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Patient education: Heart failure (Beyond the Basics)

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INTRODUCTION — Heart failure is a condition that occurs when the heart cannot pump or fill with enough blood, which means that the heart must work harder to deliver blood to the body. The term "heart failure" is misleading because the heart does not completely fail or stop. Heart failure can be mild and cause minor symptoms, or it may be severe or even life-threatening. The most common symptoms of heart failure are shortness of breath, feeling tired, leg swelling, and other signs of fluid retention.

Although heart failure is a serious condition, safe and effective treatments are available. Treatment can help you to feel better and live longer.

This article discusses the most common causes, symptoms, and treatment of heart failure. More detailed information about heart failure is available by subscription. (See "[Evaluation of the patient with suspected heart failure](#)" and "[Determining the etiology and severity of heart failure or cardiomyopathy](#)" and "[Overview of the therapy of heart failure with reduced ejection fraction](#)".)

TYPES OF HEART FAILURE — The heart is composed of four chambers: The two upper chambers are the right and left atria, and the two lower chambers are the right and left ventricles ([figure 1](#)). The left ventricle plays a key role because it pumps blood to the entire body. In a person with heart failure, the heart cannot adjust to the body's changing need for oxygenated blood (for example, when climbing stairs).

There are two main types of heart failure. They are defined based on whether the "ejection fraction" (which indicates how well the left ventricle is able to pump) is preserved or reduced:

- In "**heart failure with reduced ejection fraction**" (also called "HFrEF" or "systolic heart failure"), the heart is too weak. When the heart pumps, it doesn't squeeze normally.
- In "**heart failure with preserved ejection fraction**" (also called "HFpEF" or "diastolic heart failure"), the heart is too stiff. When the heart pumps, it doesn't relax and fill with blood normally.

HEART FAILURE CAUSES — Heart failure is caused by a disease or condition that damages the heart. Fortunately, treating these conditions during the early stages can often prevent or slow development of heart failure. The most common causes of heart failure include:

High blood pressure (hypertension) — In people with high blood pressure, the heart must work harder to pump blood. This increased workload can, over time, lead to an enlarged heart that does not work well. (See ["Patient education: High blood pressure in adults \(Beyond the Basics\)".](#))

Coronary heart disease — Coronary heart disease causes narrowing of the blood vessels that supply ("feed") the heart muscle, reducing the flow of blood through the vessels. As a result, portions of the heart muscle are deprived of oxygen (especially during exercise, when the body needs more blood supply and oxygen), and the heart does not perform its work as well. Coronary heart disease can also lead to a heart attack (also called a myocardial infarction), which causes permanent damage to the heart muscle. Coronary heart disease can cause heart failure when it impairs the function of the heart.

Heart valve disease — A number of conditions, including heart attack and aging, can damage the heart valves.

- The valve can become narrowed (stenosed), which interferes with blood flow through the valve and increases pressure in the heart.
- In other cases, the valve can become leaky (insufficient), causing blood to flow backward (regurgitation). (See ["Patient education: Mitral regurgitation \(Beyond the Basics\)".](#))

Some valves become both stenosed and regurgitant.

Cardiomyopathy — In cardiomyopathy, the structure and/or function of the heart muscle is altered, leading to a poorly pumping heart that may exhibit either HFrEF or HFpEF. (See ["Patient education: Dilated cardiomyopathy \(Beyond the Basics\)".](#))

HEART FAILURE SYMPTOMS — As the amount of blood pumped by the heart (the cardiac output) decreases, a variety of symptoms can develop.

- Weakness, particularly of the legs when exercising.
- Lightheadedness or dizziness.
- Shortness of breath, which might require you to be less active or sleep with several pillows to elevate your head.
- A rapid heart rate, even while resting.
- Swelling in the lower legs and feet (edema) or in the abdomen (ascites). (See ["Patient education: Edema \(swelling\) \(Beyond the Basics\)".](#))
- Feeling tired or fatigued quickly.

