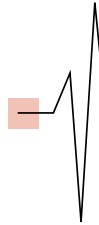




BRIGHAM AND
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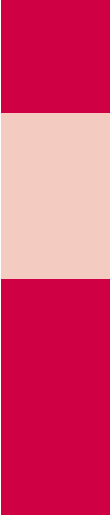
CARDIOVASCULAR
CENTER

Understanding and Treating Heart Failure

A Guide for Patients and Families

BRIGHAM AND WOMEN'S/FAULKNER HOSPITALS

Member of  PARTNERS[®] HealthCare



This guide was written by the members of the Advanced Heart Disease Program at Brigham and Women's Hospital to help you understand heart failure. We hope the information will help you care for yourself. Be sure to discuss any questions or concerns you may have with your care providers as you read through this guide.

TAKE HEART AND TAKE CHARGE.

You will feel better if you, in partnership with your doctor or nurse, take charge of your heart failure.

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Understanding Heart Failure

What is heart failure?

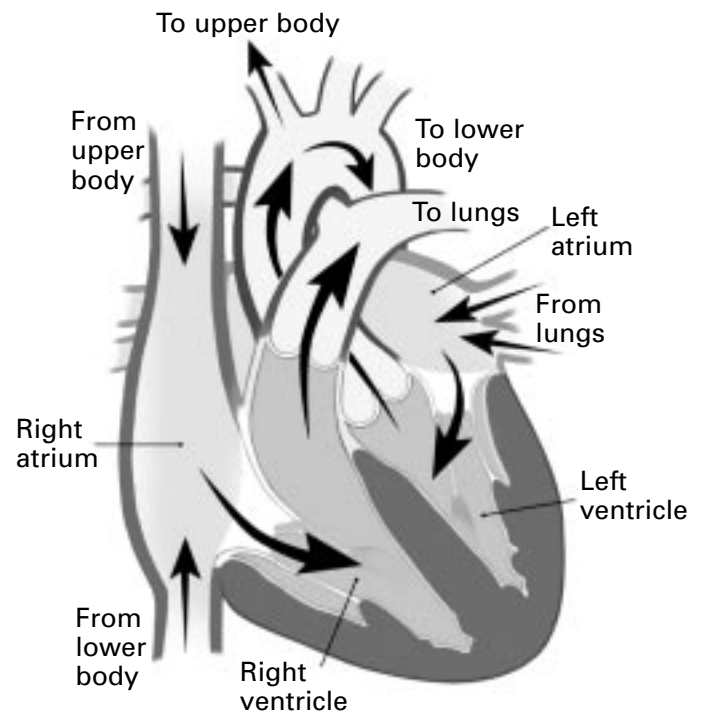
Heart failure is often misunderstood. Many people think heart failure means that their heart will stop beating. If you have heart failure, it means that your heart has lost some of its ability to pump blood.

There are two kinds of heart failure. In the first kind, the heart muscle has weakened and cannot pump enough blood out with each beat. This is called “systolic heart failure.” In the second kind, the heart pumps normally but the heart muscle has become stiff. Your heart has lost its ability to relax and does not completely fill with blood. This is called “diastolic heart failure.”

Don't be discouraged by the word “failure”. For most patients, heart failure cannot be cured, but you can help to keep it from getting worse or even make it better by taking your medicine, eating the right foods, watching your fluids and exercising. If you take care of your heart, you can feel better and enjoy life more.

How does the normal heart work?

The heart is a muscle. It has four chambers that pump blood. The upper two chambers are called the “atria” and the lower two chambers are called the “ventricles”. The heart is really two pumps that work together to move blood through the body. The right-sided pump fills with blood returning from the body and pumps it to the lungs to receive oxygen. This right-sided pump is a thinner muscle than the left-sided pump because it only has to pump blood to the lungs. The left side of the heart receives blood from the lungs and pumps it out to all parts of the body. This left-sided pump is a thick, strong muscle. The heart has an electrical system that sends impulses to tell the heart muscle when to pump.



What happens in heart failure?

