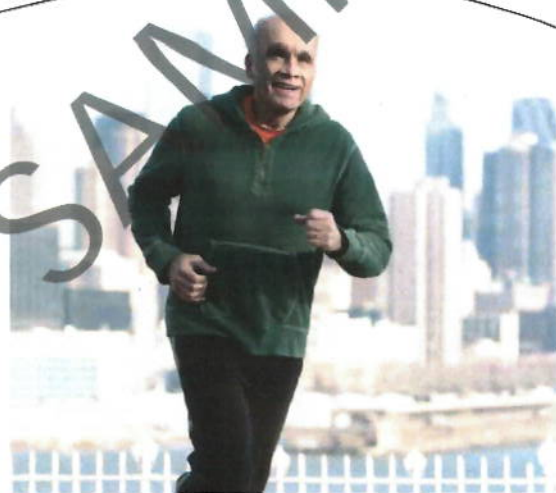
Tell your healthcare provider

if sleeping seems to be getting more difficult due to restlessness, snoring or frequent awakening. This could be a sign that your condition is getting worse, or that you may have sleep apnea.

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Avoid naps and big meals right before bedtime to improve nighttime sleep. If needed, use an extra pillow to raise your head. Talk to your doctor or nurse if two or more pillows are needed for you to sleep—it may be time to change the dose or type of your medications. Also, talk to your healthcare provider about changing the time you take your medicines, especially diuretics. This may save you some trips to the bathroom during the night.

People with heart failure may have other sleep problems as well, such as sleep apnea. If you have NYHA class II to IV heart failure and sleep apnea is suspected, your doctor may recommend a sleep study. If you are confirmed to have sleep apnea, a CPAP machine may be recommended.



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Being Physically Active

People with heart failure need regular physical activity as much as anyone else. Regular, moderately vigorous activity can actually help your heart get stronger. Talk with your doctor or nurse about the types of physical activity that may be best for you. You may need a supervised exercise stress test before you start.

Activities such as walking, swimming or biking may be recommended. Avoid activities where you have to hold your breath, bear down or use sudden bursts of energy. Don't lift heavy weights or move heavy furniture. These activities may cause difficulty in breathing. Stop and rest if any activity causes chest pain, shortness of breath, dizziness or lightheadedness.

Try not to be active right after meals, when it's hot or humid, when it's cold or when you don't feel good.

Going to Cardiac Rehabilitation

Cardiac rehabilitation (rehab) can be an important step in the journey to recovery and wellness for people with heart failure. Cardiac rehab is a medically supervised program that includes exercise training, education on heart-healthy living and lifestyle, and often counseling to reduce stress. For many people with HF, cardiac rehab plays a critical role in improving the quality and length of life.

Call 9-1-1 if you're having chest pain or heaviness with exercise that doesn't go away after resting for 5 minutes. This may be a sign of a heart attack.

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How Medication Can Help

The goal of heart failure treatment is to help you live a longer, better-quality life. Treating heart failure with medication can lessen fatigue, shortness of breath and swelling. It also helps improve your energy level so you can be physically active. Medications can stop or slow the progress of the disease, even if you have no signs or symptoms.

The following pages tell you how your heart failure is likely to be treated. Also be aware that new ways of treating heart failure are being developed. These new treatments aim to stop or reverse the things that cause heart failure or make it worse.



Treating Heart Failure

Lifestyle changes may not always be enough to manage your heart failure. Your doctor may recommend further treatment options, such as medications, to help you.

Talk to your healthcare provider about whether it's safe for you to take nonsteroidal pain relievers (such as ibuprofen) and over-the-counter medicines and supplements.

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Taking Medications

Treating heart failure often means taking certain medications. If medication is prescribed for you, follow your healthcare provider's directions exactly to optimize the benefits of these drugs in your treatment. Don't change how much you take or when you take it without talking to your healthcare provider. The following are some of the most common medications used to treat heart failure.

ACE inhibitors (angiotensin-converting enzyme inhibitors) keep heart failure from getting worse. They limit the amount of a hormone called **angiotensin** in the blood. Angiotensin causes the blood vessels to tighten and the heart to work harder.

ARBs (angiotensin receptor blockers) work in a similar manner to an ACE inhibitor. An ARB keeps angiotensin from causing the blood vessels to tighten and prevents the heart from working harder.

