MAYO CLINIC HEALTH LETTER

Tools for Healthier Lives

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MAYO CLINIC

Preventing heart failure

Get ahead of the problem

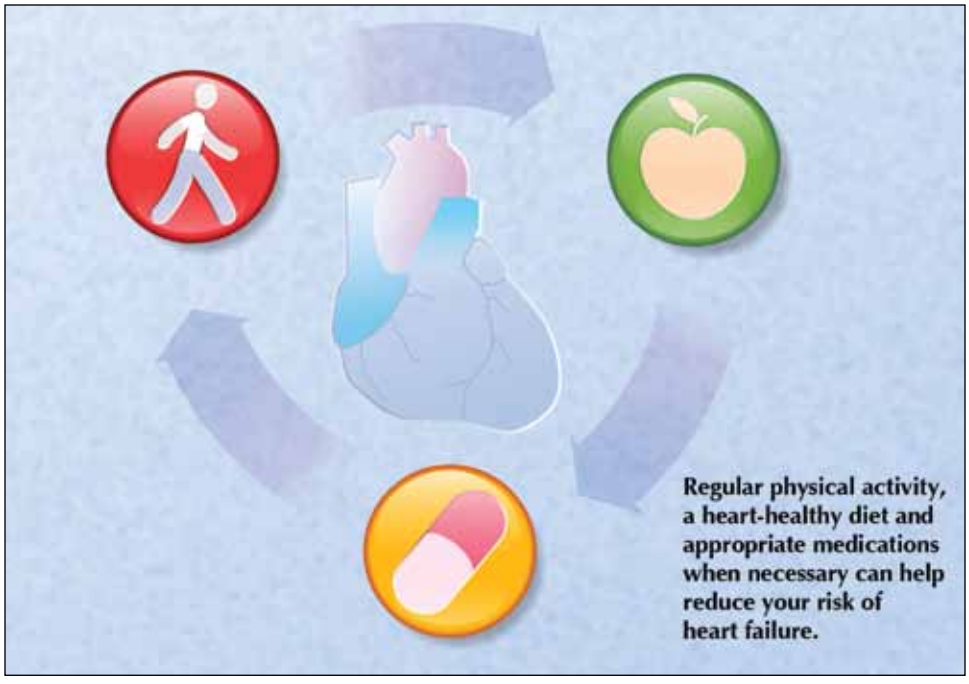
Heart failure — also known as congestive heart failure — means your heart can't pump enough blood to meet your body's needs. The problem often develops after the heart has been weakened or damaged by other health conditions.

The prevalence of heart failure has increased substantially. In fact, the American Heart Association describes it as a growing epidemic. Its prominence coincides with a predicted surge in the aging population. Added to that is the fact that modern therapies can help extend the lives of many who survive a heart attack or have cardiovascular disease. Therefore, these people may be more likely to develop congestive heart failure.

More efforts are being directed at recognizing and managing the risk factors and conditions commonly associated with the development of heart failure. Although heart failure can often be treated with good results, it's a serious chronic disease — the rate of death five years after diagnosis is 50 percent for men and 46 percent for women.

A weakened pump

Over time, a heart that's compromised by underlying disease can change in function and appearance.



Regular physical activity, a heart-healthy diet and appropriate medications when necessary can help reduce your risk of heart failure.

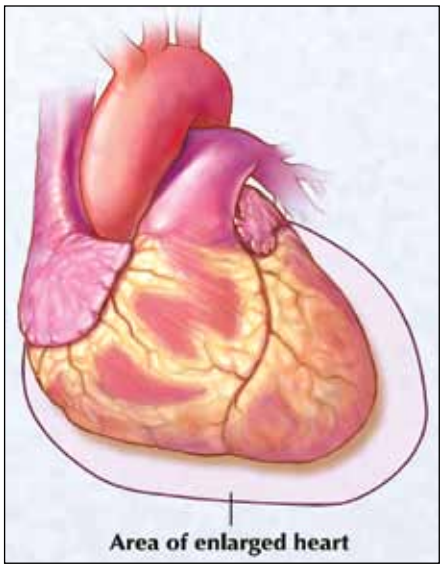
The heart's main pumping chambers — the ventricles — may become stiff and not fill properly between beats. In addition, the heart muscle may weaken. The ventricles can stretch (dilate) so much that the heart can't pump blood efficiently to the rest of your body. This may result in signs and symptoms such as shortness of breath and leg swelling.

