What Is Heart Failure?

When you have heart failure (sometimes called congestive heart failure), your heart doesn’t pump as well as it should. This means some parts of your body don’t get enough blood and oxygen. Heart failure can make it harder for you to do things that used to be easy. But you and your healthcare provider can help your heart. Read on to learn more.

How Does Heart Failure Feel?

Here are some of the most common symptoms of heart failure. You may have many of these symptoms, or only a few.

- Shortness of breath, wheezing, or coughing when you exert yourself
- Weakness or tiredness with little effort
- Problems breathing when you’re lying flat, or the need to sleep in a recliner or propped on many pillows
- Waking up at night coughing or short of breath
- Rapid weight gain
- Swelling in the abdomen, ankles, or feet
- Confusion or trouble concentrating
- A racing or skipping heart
- Dizziness or fainting

You may now become short of breath doing things that used to be easy, such as climbing stairs.

Going to the Hospital

Heart failure symptoms may sometimes become so severe that you need to go to the hospital for a few days. You may be able to prevent trips to the hospital by keeping your symptoms under control and taking an active role in your care.
What You Can Do

For most people, heart failure is a chronic (lifelong) disease. This means it won't go away entirely. But by working with your healthcare provider, you can live longer and more comfortably. Here's what you can do:

- Learn how heart failure affects your body. This will help you know how to take care of yourself and your heart.
- Take the medications your doctor prescribes. These will help your heart work more easily and keep heart failure from getting worse.
- Make some changes in how you eat and how you live to give your heart some extra help.
- Pay attention to your body and how you feel. If you notice symptoms, report these right away. This will help your healthcare provider prescribe treatments that work best for you.

You don’t have to face heart failure alone. Your healthcare provider will work with you to develop a care plan that meets your needs.

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How Your Heart Works

The heart is a muscle that is normally about the size of your fist. It pumps blood to the lungs, where the blood receives oxygen. Oxygen-rich blood travels back to the heart. The heart then pumps this blood to the organs, limbs, brain, and all the other parts of the body. After the body uses up the oxygen in the blood, the blood returns to the heart and the process starts over again.

A Healthy Heart

A healthy heart has many parts that work together to pump blood:

- Four chambers hold the blood as it moves through the heart. The upper chambers are called atria. The lower chambers are called ventricles.

- Four valves act like one-way doors, separating the chambers and keeping the blood moving forward. Valves open to let blood through and close to keep it from moving backward.

- The vena cava brings oxygen-poor blood from the body into the heart. This oxygen-poor blood is pumped through the pulmonary artery to the lungs.

- The pulmonary veins carry oxygen-rich blood from the lungs to the heart. This oxygen-rich blood is pumped through the aorta to the rest of the body.
How the Heart Pumps Blood

The heart muscle must pump enough blood with each beat to keep the body healthy. Blood coming to the heart enters the atria (upper chambers). The atria contract (squeeze) to pump blood into the ventricles (lower chambers). Then the ventricles contract. Blood is pumped out of the heart, to the lungs and the rest of the body. The process starts again with the next heartbeat.

Systole

During systole, the ventricles contract, pumping blood to the lungs and the rest of the body. At the same time, the atria relax and fill with blood. Oxygen-poor blood (blue arrows) enters the right atrium from the vena cava. Oxygen-rich blood (red arrows) enters the left atrium from the lungs.

Diastole

During diastole, the atria pump blood into the ventricles. The ventricles relax to receive this blood. Oxygen-poor blood passes into the right ventricle. Oxygen-rich blood enters the left ventricle.
When Heart Failure Occurs

In people with heart failure, the heart can't move as much blood as it should with each beat. This causes blood to back up into the lungs and throughout the body. Certain organs don't get enough blood to work normally, which causes the symptoms you feel.

Types of Heart Failure

Heart failure can happen in two ways. The heart muscle may become weak and enlarged (systolic dysfunction). The weakened muscle doesn't pump enough blood forward when the ventricles contract. Or, the heart muscle may become stiff (diastolic dysfunction). The stiff muscle can't relax between contractions, which keeps the ventricles from filling with enough blood. In either case, less blood travels to the lungs and the rest of the body with each heartbeat. You may have one or both types of heart failure.

