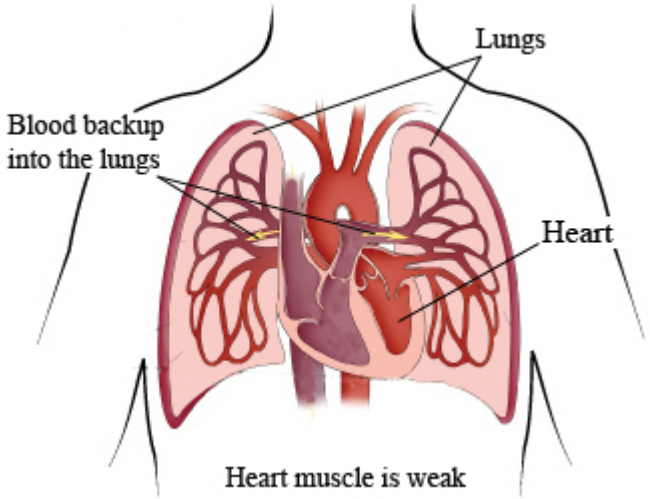
Heart Failure

Heart failure (HF) is a condition in which the heart has trouble pumping blood. This means your heart does not pump blood efficiently for your body to work well. In some cases of HF, fluid may back up into your lungs or you may have swelling (*edema*) in your lower legs. HF is a long-term (*chronic*) condition. It is important for you to take good care of yourself and follow your caregiver's treatment plan.

CAUSES

- Health conditions:
  - **High blood pressure (*hypertension*)** causes the heart muscle to work harder than normal. When pressure in the blood vessels is high, the heart needs to pump (*contract*) with more force in order to circulate blood throughout the body. High blood pressure eventually causes the heart to become stiff and weak.
  - **Coronary artery disease (CAD)** is the buildup of cholesterol and fat (*plaques*) in the arteries of the heart. The blockage in the arteries deprives the heart muscle of oxygen and blood. This can cause chest pain and may lead to a heart attack. CAD can also contribute to high blood pressure.



  - **Heart attack (*myocardial infarction*)** occurs when 1 or more arteries in the heart become blocked. The loss of oxygen damages the muscle tissue of the heart. When this happens, part of the heart muscle dies. The injured tissue does not contract as well and weakens the heart's ability to pump blood.
  - **Abnormal heart valves** can cause HF when the heart valves do not open and close properly. This makes the heart muscle pump harder to keep the blood flowing.
  - **Heart muscle disease (*cardiomyopathy or myocarditis*)** is damage to the heart muscle from a variety of causes. These can include drug or alcohol abuse, infections, or unknown reasons. These can increase the risk of HF.
  - **Lung disease** makes the heart work harder because the lungs do not work properly. This can cause a strain on the heart leading it to fail.
  - **Diabetes** increases the risk of HF. High blood sugar contributes to high fat (*lipid*) levels in the blood. Diabetes can also cause slow damage to tiny blood vessels that carry important nutrients to the heart muscle. When the heart does not get enough oxygen and food, it can cause the heart to become weak and stiff. This leads to a heart that does not contract efficiently.
  - **Other diseases** can contribute to HF. These include abnormal heart rhythms, thyroid problems and low blood counts (*anemia*).
- Unhealthy lifestyle habits:
  - **Obesity.**
  - **Smoking.**
  - **Eating foods high in fat and cholesterol.**
  - **Eating or drinking beverages high in salt.**
  - **Drug or alcohol abuse.**
  - **Lack of exercise.**

SYMPTOMS

HF symptoms may vary and can be hard to detect. Symptoms may include:

- Shortness of breath with activity, such as climbing stairs.
- Persistent cough.

- Swelling of the feet, ankles, legs, or abdomen.
- Unexplained weight gain.
- Difficulty breathing when lying flat.
- Waking from sleep because of the need to sit up and get more air.
- Rapid heartbeat.
- Fatigue and loss of energy.
- Feeling lightheaded or close to fainting.

DIAGNOSIS

A diagnosis of HF is based on your history, symptoms, physical examination, and diagnostic tests.

- Diagnostic tests for HF may include:
  - EKG.
  - Chest X-ray.
  - Blood tests.
  - Exercise stress test.
  - Blood oxygen test (*arterial blood gas*).
  - Evaluation by a heart doctor (*cardiologist*).
  - Ultrasound evaluation of the heart (*echocardiogram*).
  - Heart artery test to look for blockages (*angiogram*).
  - Radioactive imaging to look at the heart (*radionuclide test*).

TREATMENT

Treatment is aimed at managing the symptoms of HF. Medicines, lifestyle changes, or surgical intervention may be necessary to treat HF.

