

How Your Heart Works and What Can Go Wrong With It

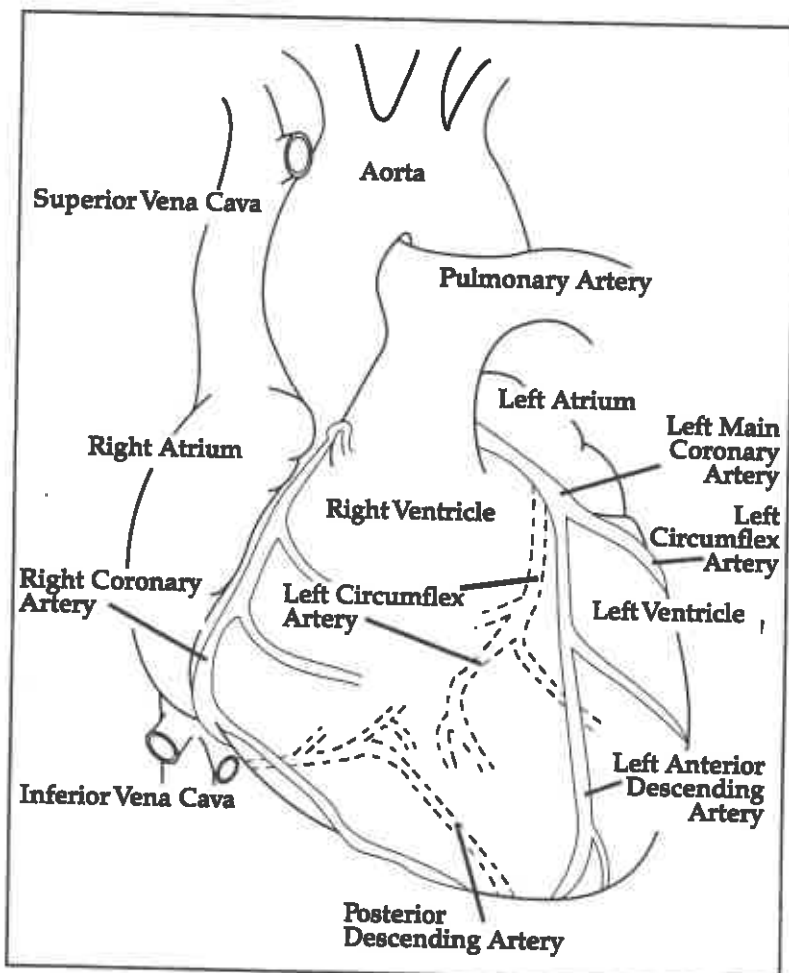
Many people who have been in the hospital for heart problems want to learn more about how their heart works and what went wrong with their own heart. We will explain the basics below and encourage you to ask your health care team about anything that you don't understand or want to know more about after reading this chapter.

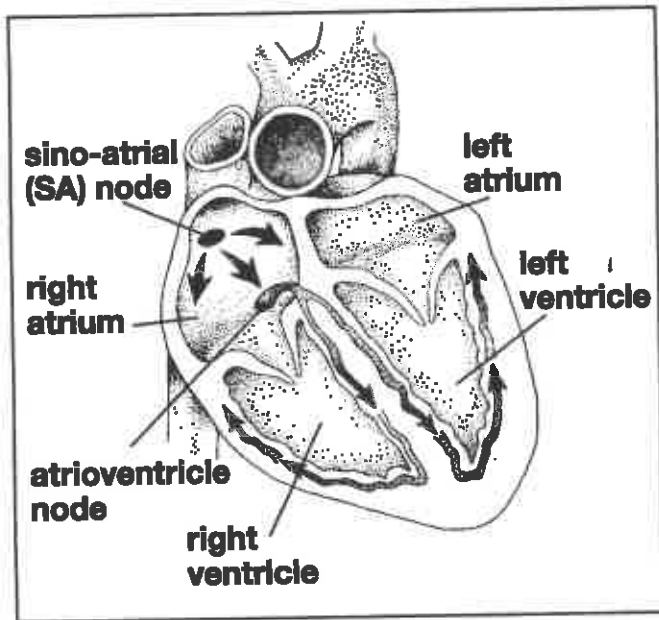
How a Normal Heart Looks (anatomy)

The normal, healthy heart is a muscle about the size of an adult fist. It weighs about one pound. The heart is located near the middle of your chest, slightly to the left. It looks a bit like a slightly flattened football — a tough muscle designed to work hard and continuously throughout your life. Its primary function is to pump blood carrying oxygen and nutrients throughout your body through miles of

tubes or blood vessels. Your heart is enclosed in a protective, fiber-like sac called a **pericardium**.

Just like other muscles in your body, your heart needs blood to do its work. Blood is supplied by two large blood vessels and their branches called **coronary arteries**. These arteries are on the outside of the heart muscle as shown in the picture to the left. If these arteries are blocked, as in **coronary artery disease**, the blood flow to the heart can be reduced or stopped. This causes pain and if a part of the heart muscle goes without blood for a time, it will die. This is what happens when you have a heart attack. Your right coronary artery supplies the bottom and back of your heart. Your left coronary artery divides into two large blood vessels called the left anterior descending (LAD) and the circumflex. The arteries supply blood to the back, left side, and front of your heart.