What Is Ejection Fraction?

Ejection fraction (EF) is a measure of the blood that the heart pumps out. A healthy heart ejects at least half the blood from the ventricles with each beat. This means a normal EF is around 50% or greater. When you have systolic heart failure, though, more blood stays in the chambers than normal. Your doctor can tell you more.
As Blood Flow Decreases

When the heart can’t pump enough blood, certain body chemicals (hormones) are sent out to make the heart work harder. Some of these chemicals cause the heart muscle to grow larger. Others tell the heart to pump faster. This can help move blood at first, but the heart muscle can’t keep up with these demands. Over time, the extra work damages the heart even further.

When Your Body Gets Less Blood

Because a weakened or stiffened heart muscle moves less blood with each pump, fluid backs up in the lungs and throughout the body. Less blood moving through your body also means your organs get less oxygen. Because of this, the organs don’t work as well. This may result in symptoms all over your body:

- **Your brain** may receive less blood, making you feel confused or dizzy.
- **Your lungs** may fill with fluid, making you short of breath.
- **Your kidneys** may not be able to rid your body of excess fluid. This fluid can back up in other parts of your body.
- **Your abdomen, ankles, and feet** may collect excess fluid, causing edema (swelling).
Coronary Artery Disease
Coronary arteries supply blood and oxygen to the heart muscle. Coronary artery disease (CAD) is caused by atherosclerosis (also called hardening of the arteries). This condition occurs when plaque (deposits of fat, cholesterol, and other materials) collects in the walls of the arteries. As plaque builds up, the arteries narrow. This reduces blood flow to the heart muscle. The heart muscle can’t get enough oxygen-rich blood to work normally. The muscle can weaken, and heart failure can develop.

Heart Attack
A heart attack occurs when CAD gets so bad that part or all of the coronary artery is blocked. This stops blood flow to part of the heart muscle. Without oxygen-rich blood, this part of the heart is permanently damaged. The damaged portion of the heart muscle loses its ability to pump. This means that after a heart attack, the rest of the heart muscle must work harder. Over time, the strained heart muscle weakens. Heart failure can develop.

Causes of Heart Failure
In most cases, heart failure is caused by another health problem. Some of these problems damage the heart muscle, so the heart isn’t able to pump as well as it should. Other problems make the heart work harder, which can weaken the heart by tiring it out.
High Blood Pressure

Blood pressure measures how hard blood pushes against the artery walls as it travels through the arteries. High blood pressure (also called hypertension) occurs when blood pushes harder than normal. This makes your heart work harder. Over time, the heart’s chambers may enlarge. If high blood pressure isn’t controlled, the heart muscle eventually stretches and weakens. This leads to heart failure.

Valve Disease

Valve disease occurs when the valves between the heart’s chambers don’t open or close properly. Healthy valves keep blood moving forward. If a valve doesn’t open fully, your heart has to work harder to push blood through. If the valve doesn’t close tightly, blood leaks back into the chamber, making the heart pump some of the same blood through the valve again. This extra work can weaken the heart and lead to heart failure.

Cardiomyopathy

Cardiomyopathy is a diseased heart muscle. Some causes include infections, alcohol abuse, and the toxic effects of certain drugs (such as cocaine or cancer medications). Cardiomyopathy can also be inherited. The chambers enlarge and the heart muscle stretches and weakens. The stretched, weakened muscle can cause heart failure.

Related Health Problems

Certain health problems can strain the heart and make it more likely to weaken. Diabetes makes coronary artery disease and heart failure more likely to occur. Chronic kidney problems can cause water retention, which means the heart has to pump more fluid and work harder. A rapid or irregular heartbeat may occur along with heart failure. Over time, this can weaken the heart further. Heart failure is also more likely if you have severe anemia, an overactive thyroid, or congenital heart defects. Your doctor will explain whether any of these health problems are related to your heart failure.
Evaluating Your Heart

To evaluate your heart, your doctor will examine you, ask questions, and run tests. Along with looking for signs of heart failure, the doctor looks for any other health problems that may have caused your heart to weaken or stiffen. The results of the evaluation will help your doctor form a program to treat your heart.