HEART FAILURE DIAGNOSIS — Heart failure is diagnosed based upon your medical history, an exam, and a series of tests. These tests can tell your doctor how well your heart is working and can help determine the cause of your heart failure. Tests may include:

- Electrocardiogram (EKG) – An EKG provides a picture of the electrical activity that causes the heart to beat. An EKG may detect conditions, such as an abnormal heart rhythm or a previous heart attack that could cause heart failure.
- A blood test known as brain natriuretic peptide (BNP) or N-terminal pro-BNP (NT-proBNP). The BNP or NT-proBNP level is elevated in people with heart failure

- Chest X-ray – A chest X-ray shows the size and shape of the heart and the large blood vessels in the chest. It also can show if there is fluid in the lungs.
- Echocardiogram – An echocardiogram uses ultrasound (high-frequency sound waves) to assess the size and function of the heart's chambers and the structure and function of the heart valves. This includes measuring how well the left ventricle pumps (known as the “ejection fraction”). A follow-up echocardiogram can be done to see if your heart function changes over time.
- Exercise testing – An exercise test (“stress test”) determines how well your heart performs during exercise. It is one way to look for signs of a shortage of blood supply to your heart caused by blockages in the coronary arteries. A doctor or nurse will see how your heart responds to exercise by looking at the EKG, blood pressure, and heart rate as you walk on a treadmill. In addition, pictures may be taken to measure the effect of exercise on the heart.
- Heart (cardiac) catheterization – Cardiac catheterization helps to measure how well the heart is functioning and provides pictures of the coronary arteries to look for blockages. During the test, a thin tube (the catheter) is inserted through a large blood vessel in the groin (or arm) and advanced into the heart. A dye is injected into the catheter to view the arteries and the structure of the heart by X-ray. The pumping function of the heart can also be assessed during catheterization.
- Other tests – Computed tomography (CT), magnetic resonance imaging (MRI), and nuclear scanning are sometimes used to look at the heart muscle and coronary arteries in specific situations.

HEART FAILURE COMPLICATIONS — Heart failure can cause symptoms and make you feel ill. It can cause dangerous, even life-threatening complications. Left untreated, heart failure generally is a progressive condition. The goal of treatments for heart failure is to reduce symptoms, reduce the chance of developing complications and slow or stop the progression of the underlying process. Some common complications include:

- Irregular heart rhythms (called arrhythmias), which can make symptoms worse or cause blood clots. Some irregular heart rhythms are life threatening.
- Kidney disease, which may be caused or worsened by heart failure. Kidney disease may also make heart failure worse.
- Liver disease, which may be caused by heart failure

HEART FAILURE TREATMENT — In most people, heart failure is a chronic problem, meaning that it continues for months and years. Heart failure is generally treatable but rarely goes away completely. Treatment usually includes a combination of changes in your diet and lifestyle, medicines, and sometimes a device to protect your heart from abnormal rhythms.

Diet and lifestyle — Changes in diet and lifestyle are often recommended to treat heart failure. The most common recommendations include:

- Decrease salt and water – Salt in the diet can cause the retention of excess fluid in the circulation, lungs, and elsewhere in the body. Therefore, managing the amount of salt (sodium) in the foods you eat can help to keep heart failure under control. Ask your doctor how much salt you should eat. Low-sodium diets are discussed separately. (See ["Patient education: Low-sodium diet \(Beyond the Basics\)"](#).)

The amount of fluid you drink is also important. People with **severe** heart failure should drink less than 2 liters (66 ounces) of fluid per day. This includes all fluids. Your doctor might give you more specific guidance on fluid limits based on your condition.