Although heart failure can involve the left side, right side or both sides of your heart, it typically begins with the left ventricle — the heart's main pumping chamber. The percentage of blood pumped out of your left ventricle with each heartbeat is called the ejection fraction. If your left ventricle can't contract vigorously, insufficient blood will be pumped into circulation (systolic heart failure). This situation is characterized by a low ejection fraction. If the ventricle can't relax normally due to stiffness in the heart muscle, the ejection fraction appears normal even though the left ventricle is prevented from filling with enough blood between beats (diastolic heart failure).

Behind the scenes trouble

A number of conditions can compromise the heart, including some that may be present without symptoms. Conditions that set the stage for possible heart failure include:

■ *Coronary artery disease* — The most common form of heart disease also is the most common cause of heart failure. It occurs over time as fatty deposits accumulate and narrow the arteries that supply blood to your heart muscle. This process, called atherosclerosis, deprives your heart of oxygen-rich blood, leaving some areas of the heart weakened. An ongoing (chronic) reduction in coronary artery blood flow can cause impaired left ventricular function. Without timely treatment to restore blood flow — such as placement of a stent in a narrowed coronary artery — this condition may further damage heart cells and possibly lead to heart attack, or even death. A heart attack may occur if plaques formed by the fatty deposits rupture, causing a blockage of blood flow to an area of your heart. Muscle tissue that dies is replaced by scar tissue, weakening the heart's pumping ability.



Uncontrolled hypertension can cause the heart's ventricular chamber to enlarge.

■ *High blood pressure (hypertension)* — Blood pressure reflects the force your heart has to generate to pump blood through your arteries. As arteries become less elastic, the heart has to exert a higher pressure with each beat. If you have uncontrolled hypertension, your heart has to pump harder to circulate blood. With uncontrolled hypertension, the heart may thicken or stiffen (left ventricular hypertrophy) over time from doing extra work, and the ventricular chamber may enlarge. Eventually, the heart may become too stiff or too weak to pump blood effectively.

■ *Faulty heart valves* — A heart defect, coronary artery disease or heart infection may damage a heart valve. This may result in a leaky valve or a narrowed valve opening. This can force your heart to work harder to keep blood flowing in the proper direction. Over time, that extra work can weaken your heart.

■ *Heart muscle damage (cardiomyopathy)* — Factors such as infections, alcohol abuse, and the toxic effects of cocaine and some chemotherapy drugs can damage heart muscle directly.

Damage may also occur due or thyroid disorders associated with excess or deficiency of thyroid hormone or diseases such as lupus.

■ *Inflammation of the heart muscle (myocarditis)* — Inflammation of this type is most commonly caused by a viral infection.

■ *Structural heart defects from birth (congenital heart defects)* — Abnormalities in the heart's chambers or valves result in healthy areas of your heart having to work harder to pump blood out to your body.

■ *Abnormal heart rhythms (arrhythmias)* — If your heart beats too fast, it's doing extra work, which may weaken it. A heartbeat that's too slow may prevent your heart from pumping enough blood out to your body.

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Change the scene

Coronary artery disease and high blood pressure are the most common contributors to heart failure. Type 2 diabetes also is a concern because it increases the risk of high blood pressure and coronary artery disease.

While many risk factors for heart disease can be controlled or even eliminated by making lifestyle changes, medications also may be necessary. Some of the more commonly used medications include:

■ *Angiotensin-converting enzyme (ACE) inhibitors* — ACE inhibitors are a type of vasodilator. They relax blood vessels to lower blood pressure, improve blood flow and decrease the heart's workload. Examples include enalapril (Vasotec), lisinopril (Prinivil, Zestril) and captopril (Capoten).