Health History and Physical Exam

Your visit will start with a health history. Tell the doctor about any symptoms you’ve noticed. Bring a list of any medications you’re taking for the doctor to look over. You may be asked about other health problems you’ve had. Then you’ll have a physical exam. This includes listening to your heartbeat and breathing. You’ll also be checked for edema.

Diagnosing Heart Failure

To diagnose heart failure, the doctor must learn about your heart. You may have:

- **X-rays**, which take pictures of your heart and lungs. This can show your heart’s size and shape. X-rays can also show fluid in your lungs.

- **An electrocardiogram** (ECG or EKG), which records the way electrical signals travel through your heart. Small pads (electrodes) are placed on your chest, arms, and legs. Wires connect the pads to the ECG machine, which records your heart’s signals. This can show the pattern of your heartbeat.

- **An echocardiogram**, which uses ultrasound waves to show the structure and movement of your heart muscle. This shows how well the heart pumps. It also shows if the heart is enlarged, the thickness of the heart’s walls, and any valve problems.

- **Lab tests**, which evaluate small amounts of blood or urine for signs of problems. These tests can show if the kidneys and other organs are working properly. Levels of cholesterol and sugar in the blood may be checked. Your blood may also be tested for BNP, a hormone that is made when the heart is overworked.
Your Treatment Plan
Your doctor will use the results of your evaluation to develop a treatment plan. This plan is designed to relieve some of your symptoms and help make you more comfortable. Your treatment plan may include:

- Medications to help your heart work better and improve your quality of life.
- Changes in what you eat and drink to help prevent fluid from backing up in your body.
- Daily monitoring of your weight and heart failure symptoms to see how well your treatment plan is working.
- Exercise to help you stay healthy.
- Help with quitting smoking.

Other Tests You May Have
You may have other tests to help your doctor detect problems with your heart:

- **Stress testing** measures your heart’s response to activity. This may be done while you walk on a treadmill or ride a stationary bike. Or, you may be given medication that stresses the heart. A stress test helps your doctor measure how hard your heart can work. An echocardiogram or other imaging test may be done before and after a stress test to see how your heart responds.

- **Cardiac catheterization** helps detect clogged blood vessels. X-ray dye is injected into the heart through a catheter (thin tube). Then, an angiogram (special type of x-ray) is taken of the blood vessels. Cardiac catheterization can also show problems with pumping, heart chambers, blood flow, or valves.

- **Holter monitoring** can help detect an abnormal heartbeat. A portable monitor is connected to your chest with soft pads. The monitor records changes to your heart’s rhythm over several hours or days.
Medications to Help Your Heart

Your healthcare provider will likely prescribe medications for heart failure and any underlying health problems you have. Certain medications help you live longer by improving the way your heart pumps over time. Others are taken to relieve symptoms. Your healthcare provider will work to find the combination of medications that works best for you.

<table>
<thead>
<tr>
<th>Types of Medication</th>
<th>What They Do</th>
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<tbody>
<tr>
<td>ACE Inhibitor</td>
<td>• Lowers blood pressure and decreases strain on the heart. This makes it easier for the heart to pump and improves blood flow.</td>
</tr>
<tr>
<td>Angiotensin Receptor Blocker (ARB)</td>
<td>• Lowers blood pressure and decreases strain on the heart. This makes it easier for the heart to pump and improves blood flow.</td>
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<tr>
<td></td>
<td>• May be prescribed instead of an ACE inhibitor.</td>
</tr>
<tr>
<td>Beta-Blocker</td>
<td>• Lowers blood pressure and slows heart rate. It does this by altering hormones (body chemicals) that are damaging the heart.</td>
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<tr>
<td></td>
<td>• May strengthen the heart’s pumping action over time.</td>
</tr>
<tr>
<td>Diuretic</td>
<td>• Helps rid the body of excess water, which reduces swelling and may improve breathing. Less fluid to pump means the heart doesn’t have to work as hard.</td>
</tr>
<tr>
<td></td>
<td>• Also called “water pills.”</td>
</tr>
<tr>
<td>Aldosterone Antagonist</td>
<td>• Alters hormones that are damaging the heart, decreases strain on the heart.</td>
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<tr>
<td></td>
<td>• Given for advanced heart failure.</td>
</tr>
<tr>
<td>Digoxin</td>
<td>• Slows heart rate, helps heart pump more blood with each beat. So, more oxygen-rich blood travels to the body.</td>
</tr>
<tr>
<td>Hydralazine and Nitrate</td>
<td>• Lowers blood pressure and decreases how hard the heart has to work.</td>
</tr>
<tr>
<td></td>
<td>• Two separate medications used together. May come in one “combination” pill.</td>
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Intravenous (IV) Medications