- Weigh yourself every day – To monitor your fluid levels, weigh yourself every day at the same time on the same scale (eg, in the morning after you urinate but before eating breakfast). Be sure to wear the same amount of clothing each time you weigh yourself. If your weight increases by 2 pounds (1 kilogram) in one day, call your doctor or nurse. Also, if your weight increases by four pounds (2 kg) in one week, call your doctor or nurse. Gaining weight suddenly is one sign that you may be retaining more fluid than you should be.
- Control your weight – If you are overweight, your heart must work harder to supply blood and oxygen to your body. Losing weight can help you to feel better and reduces the strain on your heart. On the other hand, losing a lot of weight quickly can be a sign of severe heart failure. For advice on weight management, talk to your doctor or nurse. (See "[Patient education: Weight loss treatments \(Beyond the Basics\)](#)".)
- Stop smoking – Cigarette smoking increases your risk of having a heart attack and can worsen heart failure. If you smoke, talk to your doctor or nurse to get help with quitting. (See "[Patient education: Quitting smoking \(Beyond the Basics\)](#)".)
- Limit alcohol – Drinking too much alcohol is not good for your heart or your health generally. People with heart failure should not drink more than one serving of alcohol per day (for women) or two servings per day (for men). One serving is 12 ounces of beer or 5 ounces of wine. If your heart failure is related to drinking too much, you should stop drinking alcohol completely. (See "[Patient education: Alcohol use — when is drinking a problem? \(Beyond the Basics\)](#)".)
- Cardiac rehab and exercise – Exercising most days of the week can help to improve the fitness of your cardiovascular system and exercising muscles, and thereby reduce shortness of breath and fatigue, which are common problems in people with heart failure. Becoming more active can also help you to feel better. For exercise advice, talk to your doctor or nurse. They might recommend a cardiac rehab program to help you develop a safe exercise plan. (See "[Patient education: Heart attack recovery \(Beyond the Basics\)](#)", [section on 'Cardiac rehabilitation after heart attack'](#).)

Medicines — Medicines are often used to treat heart failure symptoms; some medicines have even been proven to prolong life. It is very important to take these medicines on time every single day. If you cannot afford or have trouble taking your medicines, talk to your doctor or nurse.

There are some differences in the medications used to treat “heart failure with reduced ejection fraction” and “heart failure with preserved ejection fraction.”

Medicines for heart failure with reduced ejection fraction — Medicines commonly prescribed to treat heart failure with reduced ejection fraction include:

- **Diuretic** – People with heart failure often develop swelling (or edema) in the legs and fluid in the lungs. A diuretic (also called a “water pill”) helps the body get rid of the excess fluid. (See "[Patient education: Edema \(swelling\) \(Beyond the Basics\)](#)".)
- Angiotensin converting enzyme (ACE) inhibitor, angiotensin II receptor blocker (ARB), or angiotensin receptor-neprilysin inhibitor (ARNI) – An ACE inhibitor, ARB, or ARNI widens blood vessels and lowers blood pressure, making it easier for your heart to pump. These medicines also protect the heart from hormone effects that can happen when a person has heart failure. ACE inhibitors can sometimes cause a dry cough, in which case an ARB may be preferred. The ARNI sacubitril-valsartan is a newer heart failure medicine that can be used instead of an ACE inhibitor. These medications can help prolong life.

Some examples of ACE inhibitors include enalapril, captopril, and lisinopril (brand name: Zestril). Some examples of ARBs include losartan (brand name: Cozaar) and valsartan (brand name: Diovan). The ARNI

sacubitril-valsartan (brand name: Entresto) has two medicines in a single pill. One is the ARB called valsartan; the other is called sacubitril, and can help your body to retain less fluid and relax blood vessels.

- **Beta blocker** – A beta blocker can slow the heart rate and decrease blood pressure. A beta blocker also protects the heart from the adverse effects of certain hormones that are increased when a person has heart failure. It can take time to start working, and some people feel worse right after they start taking it. If your doctor prescribes a beta blocker, give it a little time to start working. This medication can help prolong life.

