Congestive Heart Failure

CHF
Definition

• Heart failure, sometimes known as congestive heart failure (CHF), occurs when your heart muscle doesn't pump blood as well as it should. Conditions such as narrowed arteries in your heart (coronary artery disease) or high blood pressure gradually leave your heart too weak or stiff to fill and pump efficiently.

• Not all conditions that lead to heart failure can be reversed, but treatments can improve the signs and symptoms of heart failure and help you live longer. Lifestyle changes, such as exercising, reducing salt in your diet, managing stress and especially losing weight, can improve your quality of life.
Healthy Heart

Congested Heart
Symptoms of CHF

• Shortness of breath (dyspnea) when you exert yourself or when you lie down
• Fatigue and weakness
• Swelling (edema) in your legs, ankles and feet
• Rapid or irregular heartbeat
• Reduced ability to exercise
• Persistent cough or wheezing with white or pink blood-tinged phlegm
• Increased need to urinate at night
• Swelling of your abdomen (ascites)
• Sudden weight gain from fluid retention
• Lack of appetite and nausea
• Difficulty concentrating or decreased alertness
• Sudden, severe shortness of breath and coughing up pink, foamy mucus
• Elevated blood pressure
• Chest pain, if your heart failure is caused by a heart attack
Coughing

Tiredness
Shortness of breath

Pulmonary edema (excess fluid in lungs)

Pleural effusion (excess fluid around lungs)

Pumping action of the heart grows weaker

Ascites

Edema in ankles and legs
Causes of CHF

• Heart failure often develops after other conditions have damaged or weakened your heart. Over time, the heart can no longer keep up with the normal demands placed on it to pump blood to the rest of your body. The main pumping chambers of your heart (the ventricles) may become stiff and not fill properly between beats. Also, your heart muscle may weaken, and the ventricles stretch (dilate) to the point that the heart can't pump blood efficiently throughout your body. The term "congestive heart failure" comes from blood backing up into — or congesting — the liver, abdomen, lower extremities and lungs. However, not all heart failure is congestive. You might have shortness of breath or weakness due to heart failure and not have any fluid building up.

• Heart failure can involve the left side, right side or both sides of your heart. Typically, heart failure begins with the left side — specifically the left ventricle, your heart's main pumping chamber.
Risk Factors

• **High blood pressure.** Your heart works harder than it has to if your blood pressure is high.
• **Coronary artery disease.** Narrowed arteries may limit your heart's supply of oxygen-rich blood, resulting in weakened heart muscle.
• **Heart attack.** Damage to your heart muscle from a heart attack may mean your heart can no longer pump as well as it should.
• **Diabetes.** Having diabetes increases your risk of high blood pressure and coronary artery disease.
• **Certain diabetes medications.** The diabetes drugs rosiglitazone (Avandia) and pioglitazone (Actos) have been found to increase the risk of heart failure. Don't stop taking these medications on your own, though. If you're taking them, discuss with your doctor whether you need to make any changes.
• **Sleep apnea.** The inability to breathe properly at night results in low blood oxygen levels and increased risk of abnormal heart rhythms. Both of these problems can weaken the heart.
• **Congenital heart defects.** Some people who develop heart failure were born with structural heart defects.
• **Viruses.** A viral infection may have damaged your heart muscle.
• **Alcohol use.** Drinking too much alcohol can weaken heart muscle and lead to heart failure.
• **Irregular heartbeats.** These abnormal rhythms, especially if they are very frequent and fast, can weaken the heart muscle and cause heart failure.
Echocardiogram. An important test for diagnosing heart failure is the echocardiogram. An echocardiogram helps distinguish systolic heart failure from diastolic heart failure in which the heart is stiff and can't fill properly. An echocardiogram uses sound waves to produce a video image of your heart. This image can help doctors determine how well your heart is pumping by measuring the percentage of blood pumped out of your heart's main pumping chamber (the left ventricle) with each heartbeat. This measurement is called the ejection fraction. The echocardiogram can also identify valve problems or evidence of previous heart attacks, as well as some unusual causes of heart failure.
(EF) Ejection Fraction

- Your ejection fraction is measured during an echocardiogram and can also be measured by nuclear medicine tests, cardiac catheterization and cardiac MRI. An ejection fraction is an important measurement of how well your heart is pumping and is used to help classify heart failure and guide treatment. In a healthy heart, the ejection fraction is 50 percent or higher - meaning that more than half of the blood that fills the ventricle is pumped out with each beat. But, heart failure can occur even with a normal ejection fraction. This happens if the heart muscle becomes stiff from conditions such as high blood pressure.
Treatment