If your heart failure symptoms become severe, medications may be given through an IV. These work quickly to help your heart pump better and relieve your symptoms. During this time, you may have to stay in the hospital or other facility for a few days until you feel better.

Medications for Related Conditions

Controlling other heart problems helps keep heart failure under control, too. Depending on other heart problems you have, medications may be prescribed to:

- Lower blood pressure (antihypertensives).
- Lower cholesterol levels (statins).
- Prevent blood clots (anticoagulants or aspirin).
- Keep the heartbeat steady (antiarrhythmics).

Being Smart About Alternatives

You may have heard about herbs and supplements that are said to help with heart failure symptoms. These claims are being studied, but have not been medically proven. Keep in mind that “natural” doesn’t mean safe. Herbs, extracts, and other supplements can interact with prescribed medications. And some over-the-counter products can cause organ damage. If you want to try an alternative treatment, talk with your healthcare provider first.

Tell the pharmacist about any over-the-counter products you use. He or she can tell you if these are safe to take with your heart medications.
Taking Your Medication

Taking too much or too little medication can be harmful to your heart. Follow all of your doctor’s instructions. Even if you start to feel better, don’t stop taking your medications or change your dosage unless your doctor tells you to. Keeping track of your medications can be tricky. The tips below can help.

Following a Routine

Having a routine can help you remember when to take your medications. Try these tips:

■ Get a pillbox that’s marked with the days of the week. (You can buy this at a pharmacy.) Fill the pillbox at the beginning of each week. Then you simply open that day’s section and take your pills each time.

■ Take your pills at the same times each day. If you take them when you do something else, it will help you remember. For instance, take pills when you brush your teeth or eat a meal. Ask your doctor or pharmacist which medications can be taken with meals.

Keeping Track of Medications

For your medications to work, you must take them exactly as directed. These tips will help:

■ Order more medication when you still have a two-week supply of pills left. This will keep you from running out.

■ Carry your medications and extra prescriptions with you when you travel.

■ Have a list of all the medications you take. Show this to any doctor or dentist who treats you. Also show it to your pharmacist before you buy any prescription or over-the-counter medication. Your pharmacist can tell you which medications can cause problems when taken together.

Medications Can Have Side Effects

Some heart medications cause side effects. These can include nausea, dry cough, dizziness, muscle cramps, or changes in your heart rhythm. To know what to expect, talk with your doctor or pharmacist. They can suggest ways to lessen any side effects you have.
Treating Rhythm Problems

Certain devices may be attached to the heart to regulate a slow or abnormal heart rhythm. This helps take strain off the heart.

- A pacemaker is a small electronic device that treats a slow heartbeat. Some pacemakers stimulate only one side of the heart. Others (called biventricular pacemakers) stimulate both sides of the heart.
- An ICD (implantable cardioverter defibrillator) is a device that treats fast heart rhythms when they become life-threatening.

Treating Artery and Valve Problems

If you have coronary artery disease or valve disease, procedures may be done to improve blood flow. This helps the heart pump better.

- Angioplasty and stenting expand narrowed arteries. These procedures are done during cardiac catheterization.
- Bypass surgery allows blood to flow around a clogged artery.
- Valve surgery repairs or replaces faulty valves so blood can flow properly.

Procedures That May Help

Certain procedures may help in some cases of heart failure. They are done to treat health problems that are affecting your heart. These procedures are not the best options for all patients. If any of them can help you, your doctor will give you more details.