Some examples of beta blockers include carvedilol (brand name: Coreg), metoprolol (brand name: Toprol XL), and bisoprolol.

Ivabradine (brand name: Corlanor) is a newer type of drug to slow the heart rate. Your doctor might prescribe ivabradine if your heart rate is still a little fast with a beta blocker, or if you cannot take a beta blocker.

- **Mineralocorticoid receptor antagonist** – A mineralocorticoid receptor antagonist is a type of diuretic; it helps the body get rid of extra salt and fluid. However, it also helps the body hold onto potassium. That's important because other diuretics sometimes make the body lose too much potassium, which the body needs to work normally. Mineralocorticoid receptor antagonists might also protect the heart from hormone effects that can happen when a person has heart failure.

When taking this type of medicine, it is very important to have regular blood tests to check your potassium levels and see how your kidneys are working. Your doctor or nurse should follow the results of these tests closely.

Some examples of mineralocorticoid receptor antagonists include spironolactone (brand name: Aldactone) and eplerenone (brand name: Inspra).

- **Nitrate with hydralazine** – A nitrate and hydralazine work together to relax and expand blood vessels. This makes it easier for the heart to pump blood throughout the body. This combination of medicines is sometimes used in people who cannot take an ACE inhibitor. Unfortunately, the medicines often cause side effects (such as headaches and nausea), so doctors usually try other options before suggesting them.

These two medicines come in a single pill, but it is possible to get the two ingredients separately for much less money. The two ingredients come in pills of "isosorbide dinitrate" and "hydralazine."

- **Digoxin** – Digoxin helps the heart pump with more force. This can help reduce some of the symptoms of heart failure.

Medicines for heart failure with preserved ejection fraction — Medicines commonly prescribed to treat heart failure with preserved ejection fraction include:

- **Diuretic** – People with heart failure often develop swelling (or edema) in the legs and fluid in the lungs. A diuretic (also called a "water pill") helps the body get rid of the excess fluid. (See "[Patient education: Edema \(swelling\) \(Beyond the Basics\)](#)".)
- **Mineralocorticoid receptor antagonist** – A mineralocorticoid receptor antagonist is a type of diuretic; it helps the body get rid of extra salt and fluid. However, it also helps the body hold onto potassium. That's important because other diuretics sometimes make the body lose too much potassium, which the body needs to work normally. Mineralocorticoid receptor antagonists might also protect the heart from hormone effects that can happen when a person has heart failure.

When taking this type of medicine, it is very important to have regular blood tests to check your potassium levels and see how your kidneys are working. Your doctor or nurse should follow the results of these tests closely.

Some examples of mineralocorticoid receptor antagonists include spironolactone (brand name: Aldactone) and eplerenone (brand name: Inspra).

- **Medicine to control high blood pressure** – If you have high blood pressure, your doctor might prescribe medicines to control it.

Heart rhythm treatment — In some people with heart failure, an abnormal heart rhythm develops. Some abnormal heart rhythms are treated with medications.

If you have a condition that causes an abnormal heart rhythm, your doctor might recommend a device that shocks the heart and returns it to a normal rhythm. The device is called an implantable cardioverter-defibrillator (ICD). It is implanted under the skin in your upper chest. (See "[Patient education: Implantable cardioverter-defibrillators \(Beyond the Basics\)](#)".)

Another potential problem in people with heart failure is abnormal electrical conduction in the heart. This can cause the walls of the left ventricle to contract out of sync, making the heart work less efficiently. A special type of pacemaker, called cardiac resynchronization therapy (CRT) or biventricular pacing, can treat this problem. A device that includes both CRT and ICD is available, if needed. (See "[Patient education: Pacemakers \(Beyond the Basics\)](#)".)

Surgery or stenting — Surgery is sometimes recommended for people with heart failure who also have coronary heart disease or severe disease of the heart valves. This might include heart valve surgery or coronary artery bypass graft (CABG) surgery or both. (See "[Patient education: Coronary artery bypass graft surgery \(Beyond the Basics\)](#)".)