- Heart failure is a chronic disease requiring lifelong management. However, with treatment, signs and symptoms of heart failure can improve and the heart sometimes becomes stronger. Treatment may help you live longer and reduce your chance of dying suddenly. Doctors sometimes can correct heart failure by treating the underlying cause. For example, repairing a heart valve or controlling a fast heart rhythm may reverse heart failure. But for most people, the treatment of heart failure involves a balance of the right medications, and in some cases, devices that help the heart beat and contract properly.
Medications

• **Angiotensin-converting enzyme (ACE) inhibitors.** These drugs help people with systolic heart failure live longer and feel better. ACE inhibitors are a type of vasodilator, a drug that widens blood vessels to lower blood pressure, improve blood flow and decrease the workload on the heart. Examples include enalapril (Vasotec), lisinopril (Prinivil, Zestril) and captopril (Capoten).

• **Beta blockers.** This class of drugs not only slows your heart rate and reduces blood pressure but also limits or reverses some of the damage to your heart if you have systolic heart failure. Examples include carvedilol (Coreg), metoprolol (Lopressor) and bisoprolol (Zebeta). These medicines reduce the risk of some abnormal heart rhythms and lessen your chance of dying unexpectedly. Beta blockers may reduce signs and symptoms of heart failure, improve heart function, and help you live longer.
Medications

• **Diuretics.** Often called water pills, diuretics make you urinate more frequently and keep fluid from collecting in your body. Diuretics, such as furosemide (Lasix), also decrease fluid in your lungs, so you can breathe more easily. Because diuretics make your body lose potassium and magnesium, your doctor also may prescribe supplements of these minerals. If you're taking a diuretic, your doctor will likely monitor levels of potassium and magnesium in your blood through regular blood tests.

• **Digoxin (Lanoxin).** This drug, also referred to as digitalis, increases the strength of your heart muscle contractions. It also tends to slow the heartbeat. Digoxin reduces heart failure symptoms in systolic heart failure.
Medications

• **Aldosterone antagonists.** These drugs include spironolactone (Aldactone) and eplerenone (Inspra). They are potassium-sparing diuretics but also have additional properties that may reverse scarring of the heart and help people with severe systolic heart failure live longer. Unlike some other diuretics, spironolactone can raise the level of potassium in your blood to dangerous levels, so talk to your doctor if increased potassium is a concern, and learn if you need to modify your intake of food that's high in potassium.

• **Angiotensin II receptor blockers.** These drugs, which include losartan (Cozaar) and valsartan (Diovan), have many of the same benefits as ACE inhibitors. They may be an alternative for people who can't tolerate ACE inhibitors.
Lifestyle Modifications

• **Weigh yourself daily.** Do this each morning after you've urinated, but before you've had breakfast. Notify your doctor if you have a weight gain of 3 pounds overnight or 5 pounds or more in a week. It may mean that you're retaining fluids and need a change in your treatment plan. Record your weight every morning and bring the record with you to your doctor's visits.
Lifestyle Modifications

- **Restrict (salt) sodium in your diet.** Too much sodium contributes to water retention, which makes your heart work harder and causes shortness of breath and swollen legs, ankles and feet. For people with heart failure, the daily recommended amount of dietary sodium is generally less than 2,000 milligrams — check with your doctor for the restriction recommended for you. Keep in mind that most of this salt is already added to prepared foods, and be careful when using salt substitutes.
Lifestyle Modifications

• **Limit alcohol and fluids.** Your doctor likely will recommend that you don't drink alcohol if you have heart failure, since it can interact with your medication, weaken your heart muscle and increase your risk of abnormal heart rhythms. If you have severe heart failure, your doctor may also suggest you limit the amount of fluids you drink.
Lifestyle Modifications

• **Be active.** Moderate aerobic activity helps keep the rest of your body healthy and conditioned, reducing the demands on your heart muscle.
Lifestyle Modifications

• **Stop smoking.** Smoking damages your blood vessels, raises blood pressure, reduces the amount of oxygen in your blood and makes your heart beat faster. Avoid secondhand smoke too.
Pearls

• Avoid certain over-the-counter medications. Nonsteroidal anti-inflammatory drugs (ibuprofen, naproxen, others), cold medications and diet pills may worsen heart failure and lead to fluid buildup.

• Diuretics work best on empty stomach – take ½ hour before eating or 1 hour after eating.

• Take beta-blocker with food – breakfast and dinner.

• Split dosing of ACE-inhibitor away from beta-blocker. Example, noon or bedtime.