In Severe Cases

For a few people who are very sick, a heart transplant may be an option. In some cases, an artificial pump is first attached to the heart to help it pump. Then, the heart is replaced with a healthy heart from a donor who has died. A heart transplant is very serious and not an option for all patients. Your doctor can tell you more.
Reading Food Labels

Read food labels to keep track of how much sodium you eat. Keep in mind that canned, frozen, and processed foods can be high in salt. Check the amount of sodium in each serving. (Remember, there may be more than one serving in the package.) Also, watch out for high-sodium ingredients like MSG (monosodium glutamate), baking soda, and sodium phosphate. Your healthcare provider will tell you how much sodium is okay for you to eat each day.

Making Changes to Your Diet

Salt (sodium) causes fluid to build up in the body. This makes the heart work harder to pump blood. Fluid buildup also causes symptoms such as shortness of breath and edema. Controlling the amount of salt you eat may help prevent fluid from building up. Your doctor may tell you to reduce the amount of fluid you drink as well.

As you shop, check food labels to see how many milligrams (mg) of sodium are in each serving.
Eating Less Salt
Give yourself time to get used to eating less salt. It may take a little while, but your heart is worth it. Here are some tips to help:

- Take the saltshaker off the table. Replace it with salt-free herb mixes and spices. (Many salt substitutes are high in potassium, which can be dangerous if you take certain diuretics. Ask your doctor about safe choices.)
- Eat fresh or plain frozen vegetables. These have much less salt than canned vegetables. If you use canned vegetables, rinse them well.
- Choose low-sodium snacks such as sodium-free pretzels, crackers, or air-popped popcorn.
- Get a cookbook containing low-salt recipes. It can give you ideas for meals that are healthy for your heart and taste great, too.
- Don’t add salt to food when you’re cooking. Instead, season your foods with pepper, lemon, garlic, or onion.
- When you eat out, ask that your food be cooked without added salt.
- If you buy antacid tablets, choose a brand that’s sodium-free.

If You’re Told to Limit Fluid
You may need to limit your fluid intake to help prevent edema. This includes anything that is liquid at room temperature, such as ice cream and soup. If your doctor tells you to limit fluid, try these tips:

- Measure drinks in a measuring cup before you drink them. This will help you meet daily goals.
- Chill drinks to make them more refreshing.
- Suck on frozen lemon wedges to quench thirst.
- Only drink when you’re thirsty.
- Rinse your mouth with water but don’t swallow it.
- Chew sugarless gum or suck on hard candy to keep your mouth moist.

Other Things to Avoid
Heart failure patients are also sometimes told to restrict caffeine and alcohol. Other dietary guidelines may be given if you have other health problems. If you have questions about what’s safe to eat or drink, ask your healthcare provider.
Staying Active to Help Your Heart

Your heart muscle needs exercise to help it work. Aerobic activities, such as walking, help exercise the heart. When you stay active, you may also feel less tired and have fewer symptoms. And staying active can help you feel better about yourself and your health.

Tips for Keeping Active

Stay as active as feels comfortable. Continue day-to-day activities as long as you don’t feel tired or short of breath. Try these tips:

- Plan activities like a walk around the block. If the weather is bad, try walking around an indoor shopping mall instead. Light gardening and swimming are other options that may work for you. Talk to your healthcare provider about safe choices.
- Stop and rest if you feel tired or short of breath.
- Pace yourself. If you can’t hold a conversation during activity, you’re pushing yourself too hard.
- Know your limits. You’ll likely have good days and bad days. Your healthcare provider can help you develop activity guidelines or even an exercise program that works for you.

Try activities that involve family and friends. You can help your heart and enjoy yourself at the same time!

Signs of Overexertion

Stop exercising and call your doctor if you feel any of these symptoms:

- Chest pain or discomfort
- Burning, tightness, heaviness, or pressure in your chest
- Unusual aching in your arm, shoulders, neck, jaw, or back
- Trouble catching your breath
- A racing or skipping heart
- Extreme tiredness (especially after exercise)
- Lightheadedness, dizziness, or nausea
Sexual Activity

It’s normal to worry about how much your heart can handle. Don’t be afraid to ask your healthcare provider about safe activities, including sex. In most cases, sex will not damage the heart. It may help to know that:

- It’s normal to be less interested in sex when you’re coping with heart failure. Some of your medications may make you feel less interested, too. Sharing your concerns with your partner can help you both feel better.
- You may feel more relaxed having sex when you are well rested and are not under stress. If you feel discomfort during sex, stop and rest.
- There’s more to sex than intercourse. Try other types of intimacy to feel close to your partner.