ARNIs (angiotensin receptor neprilysin inhibitors) are a new drug combination of a neprilysin inhibitor and an ARB. Neprilysin is an enzyme that breaks down natural substances in the body that open narrowed arteries. By limiting the effect of neprilysin, it increases the effects of these substances and improves artery opening and blood flow, reduces sodium (salt) retention and decreases strain on the heart.

I_f channel blockers (or inhibitors) reduce the heart rate, similar to a beta blocker.

Beta-blockers slow the heart rate and reduce the heart's work. Over time, the heart muscle, which has been stretched and enlarged, reshapes. This helps the heart pump better.

Aldosterone antagonists affect the balance of water and salts going into your urine and are weak diuretics (water pills). They help lower blood pressure and reduce excess fluid in your body.

Vasodilators widen (dilate) blood vessels. When blood vessels widen, blood flows more easily and the heart doesn't have to work as hard. These medications can be used with ACE inhibitors and ARBs. Or, they can be used alone if you can't use the other medications. Some vasodilators, such as nitrates (nitroglycerin, isosorbide dinitrate), mainly make the veins bigger. Others (hydralazine) work mostly on the arteries. You may need to take two vasodilators if your blood pressure is high or if your symptoms keep you from doing your usual activities.

Diuretics (water pills) help the body get rid of extra water and sodium through urination which eases the heart's workload. (See Using Diuretics)

Digitalis may be used to strengthen the heart's pumping action. The level of digitalis in the body must be monitored using a blood test. If too much digitalis builds up in the blood, a loss of appetite, nausea, vomiting and headaches may result. The heart rhythm can also become too fast or too slow. Always report any side effects of your medications to your doctor right away.

Using Diuretics

Diuretics may cause some side effects. One common side effect of some diuretics is potassium loss. The body needs potassium to work properly. It helps maintain the electrical balance of the heart and nervous system. If you take a diuretic that causes you to lose potassium, your doctor may tell you to try to keep up your potassium level.

Many fruits and vegetables are rich in potassium. Bananas, cantaloupes, orange juice, grapefruit juice and potatoes are examples. If your doctor thinks you aren't getting enough potassium in your diet, he or she may prescribe a potassium supplement. But too much potassium in the body can be harmful and even life-threatening. Don't take a potassium supplement unless your doctor says to. And if you do, ask your doctor for specific instructions about how to avoid potassium buildup. Work with your doctor or dietitian to understand how much potassium-containing foods you should eat if you are taking a potassium supplement.

Watching Your Weight

It's important to weigh yourself every morning and write down your weight in a log or diary. Weight gain for several days in a row (for example, two to three pounds in one day or five pounds in one week) may be the first sign of fluid buildup. If not treated, fluid buildup makes the heart work harder and may cause shortness of breath and edema.



Tell your healthcare provider right away if you start to gain weight. Even if you're feeling fine, your doctor needs to know about weight changes. That way, he or she can adjust your medications, if needed. This may help you avoid hospitalization for worsening heart failure. Ask your doctor or nurse how much fluid to drink every day, too.

Other Treatment Options

Some people with severe heart failure may need additional treatment to prevent more serious heart problems.

Cardiac Devices

Implantable Cardioverter Defibrillator (ICD)

Some people who have severe heart failure or serious arrhythmias (irregular heartbeats) may need an ICD to keep the heart beating normally and prevent sudden cardiac death when a life-threatening abnormal rhythm is detected.

Cardiac Resynchronization Therapy (CRT)

Some people with heart failure develop abnormal heartbeats (**cardiac dysrhythmias**). This can reduce how well the heart's lower chambers (ventricles) can function. **CRT**, also known as bi-ventricular pacing, may be needed. In this procedure, a special pacemaker is used to make the ventricles contract at the same time. This helps the lower heart chambers pump and relax together.

Left Ventricular Assist Device (LVAD)

For a heart that can't pump on its own, a LVAD can be implanted. This is a mechanical circulatory support (MCS) pump-type device. Some people use this device permanently, but it's most often considered a "bridge to transplant," or a short-term fix if surgery or heart transplant is needed.

Heart Valve Surgery

If heart failure is caused by a defective or diseased heart valve, then **valve replacement surgery** may be an option. During valve replacement, the failing valve is removed, and a new valve is used in its place. The new valve may be either organic (human or animal tissue) or mechanical (metal or plastic).