In some cases, coronary heart disease can be treated with a coronary artery angioplasty or stent procedure. (See "[Patient education: Stenting for the heart \(Beyond the Basics\)](#)".)

Treatment for advanced heart failure — Heart transplantation can be helpful for some people with severe heart failure that has not responded to other treatments. However, careful screening is required to ensure that heart transplantation is appropriate. In addition, the supply of hearts for transplant is limited, so most people must wait for months or even years before a heart is available. People who have a heart transplant are followed closely before and after surgery, since there are numerous risks. (See "[Patient education: Heart transplantation \(Beyond the Basics\)](#)".)

Your doctor might recommend a left ventricular assist device instead of transplantation **OR** while you wait for transplantation. These devices are implanted inside the chest and are designed to improve blood flow to the body when the heart pump is weakened. (See "[Intermediate- and long-term mechanical circulatory support](#)".)

HOW TO CARE FOR YOURSELF — Being diagnosed with heart failure can be frightening. There are a few basic guidelines that can help to manage your condition:

- Always take your medicines. Do not skip doses when you feel better. If you cannot afford your medicines, talk to your doctor or nurse.
- Tell your doctor if your medicines cause side effects or other problems. Your doctor might be able to switch to another medicine or lower your dose so that you do not have that problem.
- Look for signs that your heart failure is getting worse (see below) ([figure 2A-B](#)).

When to seek help — Call 911 for help if the following occur:

- Severe shortness of breath
- Chest discomfort or pain that lasts more than 15 minutes and does not get better with rest or nitroglycerin.
- Fainting or passing out.

Call your doctor or nurse if you develop any of the following, which can be signs of worsening heart failure:

- Increasing or new shortness of breath.
- New or worsened cough, especially if you are coughing up frothy or bloody material.
- Worsened swelling in your legs or ankles.
- Weight gain of two pounds (1 kilogram) in one day or four pounds (2 kg) in one week.
- Fast or irregular heartbeat.

WHERE TO GET MORE INFORMATION — Your healthcare provider is the best source of information for questions and concerns related to your medical problem.

This article will be updated as needed on our web site (www.uptodate.com/patients). Related topics for patients, as well as selected articles written for healthcare professionals, are also available. Some of the most relevant are listed below.

Patient level information — UpToDate offers two types of patient education materials.

The Basics — The Basics patient education pieces answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials.

[Patient education: Heart failure \(The Basics\)](#)

[Patient education: Swelling \(The Basics\)](#)

[Patient education: Dilated cardiomyopathy \(The Basics\)](#)

[Patient education: Medicines for heart failure with reduced ejection fraction \(The Basics\)](#)

[Patient education: Shortness of breath \(dyspnea\) \(The Basics\)](#)

[Patient education: ECG and stress test \(The Basics\)](#)

[Patient education: Nuclear heart testing \(The Basics\)](#)

[Patient education: Echocardiogram \(The Basics\)](#)

[Patient education: What can go wrong after a heart attack? \(The Basics\)](#)

[Patient education: Heart failure and atrial fibrillation \(The Basics\)](#)

[Patient education: Cardiac catheterization \(The Basics\)](#)

[Patient education: Cardiac resynchronization therapy \(The Basics\)](#)

[Patient education: High blood pressure emergencies \(The Basics\)](#)

[Patient education: Pleural effusion \(The Basics\)](#)

[Patient education: Sudden cardiac arrest \(The Basics\)](#)

[Patient education: Myocarditis \(The Basics\)](#)

[Patient education: Aortic dissection \(The Basics\)](#)

[Patient education: Tetralogy of Fallot \(The Basics\)](#)

[Patient education: Tricuspid regurgitation \(The Basics\)](#)

[Patient education: When your lungs fill with fluid \(The Basics\)](#)

[Patient education: Mitral stenosis in adults \(The Basics\)](#)

[Patient education: Heart failure with preserved ejection fraction \(The Basics\)](#)

[Patient education: Heart failure with reduced ejection fraction \(The Basics\)](#)

[Patient education: Stress cardiomyopathy \(The Basics\)](#)

Beyond the Basics — Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are best for patients who want in-depth information and are comfortable with some medical jargon.