Cardiac Rehab Programs

Cardiac rehab is a supervised, personal exercise program designed to improve your heart’s health. These programs often take place at the hospital or at another medical center. Ask your healthcare provider about programs that may be right for you. During cardiac rehab:

- You may walk on a treadmill as a basic form of exercise. Some programs also use equipment, such as stationary bikes, arm cranks, and light weights. You will be shown how to use these so they help the most.
- Your heart rate and blood pressure will be watched closely as you exercise. This helps you and your doctor know how much activity is safe for your heart. You might be surprised at how much you can do!
When to Call Your Healthcare Provider

If symptoms are not under control, changes may need to be made to your treatment plan. Stay alert to any changes in your body. Call your doctor if:

- You have tightness or pain in your chest, arm, or jaw. (Call 911!)
- Your symptoms get worse.
- You notice new symptoms from your medication.
- Breathing becomes more difficult, or you start coughing at night.
- You gain weight rapidly.
- Your feet or ankles swell more than usual.
- You get tired more easily.
- You have dizzy spells or you faint.
- Your abdomen swells.
- Your heart beats faster than normal.

Weighing Yourself

Rapid weight gain can be a sign that you are retaining water. This may mean that your treatment plan needs to be changed. To monitor your weight:

- Weigh yourself at the same time every morning, wearing the same clothes. Always use the same scale. Weigh yourself after urinating and before eating.
- Write down your weight each day. (Use the chart on the next page.)
- Call your doctor if you gain 3 or more pounds in 1 day, or if you gain 5 or more pounds in 1 week. Your doctor will tell you what to do next.

Weighing Yourself every day to make sure you’re not retaining water.

Keeping Track of Your Health

As you deal with heart failure, it’s normal to have good days and bad days. Staying aware of what’s happening in your body may help increase the number of good days. This is especially true of your weight, which should be checked every day. By keeping track of your symptoms and discussing them with your healthcare provider, you will know how well your treatment plan is working.
More Ways to Stay Healthy

Certain things make it harder for your heart to do its work. These risk factors can make heart failure worse. With your healthcare provider’s help, you can control some of your risk factors. This can help your heart and also help you feel better overall.

Control Your Risk Factors

Talk to your healthcare provider about ways to control risk factors that can make heart failure worse. Here are some things you should know:

- Smoking damages your blood vessels, reduces the oxygen in your blood, and makes your heart beat too fast. If you smoke, talk to your doctor about quitting.
- Being overweight makes your heart work harder. Ask for help with losing excess weight.
- Having high blood pressure or high cholesterol levels damages artery walls and increases your chances of coronary artery disease. Work with your doctor to treat these problems.

Manage Stress

Day-to-day life can be stressful. On top of that, living with heart failure can make stress worse. Emotional stress can put a strain on your heart. When you’re under stress, you may also have less energy and your symptoms may be worse. Learn to reduce stress to help improve your health. To get started, try these tips:

- Sit or lie back in a comfortable chair. Take a slow, deep breath. Hold it for 5 counts. Then breathe out slowly through your mouth. Keep doing this until you feel relaxed.
- Picture yourself in a peaceful place, such as the beach. Feel the warm sand. Hear the waves. Smell the ocean. Doing this may help you feel more relaxed.
Coping with Heart Failure

When you’re living with heart failure, it’s normal to feel sad or down at times. Some medications can also affect your mood. Following your treatment plan may seem like a lot to remember. If you feel overwhelmed, just focus on one day at a time. Don’t be afraid to ask others for help when you need it.

Ways to Feel Better

Try not to withdraw from family and friends, even if you are finding it hard to talk with them. They can still be a good source of support. To feel better, you can also:

- Spend time doing things you enjoy. This may include participating in a favorite hobby, meditating, praying, or spending time with people you care about.

- Share what you learn about heart failure with the people in your life. Invite family members along when you visit your healthcare provider.

- Think about joining a support group for people with heart failure. It may be easier to talk to people who know firsthand what you’re going through. They can offer advice and share stories. You may want to ask loved ones to join you for a meeting.