If you have heart failure, your heart may not pump enough blood to the lungs and other parts of the body during activity. This causes a shortage of oxygen and nutrients in the blood that may make you feel weak and tired. When the heart is not pumping well, it can cause a backup of blood. This backup of blood causes fluid to leak from the blood vessels into the tissues. This is called “congestion”. In the lungs, congestion may lead to difficulty breathing. In the ankles and legs, the congestion or backup of fluid causes swelling. In the belly, congestion may cause fullness or loss of appetite.

What causes heart failure?

Any disease that weakens the heart muscle can lead to heart failure. The most common causes of heart failure are:

- Blockages in the blood vessels that may lead to a heart attack
- High blood pressure that may cause diastolic heart failure
- Disease of the heart valves
- Diabetes
- Infections of the heart muscle
- Cancer drugs
- Genetic abnormalities that run in families

In many cases, the cause is never known. When the cause cannot be found, it is called “Idiopathic Cardiomyopathy.” (i-dee-o-PATH ik CAR-dee-o-my-OP-a-thee)

What is the cause of my heart failure?

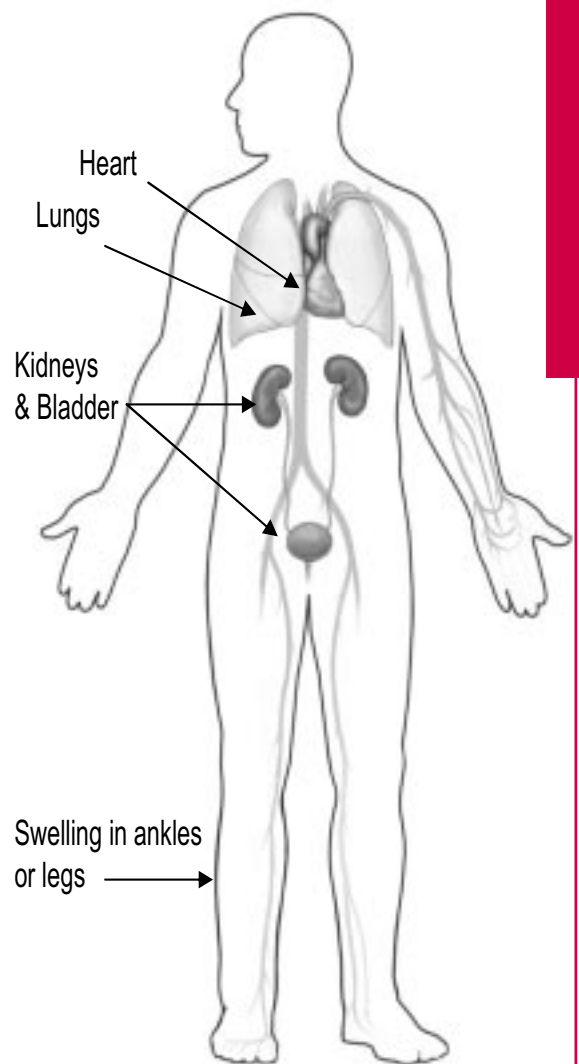
What are the symptoms of heart failure?

Many of the symptoms of heart failure can also be symptoms of other medical problems.

Do you have any of the following symptoms?

- Weight gain of more than 2 pounds overnight or 5 pounds in a week
- Shortness of breath after climbing a flight of stairs or getting dressed
- Difficulty breathing when lying down
- Cough
- Weakness or tiredness
- Swelling in your ankles or legs
- Loss of appetite
- Belly pain and fullness

If you develop any of these symptoms or they are getting worse, call your doctor or nurse.



Diagnosing Heart Failure

How does your doctor know if you have heart failure?

The first clues of heart failure are shortness of breath or feeling weak with activity. If your doctor thinks you have heart failure, some tests may be needed. These tests help your doctor find out the cause of your symptoms and decide the best treatment for you.

Tests you may have

Electrocardiogram (ee-LEK-tro-KAR-dee-o-gram), also called “EKG” or “ECG”, records the electrical activity of your heart. It may show irregular beats or abnormal areas of the heart.

Echocardiogram (eh-ko-KAR-dee-o-gram), often called “Echo,” is an ultrasound of your heart. It uses sound waves to measure the heart’s size and shape and looks at your heart valves. It also looks at how well your heart fills with blood and how well it pumps. This is known as the “ejection fraction.” Your ejection fraction is the percentage or amount of blood pumped with each heartbeat. The normal ejection fraction is between 55% and 70%. This number is often lower in patients who have heart failure.