[Patient education: High blood pressure in adults \(Beyond the Basics\)](#)

[Patient education: Mitral regurgitation \(Beyond the Basics\)](#)

[Patient education: Dilated cardiomyopathy \(Beyond the Basics\)](#)

[Patient education: Edema \(swelling\) \(Beyond the Basics\)](#)

[Patient education: Low-sodium diet \(Beyond the Basics\)](#)

[Patient education: Weight loss treatments \(Beyond the Basics\)](#)

[Patient education: Quitting smoking \(Beyond the Basics\)](#)

[Patient education: Alcohol use — when is drinking a problem? \(Beyond the Basics\)](#)

[Patient education: Heart attack recovery \(Beyond the Basics\)](#)

[Patient education: Warfarin \(Coumadin\) \(Beyond the Basics\)](#)

[Patient education: Implantable cardioverter-defibrillators \(Beyond the Basics\)](#)

[Patient education: Pacemakers \(Beyond the Basics\)](#)

[Patient education: Coronary artery bypass graft surgery \(Beyond the Basics\)](#)

[Patient education: Stenting for the heart \(Beyond the Basics\)](#)

[Patient education: Heart transplantation \(Beyond the Basics\)](#)

Professional level information — Professional level articles are designed to keep doctors and other health professionals up-to-date on the latest medical findings. These articles are thorough, long, and complex, and they contain multiple references to the research on which they are based. Professional level articles are best for people who are comfortable with a lot of medical terminology and who want to read the same materials their doctors are reading.

[Clinical manifestations and diagnosis of heart failure with preserved ejection fraction](#)

[Epidemiology and causes of heart failure](#)

[Management and prognosis of asymptomatic left ventricular systolic dysfunction](#)

[Evaluation of the patient with suspected heart failure](#)

[Overview of the therapy of heart failure with reduced ejection fraction](#)

[Prognosis of heart failure](#)

[Treatment and prognosis of heart failure with preserved ejection fraction](#)

[Determining the etiology and severity of heart failure or cardiomyopathy](#)

[Intermediate- and long-term mechanical circulatory support](#)

The following organizations also provide reliable health information.

- National Library of Medicine

(www.nlm.nih.gov/medlineplus/healthtopics.html)

- National Heart, Lung, and Blood Institute

(www.nhlbi.nih.gov)

- American Heart Association

(www.americanheart.org)

- Heart Failure Online

(www.heartfailure.org, also available in Spanish)

- European Society of Cardiology

(www.escardio.org)