Heart Transplantation

If none of the other mentioned treatments are the right option to manage your heart failure, you may need to have your diseased heart replaced. This is called a **heart transplant**. This procedure has greatly improved the survival and quality of life for people with severe heart failure. And, the outlook for people with heart transplants is steadily improving. (To learn more, read the American Heart Association booklet *About Heart Transplants*.)



Surgical Options

Surgery isn't often used to treat heart failure, but if the problem causing it can be corrected, your healthcare provider may recommend it. Surgery may also be needed if your heart failure can't be helped with medications and lifestyle changes. There are several surgical procedures that may be considered.

Percutaneous Coronary Intervention (PCI)

If blockages in the coronary arteries are restricting blood supply to the heart, a procedure called percutaneous coronary intervention (**PCI**) may be performed. A small tube (**catheter**) with a tiny deflated balloon on the end is threaded from an artery through a small incision in the groin area. It's pushed up to the blocked portion of the artery in the heart. Here, the balloon is inflated, flattening the plaque and opening the artery (**angioplasty**). At this point, a small mesh tube called a **stent** may be placed inside the artery to help keep the blood vessel open.

Coronary Artery Bypass Graft Surgery (CABG)

Your doctor may recommend a procedure called coronary artery bypass graft surgery (**CABG**) to reroute blood supply around a blocked section of artery. A healthy blood vessel is taken from a leg or from the chest wall. The blood vessel is attached to the diseased artery above and below the blockage. This allows blood to flow around the damaged area.

For More Information

We want people to experience more of life's precious moments. To do that, we want to help you be healthier—in heart and mind. It's why we've made better heart and brain health our mission.

Life is why® we have created many educational booklets like this to help you and your family make healthier choices to reduce your risk of heart disease and stroke, manage disease or care for a loved one.

Everyone has a reason to live a longer, healthier life. **What's the "why" in your life?** Maybe it's walking your daughter down the aisle. Watching that perfect sunset with your spouse. Or simply giving your grandchild a big hug.

Whatever your why, we encourage you to write it down here. Look back at your "why" often, and use it to inspire you as you work to live a longer, healthier life.

_____ is why.

To learn more, call us toll-free at 1-800-AHA-USA1 (1-800-242-8721) or contact your nearest American Heart Association office. You can also visit our Web site, heart.org.

For information on stroke, call 1-888-4-STROKE (1-888-478-7653) or visit us online at strokeassociation.org.

Heart Attack Warning Signs

Some heart attacks are sudden and intense, but most of them start slowly, with mild pain or discomfort. Here are some of the signs that can mean a heart attack is happening.

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes, or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness or pain.
- **Discomfort in other areas of the upper body.** Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- **Shortness of breath.** This may occur with or without chest discomfort.
- **Other signs.** These may include breaking out in a cold sweat, nausea or lightheadedness.

As with men, women's most common heart attack symptom is chest pain or discomfort. But women are somewhat more likely than men to experience some of the other common symptoms, particularly shortness of breath, nausea/vomiting and back or jaw pain.

Stroke Warning Signs

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, or trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness or loss of balance or coordination
- Sudden, severe headache with no known cause

F.A.S.T. is an easy way to remember how to recognize a stroke and what to do. **Spot** a stroke **FAST**. **Face** drooping. **Arm** weakness. **Speech** difficulty. Time to call 9-1-1.

Dial 9-1-1 Fast

Heart attack and stroke are life-or-death emergencies—every second counts. If you suspect you or someone you are with has any of the symptoms of heart attack or stroke, **immediately call 9-1-1 or your emergency response number** so an ambulance can be sent. **Don't delay—get help right away!**

For a **stroke**, also note the time when the first symptom(s) appeared. If given within 3 to 4.5 hours of the start of symptoms, a clot-busting drug may improve the chances of getting better faster.

For heart- or risk-related information, call the American Heart Association at 1-800-AHA-USA1 (1-800-242-8721) or visit us online at heart.org.

For stroke information, call our American Stroke Association at 1-888-4-STROKE (1-888-478-7653) or visit strokeassociation.org. For information on life after stroke, call and ask for the Stroke Family Support Network.

The statistics in this brochure were up to date at publication. For the latest statistics, see the Heart Disease and Stroke Statistics Update at heart.org/statistics.



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