Chest X-ray is a picture of your heart and lungs. Your doctor can see if your heart is enlarged or if there is a lot of fluid in your lungs.

MRI or Magnetic Resonance Imaging (mag-NET-ik REZ-o-nans IM-a-jing) uses a combination of radio waves in a magnetic field to produce a three-dimensional picture of your heart. The doctor can see the blood vessels and chambers of your heart in more detail.

Cardiopulmonary Exercise Test (KAR-dee-o-PULL-moan-air-e) is a kind of stress test. This test measures the ability of your heart and lungs to deliver oxygen to the tissues of your body while you exercise. During this stress test, you will pedal a bicycle or walk on a treadmill and use a mouthpiece to breathe.

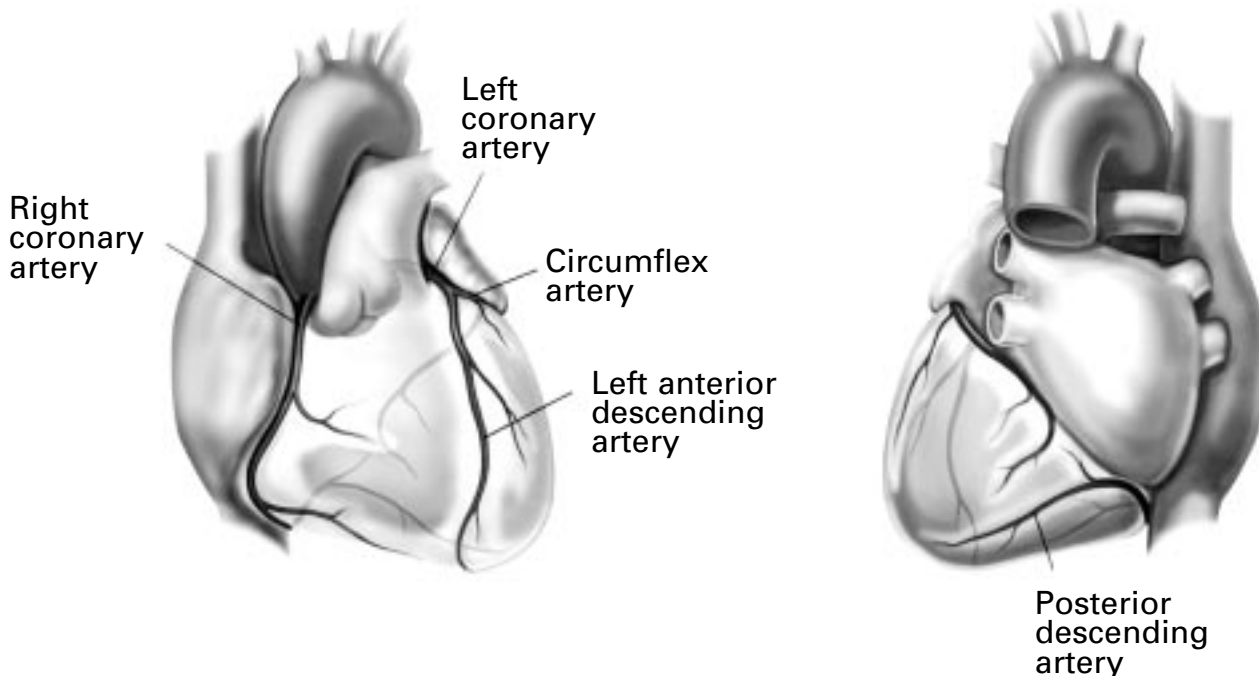
MIBI Stress Test (mi-BEE) is another type of stress test. This is a test to find out how well your heart muscle is supplied with blood when you are at rest and when you exercise.

PET (Positron Emission Tomography) Scan (POZ-e-tron e-MISH-un tom-OG-ra-fee) is another test to measure the blood flow to the heart muscle and to look for signs of blockages in the vessels that supply blood to the heart muscle. This test also looks for small areas of the heart that need oxygen and may be damaged but are still alive.