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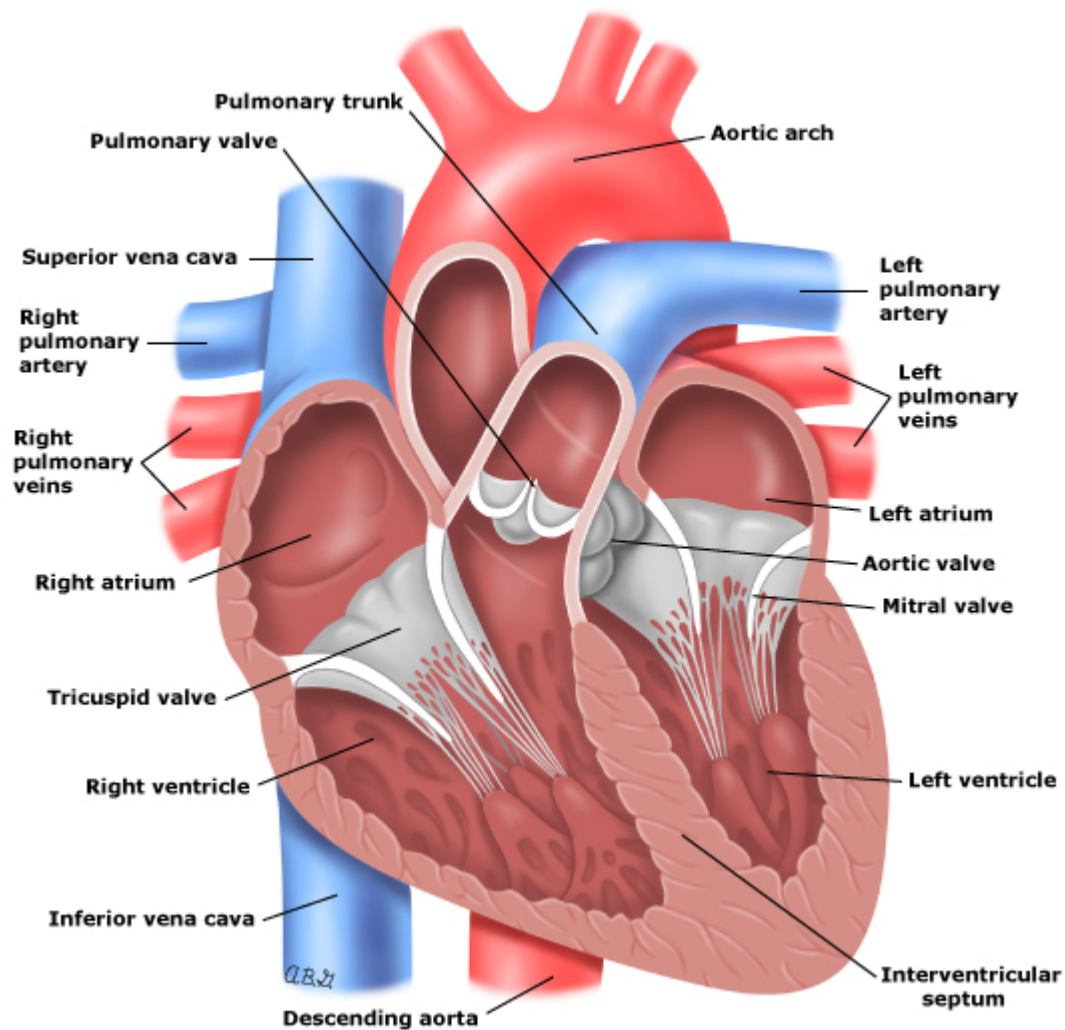
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Topic 3446 Version 17.0

GRAPHICS

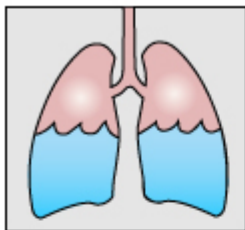
Anatomy of the interior of the heart



Graphic 77576 Version 4.0

Heart failure action plan - page 1

Every morning, when you get up, check how you are doing. Look for:



Changes in breathing

Ask yourself:

- Can I breathe as well as I usually can?
- Am I getting out of breath doing things I can normally do without a problem?
- Am I coughing more than usual?
- Did I use more pillows than usual to sleep last night?

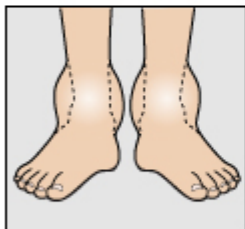


Changes in weight

Weigh yourself every morning after urinating but before eating.

Write down your weight on a calendar. Then ask yourself:

- Has my weight gone up or gone down compared to yesterday? If so, by how many pounds?
- Has my weight gone up or gone down compared to a week ago? If so, by how many pounds?