■ *Angiotensin II receptor blockers (ARBs)* — These drugs, which include losartan (Cozaar), valsartan (Diovan) and others, have many of the same benefits as ACE inhibitors. ARBs may be an alternative if ACE inhibitors aren't well tolerated.

■ *Digoxin (Lanoxin)* — This drug improves the strength of heart muscle contractions and tends to slow the heartbeat.

■ *Beta blockers* — These drugs slow your heart rate and reduce your blood pressure. They may also reduce the risk of some abnormal heart rhythms. Examples include bisoprolol (Zebeta), carvedilol (Coreg) and metoprolol (Lopressor).

■ *Diuretics* — These drugs make you urinate more frequently and keep fluid from collecting in your body. Examples include the drugs bumetanide (Bumex), furosemide (Lasix) and hydrochlorothiazide.

In addition, cholesterol-lowering statins may be added if heart failure progresses despite other treatments.

What you can do

Lifestyle factors you can change to help prevent heart failure include:

■ *Not using tobacco* — Current smokers have a significantly higher risk of developing heart failure than do prior smokers and nonsmokers. Chemicals in tobacco can damage your heart and blood vessels. Plus, the nicotine in cigarette smoke makes your heart work harder by narrowing your blood vessels and increasing your heart rate and blood pressure.

■ *Maintaining a healthy weight* — Excess weight increases your risk of heart failure and contributes to other heart failure risk factors — notably, high blood pressure, elevated cholesterol and type 2 diabetes. If you're overweight, reducing your weight by just 10 percent can decrease your blood pressure, lower your cholesterol and reduce your risk of diabetes.

■ *Eating a heart-healthy diet* — A special diet called the Dietary Approaches to Stop Hypertension (DASH) eating plan can help protect your heart. The DASH diet includes foods that are low in fat, cholesterol and salt. The diet is rich in fruits, vegetables, whole grains and low-fat dairy products, as well as beans and other low-fat protein. (For more details on the DASH diet, see page 7.)

■ *Limiting alcohol* — If you drink, do so in moderation. That's no more than one drink a day for healthy women and men 65 and older. For healthy men younger than 65, the limit is no more than two drinks a day. Along with other health hazards, too much alcohol increases blood pressure, which increases heart failure risk.

■ *Staying physically active* — Inactivity increases your risk of cardiovascular disease and heart failure. In addition, physical activity helps control weight. It also reduces stress, which may be a factor in heart disease. As a general goal, aim for at least 150 minutes of moderately intense physical activity a week — that's 30 minutes on most days. If you want to lose weight or meet certain fitness goals, you may need to exercise more. ❐

Health tips

Mindful eating

Fast, automatic eating can take away from the enjoyment of eating, leave you full but not content, and may lead to overeating and weight gain. Counter this pattern by using mindfulness techniques, including:

■ *Recognizing true hunger* — This helps you become mindful of the role food plays in nourishing your body. Recognizing true hunger can help you differentiate it from false hunger driven by cravings, emotion, stress, habit or boredom.

■ *Being mindful of the food and its preparers* — Components of the food in front of you may have traveled thousands of miles and entailed the collaboration of millions of workers, perhaps including a friend or loved one who prepared it.

■ *Gradually transitioning into a meal* — Take a moment to calm your emotions, relax your body and bring your attention to the food you're about to eat. You may want to bless the food or begin with some other simple ritual.

■ *Slowly savoring the first bites* — Enjoy them as though they're truly special. Continue to savor food in an unrushed manner throughout the meal.

■ *Transitioning out of the meal gradually* — People often continue to eat even when they're no longer hungry, until the food is gone or until they feel bloated. Be mindful of when your initial hunger is satisfied, and taper off your eating. You may find yourself satisfyingly full on less food. ❐