Blood Tests may be taken to find out possible causes of your heart failure.

Heart Catheterization is done under sterile conditions in the Cardiac Catheterization Laboratory (also called the “Cath Lab”), which looks very much like an operating room. There are two kinds of heart catheterization:

- **Right heart catheterization** - a small plastic tube called a “catheter” is inserted into a vein in your neck or leg. The doctor can measure blood pressures and blood flow in the right side of your heart. Sometimes a small piece of tissue called a “biopsy” is taken from the heart during the procedure and examined to determine a possible cause of your heart failure.
- **Left heart catheterization** – a small plastic tube called a “catheter” is inserted into an artery in your groin or wrist. Dye is then injected into your coronary arteries. “Coronary arteries” are blood vessels located around the outside of your heart that supply oxygen to the heart muscle itself. The dye outlines the coronary arteries so your doctor can see them on x-ray and check for blockages.



Treating Heart Failure

How is heart failure treated?

There is no cure for heart failure, but you can prevent your heart failure from getting worse and often help it get better. Here are some things that you can do to feel better.

- Take your medication
- Eat low sodium (low salt) food
- Watch your fluid intake
- Exercise
- Make lifestyle changes
 - Weigh yourself every day
 - Quit smoking
 - Avoid alcohol
 - Go to your doctor's appointments

Take Your Medication

Medication can control your heart failure symptoms such as difficulty breathing, weakness and swelling in your ankles and legs. Your doctor may prescribe some of the following medications. By taking your medication you will feel better and help prevent your symptoms from getting worse.

■ Diuretics --- also called “water pills”

When you take diuretics or water pills, you urinate more frequently. Diuretics help your kidneys remove salt and water from your bloodstream and decrease the water in your body. Three good things happen when you lower extra water in your body:

- It makes your breathing more comfortable.
- It makes the swelling in your ankles, legs, and belly go down.
- It makes it easier for your heart to pump.

If too much water is lost you will become dehydrated. You may feel dizzy and weak as a result.



There are many different kinds of diuretics. Which diuretic or water pill are you taking?

- (furosemide) Lasix
- (torsemide) Demadex
- (bumetanide) Bumex
- (metolazone) Zaroxolyn
- (hydrochlorothiazide) HCTZ
- (spironolactone) Aldactone
- _____

■ Medicines that may help you live longer

ACE Inhibitors ---- (Angiotensin Converting Enzyme Inhibitors)

ACE Inhibitors help to prevent weakening and scarring of the heart, and may also protect your kidneys and blood vessels. These medications “vasodilate” or relax your blood vessels and may lower your blood pressure. Two good things happen when you lower your blood pressure:

- Your heart does not have to work as hard
- Your heart failure may not get worse and may even get better

Are you taking an ACE Inhibitor?

- (enalapril) Vasotec
- (captopril) Capoten
- (ramipril) Altace
- (lisinopril) Prinivil, Zestril
- (quinapril) Accupril
- _____

Angiotensin Receptor Blockers (ARBs)

Angiotensin Receptor Blockers are similar to ACE inhibitors and also may lower your blood pressure. Your doctor may order ARBs if you are unable to take an ACE inhibitor usually due to a cough.

Are you taking an Angiotensin Receptor Blocker (ARB)?

- (losartan) Cozaar
- (valsartan) Diovan
- (irbesartan) Avapro
- (candesartan) Atacand
- _____

Beta Blockers

Beta Blockers help to protect the heart after injury and may improve heart function. By slowing your heart rate, beta blockers also give your heart more rest time between beats.

Are you taking a Beta Blocker?

- (metoprolol) Lopressor, Toprol XL
- (carvedilol) Coreg
- _____

Things you can do about your medication:

- Know the names of your medicines and what they do
- Know how often to take them
- Always carry your medication card with you
- Take your pills

Call your doctor or nurse if.....



- You are about to run out of pills
- You are not able to take your pills
- You have side effects from your pills
- You start any new medication

Eat Low Sodium (Low Salt) Food

Sodium is a mineral that is used by the body in small amounts. Most people get most of their sodium from salt, which is contained in almost every food. When you eat sodium or salt, your body holds on to water, which can make your heart failure worse.

