



## Heart Failure

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# Heart Failure

**H**eat failure develops when the heart as a pump malfunctions. **Systolic heart failure** is the inability of the heart to squeeze enough blood from the **ventricles** (heart chambers) to supply the body's needs. **Diastolic heart failure** results from the inability of the heart muscle to relax in between heartbeats, causing a backup of blood in the heart's chambers and in the blood vessels. Both systolic and diastolic heart failure can cause **edema** (fluid) to build up in the lungs and the rest of the body. The heart tries to make up for this malfunction by **dilating** (enlarging the heart chambers) or becoming **hypertrophic** (thickening of the heart walls). For individuals older than 65 years, heart failure is the most common cause of hospitalization. The May 13, 2009, issue of *JAMA* contains an article about heart failure.

## SIGNS AND SYMPTOMS

- Fatigue or weakness
- Shortness of breath during physical activity
- Difficulty breathing when lying in a flat position
- Waking at night feeling short of breath
- Swollen neck (**jugular**) veins
- Abdominal swelling (**ascites**) from excess fluid
- Lower leg or foot swelling (**pedal edema**)
- **Palpitations** (sensation of fast or irregular heartbeat)

## DIAGNOSIS AND TESTING

A detailed medical history and physical examination often reveal whether a person has heart failure. Testing may include a chest x-ray to look for **cardiomegaly** (an enlarged heart), **pulmonary edema** (fluid in the lungs), or **pleural effusion** (collection of fluid around the lungs). Other tests commonly include an **electrocardiogram** (tracing of the heart rhythm) and an **echocardiogram** (ultrasound examination showing the heart structures and function of heart valves).

## TREATMENT

Treating heart failure depends on the reasons why heart failure developed. It is important to work with your doctor to find the best treatment plan, including an exercise program.

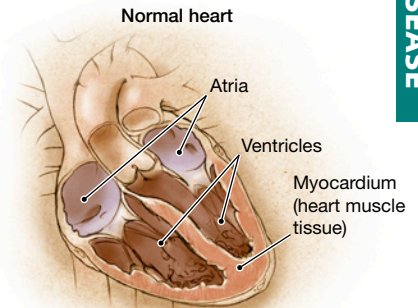
- A low-sodium diet is prescribed to decrease fluid retention.
- Medications used to treat heart failure often include **beta-blockers** that allow the heart to work better, **ACE inhibitors** that lower blood pressure, making the heart pump against less pressure, and diuretics to remove excess fluid.
- Pacemakers and implantable defibrillators may be useful to help the heart contract in a coordinated way and monitor for irregular, life-threatening heart rhythm.
- Surgery may be recommended for heart valve disease or congenital heart disease.
- For persons who have severe advanced heart failure, medications called **inotropes** may be used to help the heart beat more strongly. Use of these drugs often requires an indwelling intravenous catheter. Mechanical devices may be required, such as intra-aortic balloon pumps; left, right, or biventricular assist devices; or the rare use of a mechanical heart pump.
- Heart transplantation may be the final option considered when severe heart failure does not respond to the usual treatments.

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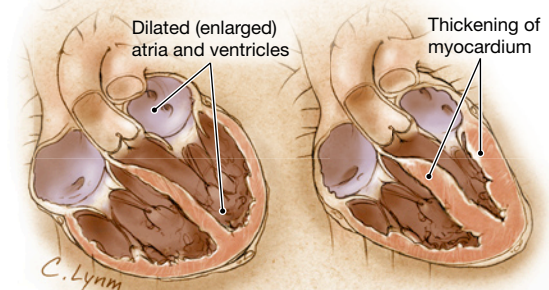
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Changes in the heart during heart failure

Systolic heart failure

Diastolic heart failure



## FOR MORE INFORMATION

- American Heart Association  
[www.americanheart.org](http://www.americanheart.org)
- National Heart, Lung, and Blood Institute  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

## INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page Index on JAMA's Web site at [www.jama.com](http://www.jama.com). Many are available in English and Spanish. A previous Patient Page on heart failure was published in the June 13, 2007, issue; one on implantable cardioverter-defibrillators was published in the May 2, 2007, issue; and one on cardiac stress testing was published in the October 15, 2008, issue.

Sources: National Heart, Lung, and Blood Institute; American Heart Association