New or worse swelling

Ask yourself:

- Are my ankles more swollen than usual?
- Do my socks or shoes feel tighter?
- Do my clothes feel tighter at the waist?
- Do my rings fit more snugly?




Changes in your ability to do everyday things

Ask yourself:

- Can I do all the things I normally do, such as get dressed on my own, make meals, or go for walks?
- Do I feel dizzy or more tired than usual?
- Do I have any new symptoms, like pressure or pain in my chest?
- Does my heartbeat feel strange or irregular?
- Do I feel like I might pass out?

See the next page to find out what you should do if any of these changes occur.

Heart failure action plan - page 2

| Symptom | Action |
|---|---|
| <p style="text-align: right;">Best weight: <input type="text"/></p> <p>If you have:</p> <ul style="list-style-type: none"> ▪ No trouble breathing ▪ No chest pain ▪ No weight change overnight or over the last week ▪ The usual amount of ankle swelling ▪ No change in ability to be active | <p>Your symptoms are under control.</p> <ul style="list-style-type: none"> ▪ Keep taking your medications every day, as ordered ▪ Keep weighing yourself every day and writing down your weight ▪ Keep all your medical appointments |
| <p>If you:</p> <ul style="list-style-type: none"> ▪ Need more pillows than usual to sleep ▪ Have more trouble breathing when you are active ▪ Have more coughing than usual ▪ Increased shortness of breath with activity ▪ Gain 2 to 3 pounds overnight, or 5 pounds in one week ▪ Have more swelling than usual | <p>You might need to take extra medicine.</p> <p>Call your doctor's office to find out what you should do.</p> <p>Doctor name: _____</p> <p>Phone #: _____</p> |
| <p>If you:</p> <ul style="list-style-type: none"> ▪ Have trouble breathing when you are resting, or you can't stop coughing ▪ Wheeze or feel chest tightness when you are resting ▪ Wake up at night because you can't breathe well ▪ Feel dizzy, very tired, or like you might fall ▪ Gain or lose more than 5 pounds compared to your normal weight | <p>You probably need to see a doctor right away.</p> <p>Call your doctor now.</p> <p>Doctor name: _____</p> <p>Phone #: _____</p> |
| <p>If you:</p> <ul style="list-style-type: none"> ▪ Have trouble breathing that does not get better no matter what you do ▪ Feel like you can't breathe, or start to turn blue ▪ Cough up frothy or pink saliva ▪ Have pain or pressure in your chest, or you have other signs of a heart attack ▪ Have a fast or uneven heartbeat that will not go away or makes you feel dizzy or lightheaded ▪ Feel very confused ▪ Faint | <div style="text-align: center;">  </div> <p>Call 9-1-1 for an ambulance right away</p> |

Based on the Heart Failure Action Plan provided by Access III of the Lower Cape Fear, Inc.

Graphic 75501 Version 4.0

Contributor Disclosures

Wilson S Colucci, MD Consultant/Advisory Boards: Novartis [Heart failure (Valsartan, sacubitril/valsartan)], Merck [Heart failure (Enalapril)], Amgen [Heart failure (Ivabradine)]. **Stephen S Gottlieb, MD** Grant/Research/Clinical Trial Support: Pfizer [Heart failure (Tafamidis)]; Novartis [Heart failure (Serelaxin)]; Respicardia [Sleep apnea (Pacing)]; Amgen [Omecamtiv mecarbil]. Consultant/Advisory Boards: BMS [Heart failure (Natriuretic peptides)]; Cytokinetics [Heart failure (Omecamtiv mecarbil)]. **Susan B Yeon, MD, JD, FACC** Nothing to disclose

Contributor disclosures are reviewed for conflicts of interest by the editorial group. When found, these are addressed by vetting through a multi-level review process, and through requirements for references to be provided to support the content. Appropriately referenced content is required of all authors and must conform to UpToDate standards of evidence.

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