Eating low sodium (low salt) food can make you feel better. A low sodium diet means eating between 2,000 - 3,000 milligrams (mg) of sodium per day. Ask your doctor or nurse what is right for you.

Things you can do:

- Read food labels for the sodium amounts
- Choose foods low in sodium
- Eat:
 - o Fresh fruit
 - o Fresh vegetables
 - o Fresh meat
 - o Fresh fish

This is an example of a high sodium food

Things not to do:

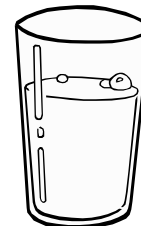
- Do not eat any more than _____ milligrams (mg) of sodium per day
- Do not put salt on your food
- Do not eat:
 - o Cheese
 - o Deli meat
 - o Canned foods
 - o Salted snack foods
 - o Mixed spices with hidden sodium (salt)

Your doctor, nurse, or dietician can help you choose foods that are low in sodium. They can help you change your favorite meals and recipes to be lower in sodium.

Nutrition Facts			
Serving Size 1 pretzel (about 25g)			
Servings Per Container 20			
Amount Per Serving			
Calories 90	Calories from Fat 0		
% Daily Value*			
Total Fat 0g			0%
Saturated Fat 0g			0%
Cholesterol 0mg			0%
Sodium 470mg			20%
Total Carbohydrate 19g			6%
Dietary Fiber less than 1g			4%
Protein 1g			
Vitamin A •		Vitamin C •	
Calcium •		Iron •	
* Contains less than 2% of the Daily Value of these nutrients			
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
		Calories	2,000 2,500
Total Fat	Less than	45g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Watch Fluid Intake

You may need to limit your fluid intake to 2 liters / 2 quarts per day. If you need high doses of diuretics to get rid of fluid, it is important not to take in too much liquid. This will help prevent difficulty with breathing or swelling in your ankles or feet. Your doctor or nurse may want you to measure all of the fluids that you drink including anything that becomes liquid at room temperature. If it melts, like ice cream, it is a liquid. Ask your doctor or nurse what your fluid limit is.



1 small glass = 8oz
8 glasses = 64 oz
or 2 liters

Things you can do if you need to limit fluids:

- Measure drinks in a measuring cup before you drink them
- Use gum or sugar free mints to quench your thirst
- Chill drinks to make them more refreshing
- Limit your fluids to _____

Exercise Every Day

Just because you were diagnosed with heart failure does not mean you should not exercise. In fact, your heart is a muscle and like any other muscle it needs to work to stay healthy. Exercise helps to strengthen your body. You should exercise every day.

Talk to your doctor about your exercise plan before you start. The goal for most people with heart failure is to do 30 minutes of exercise each day. Remember to start slowly. Start by exercising 5 to 10 minutes a day. Increase the time of your exercise until you reach 30 minutes a day. When you have finished exercising, you should feel like you could still do more. If you feel wiped out, then you have done too much.

Great ways to exercise are:

- Walking
 - Take a friend with you for company
 - During bad weather try walking at a mall
- Biking
 - Try a stationary bike
- Swimming
 - Join water aerobics at a health club or your community pool



In the beginning, you may feel anxious about starting physical activities or you may feel too weak or tired to exercise. However, once you begin regular exercise, you will begin to feel better. By keeping active, you may be able to do more of the things you enjoy.

Call your doctor or nurse if:



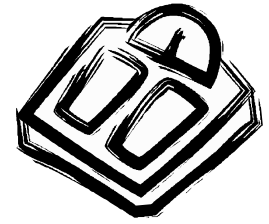
- You plan to start any kind of exercise program
- You are short of breath at rest or with mild activity
- You are tired for more than a day after a lot of activity

Make Lifestyle Changes

Choosing a heart healthy lifestyle means maintaining a healthy weight, quitting smoking and avoiding alcohol.

Record Your Weight Every Day

Weigh yourself every morning and write it down. Weight gain may signal that your body is holding on to water. This means your heart failure is getting worse.



Things you can do:

- Weigh yourself every morning at the same time
- Write your weight on a calendar or chart
- Call your doctor or nurse if you gain more than two pounds overnight or more than five pounds in a week

Quit Smoking

Smoking is bad for everyone, but it is especially bad for people with heart failure. Smoking may make your heart failure worse.