- Medicines to help treat HF may include:
  - **Angiotensin-converting enzyme (ACE) inhibitors.** These block the effects of a blood protein called angiotensin-converting enzyme. ACE inhibitors relax (*dilate*) the blood vessels and help lower blood pressure. This decreases the workload of the heart, slows the progression of HF, and improves symptoms.
  - **Water pills (*diuretics*).** Diuretics cause the kidneys to remove salt and water from the blood. The extra fluid is removed by urination. By removing extra fluid from the body, diuretics help lower the workload of the heart and help prevent fluid buildup in the lungs so breathing is easier.
  - **Vasodilators.** These help the blood vessels to relax and allow the blood to flow more easily. This also helps lower blood pressure. People who cannot tolerate an ACE inhibitor may be prescribed a vasodilator.
  - **Beta blockers.** These prevent the heart from beating too fast and improve heart muscle strength. Beta blockers help maintain a normal heart rate, control blood pressure, and improve HF symptoms.
  - **Digitalis.** This increases the force of the heartbeat and may be helpful to people with HF or heart rhythm problems.
  - **Calcium channel blockers.** These block the amount of calcium used by the heart. By slowing the amount of calcium used by the heart, calcium channel blockers improve blood circulation and lower blood pressure.
  - **Cholesterol-lowering drugs.** These work to reduce the amount of plaque in the blood. The reduction of plaque on artery walls can decrease the risk of heart attack and/or stroke.
- Healthy lifestyle changes include:
  - Stopping smoking.
  - Eating a healthy diet. Avoid foods high in fat. Avoid foods fried in oil or made with fat. A dietician can help with healthy food choices.
  - Limiting how much salt you eat.
  - Limiting alcohol intake to no more than 1 drink per day for women and 2 drinks per day for men. Drinking more than that is harmful to your heart. If your heart has already been damaged by alcohol or you have severe HF, drinking alcohol should be stopped completely.
  - Exercising as directed by your caregiver.

- Surgical treatment for HF may include:
  - Procedures to open blocked arteries, repair damaged heart valves, or remove damaged heart muscle tissue.
  - A pacemaker to help heart muscle function and to control certain abnormal heart rhythms.
  - A defibrillator to possibly prevent sudden cardiac death.

HOME CARE INSTRUCTIONS

- **Activity level.** Your caregiver can help you determine what type of exercise program may be helpful. It is important to maintain your strength. Pace your physical activity to avoid shortness of breath or chest pain. Rest for 1 hour before and after meals. A cardiac rehabilitation program may be helpful to some people with HF.
- **Diet.** Eat a heart-healthy diet. Food choices should be low in saturated fat and cholesterol. Talk to a dietician to learn about heart healthy foods.
- **Salt intake.** When you have HF, you need to limit the amount of salt you eat. Eat less than 2000 mg of salt per day or as recommended by your caregiver.
- **Weight monitoring.** Weigh yourself everyday. You should weigh yourself in the morning after you urinate and before you eat breakfast. Wear the same amount of clothing each time you weigh yourself. Record your weight daily. Bring your recorded weights to your clinic visits. Tell your caregiver right away if you have gained 3 or more pounds (1.4 kg) in 1 day, 5 pounds (2.3 kg) in a week or whatever amount you were told to report.
- **Blood pressure monitoring.** This should be done as directed by your caregiver. A home blood pressure cuff can be purchased at a drugstore. Record your blood pressure numbers and bring them to your clinic visits. Tell your caregiver if you become dizzy or lightheaded upon standing up.
- **Smoking.** If you are currently a smoker, it is time to quit. Nicotine makes your heart work harder by causing your blood vessels to constrict. **Do not** use nicotine gum or patches before talking to your caregiver.
- **Follow up.** Be sure to schedule a follow-up visit with your caregiver. Keep all your appointments.

SEEK MEDICAL CARE IF:

- Your weight increases by 3 or more pounds (1.4 kg) in 1 day or 5 pounds (2.3 kg) in a week.
- You notice increasing shortness of breath that is unusual for you. This may happen during rest, sleep or with activity.
- You cough more than normal, especially with physical activity.
- You notice more swelling in your hands, feet, ankles, or belly (*abdomen*).
- You are unable to sleep because it is hard to breathe.
- You cough up bloody mucus (*sputum*).
- You begin to feel “jumping” or “fluttering” sensations (*palpitations*) in your chest.

SEEK IMMEDIATE MEDICAL CARE IF:

- You have **severe** chest pain or pressure which may include symptoms such as:
  - Pain or pressure in the arms, neck, jaw, or back.
  - Feeling sweaty.
  - Feeling sick to your stomach (*nauseous*).
  - Feeling short of breath while at rest.
  - Having a fast or irregular heartbeat.
- You experience stroke symptoms. These symptoms include:
  - Facial weakness or numbness.
  - Weakness or numbness in an arm, leg or on one side of your body.
  - Blurred vision.
  - Difficulty talking or thinking.
  - Dizziness or fainting.
  - Severe headache.

THESE ARE MEDICAL EMERGENCIES. Do not wait to see if the symptoms go away. Call your local emergency services (911 in U.S.). DO NOT drive yourself to the hospital.

IMPORTANT

- Make a list of every medicine, vitamin, or herbal supplement you are taking. Keep the list with you at all times. Show it to your caregiver at every visit. Keep the list up-to-date.
- Ask your caregiver or pharmacist to write an explanation of each medicine you are taking. This should include:
  - Why you are taking it.
  - The possible side effects.
  - The best time of day to take it.
  - Foods to take with it or what foods to avoid.
  - When to stop taking it.

MAKE SURE YOU:

- Understand these instructions.
- Will watch your condition.
- Will get help right away if you are not doing well or get worse.

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