Quitting can be difficult, but you can do it!

Things you can do if you smoke:

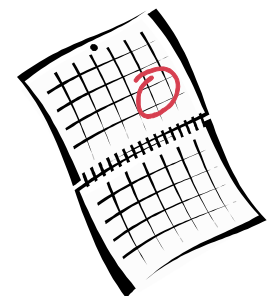
- Ask your doctor or nurse about the BWH Quit Smoking Program.
- Join a program in your community.
You can visit www.trytostop.org or call 1-800-TRY-TO-STOP (800-879-8678) for listings of services throughout New England.

Avoid Alcohol

Most doctors say avoid drinking alcohol if you have heart failure. Ask your doctor what is best for you.

Follow-up with your Doctor and Nurse

One of the best ways to take care of your heart is to keep in contact with your doctor or nurse. By closely watching your symptoms and calling your doctor or nurse with any changes, you may be able to prevent a hospital stay.



Things you can do:

- Keep in contact with your doctor or nurse.
- TAKE CONTROL OF YOUR HEART FAILURE!!!

Looking Ahead

New Treatments

There have been many new developments in treating heart failure. If medication and lifestyle changes are not enough to control your symptoms, your doctor may suggest:

Cardiac Resynchronization Therapy (CRT)

A normal heart sends electrical signals to both lower chambers or “ventricles” of the heart to make them pump at the same time. Sometimes in heart failure patients, the two chambers do not pump together. A special pacemaker called CRT is a small battery-powered device that is placed under the skin that helps make the two sides of the heart beat together. It has special wires called “leads” that send tiny electrical signals to the heart telling the heart muscle when to pump. CRT is a pacemaker that tells both ventricles to pump at the same time, so it has leads on the right and left side of the heart. CRT can reduce your heart failure symptoms and increase your ability to exercise and be more active.

Implantable Cardioverter Defibrillator (ICD)

Some patients with heart failure have dangerously fast heartbeats called “ventricular tachycardia” or “ventricular fibrillation.” This fast heartbeat can cause serious symptoms such as fainting or even death. An ICD is like a pacemaker that can be inserted under your skin. It can recognize a dangerous heart beat and send an electrical signal to the heart and return the heart back to a normal heartbeat. If your heart needs both a CRT and an ICD, they can be placed at the same time using one device.

Ventricular Assist Device (VAD)

A Ventricular Assist Device (VAD) is a mechanical pump inserted into your body to improve blood flow. If you have severe heart failure, your heart is unable to pump enough blood to your body’s organs and tissues, and a VAD may be needed. You will need open heart surgery to implant the mechanical pump. The VAD works together with your own heart to pump more effectively. VADs can stabilize your heart condition and allow you to become stronger and feel better. This option may not be possible for everyone.

Heart Transplantation

Heart transplantation is an operation to replace a diseased heart with a healthy heart. Heart transplantation is a treatment used for severe heart failure when a patient may be at risk of dying. This is an option only for a few people who, except for their heart problem, are otherwise in very good health.

Research and Clinical Studies

Medical research is ongoing to discover new treatments, especially for heart failure. New surgical procedures are currently being done. In addition, research using stem cells and artificial hearts are in the early stages. There are several clinical studies involving drugs and mechanical devices that are underway which may bring new treatments in the future. Brigham and Women’s Hospital participates in many clinical studies that are ongoing. If you are interested, you should ask your doctor or nurse about possibly enrolling in one of them.



Important Phone Numbers

CALL	WHO	WHEN
911	Emergency	If you are having a life threatening emergency
	Doctor:	If you have any of the following symptoms:
		<input type="checkbox"/> Weight gain of 2 lbs. overnight
		<input type="checkbox"/> Increased shortness of breath
	Nurse:	<input type="checkbox"/> Difficulty breathing when lying down
		<input type="checkbox"/> Increased weakness/tiredness
		<input type="checkbox"/> Increased swelling in your legs and feet
		<input type="checkbox"/> Loss of appetite
		<input type="checkbox"/> Belly pain and fullness
617-732-4837	Brigham Medical Specialties	To make or change appointments





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