Each side of your heart has two chambers, an upper one (called an **atrium**) and a lower one (called a **ventricle**). Between each chamber are **valves** that work like valves on a mechanical pump: they keep fluid (in this case, your blood) moving in the right direction:

- Your **tricuspid valve** allows blood to flow from the right atrium to the right ventricle.
- Your **pulmonic valve** allows blood to flow from your right ventricle to your lungs through your pulmonary artery.
- Your **mitral valve** allows blood to flow from your left atrium to your left ventricle.
- Your **aortic valve** allows blood to flow from your left ventricle to all parts of your body through your aorta.

How a Normal Heart Works (physiology)

Tip

You don't need to remember these terms or memorize their definitions — this information is here just to help you understand your own body. If your health care team uses terms you don't recognize or understand, ask them to explain themselves more clearly to you. There is also a dictionary of terms in the back of this handbook.

The pumping system of your heart is powered by an electrical system that is naturally programmed to tell the heart to beat about 60 to 100 times per minute in an adult. To make a heartbeat, an electrical impulse starts in a spot in your upper heart called the **sinoatrial (SA) node** and travels through the atrium down to a spot between the atria and ventricles, called the **atrioventricular (AV) node**. Then, the impulse travels through the ventricles. When the electrical impulse travels through the atria, it causes them to contract and send blood to the ventricles. When the electrical impulse travels through the ventricles it causes them to contract and send blood to the body. It is important for the atria and ventricles to contract in a coordinated way in order to prevent problems.

The right side of your heart receives blood back from the body and pumps it to the lungs to receive new oxygen. The left side receives blood with new oxygen from the lungs and sends it out to the body.

What Can Go Wrong With Your Heart?

When something goes wrong with your heart, it could be with the electrical system, the blood flow to or from your heart, or the muscle of your heart itself.

The following section explains the major problems that can happen to a heart. Don't worry about trying to remember all of these. Your health care team can tell you which ones apply specifically to you.

Problems With Your Heart Getting Enough Blood

Coronary artery disease

Your coronary arteries are the blood vessels bringing oxygen-rich blood and energy to your heart. **Fatty deposits** (cholesterol and calcium), also called **plaque**, can build up over time on the inside of your **coronary artery walls**. It is like sludge building up inside a water pipe. Eventually, the opening narrows and blood flow is reduced. A blood clot may also reduce blood flow by forming in the damaged artery wall.

When one or more of your coronary arteries are narrowed, this prevents adequate blood flow to your heart muscle. This is called **stenosis**.

When one of your coronary arteries becomes completely blocked, hardened by plaque or narrowed, and blood is unable to get through to feed your heart, it's called a **heart attack** or **myocardial infarction**. When you have a heart attack part of your heart muscle may be permanently damaged. A scar forms at the site of the heart attack. Where and how big the scar is affects how well your heart can pump. **It is important to act quickly if you have symptoms of a heart attack, because early treatment may limit the size of the scar on your heart.** The more time you wait before getting treatment, the more muscle will be damaged.

Problems With How Well Your Heart Pumps

Heart failure occurs when your heart isn't pumping blood as efficiently as it should. Because your heart isn't able to pump the normal amount of blood out of your ventricles, your lungs and sometimes the blood vessels leading into your heart can become congested or "backed up" with blood. Eventually, parts of your body hold excess fluid that isn't being circulated very well by your heart. This is called "becoming congested," and is why this condition is sometimes called "**congestive heart failure**" (CHF).

Common symptoms of heart failure:

- difficulty breathing
- swelling in feet, ankles and legs
- abdominal swelling
- weight gain, despite loss of appetite
- extreme fatigue
- dizziness, lightheadedness, inability to concentrate.

Your kidneys are also affected by heart failure. When you experience heart failure, the amount of blood being pumped to your kidneys is less. When your kidneys receive an inadequate amount of blood, they don't remove water and other waste products efficiently. This results in your body accumulating extra fluid which causes increased heart failure symptoms.

Heart failure can be managed by you and your health care team. Together, you can decrease how hard your heart has to work. You can help your heart work more easily and more efficiently by changing your eating style and your exercise regimen. Management also includes relieving stress, stopping smoking, losing extra body weight and taking medications.

Heart failure has five main causes: **coronary artery disease, heart attack, high blood pressure, valve disease and cardiomyopathy**. If you have heart failure, it is likely that only one or two of the causes apply to you. Sometimes, the cause of heart failure is unknown.

When your heart has to pump with greater than normal force to push blood through your blood vessels, it's called high blood pressure or **hypertension**. If high blood pressure is left untreated, your heart muscle enlarges and its pumping ability weakens.

If one or more of your heart valves does not open or close properly, it's called **valve disease**. The valves of your heart may become damaged in several ways. Damage may occur from abnormalities at birth, rheumatic fever or as a result of age. Valves that become narrower or hardened are called **stenotic**. Valves may not close completely and leak, called **regurgitation** or **incompetence**. Your heart works harder to make up for these abnormalities by thickening the walls of your heart (called **hypertrophy**) or by getting larger (called **dilating**). Eventually, your heart's chambers lose their ability to pump effectively.

With **cardiomyopathy**, the muscle wall of your heart stretches and weakens, or it thickens and weakens. The weakened heart muscle has difficulty pumping blood to your body.

Problems With the Rhythm – the Electrical Signals – of Your Heart

If your heart doesn't beat with an even, regular rhythm, it is called **arrhythmia** or **dysrhythmia**.

Extra Beats

Premature ventricular contraction

If the ventricles or bottom chambers of your heart contract before the atria or top chambers, it is a **premature ventricular contraction**, or **PVC**. Many people have an occasional PVC without any symptoms; however, if you have a history of heart disease, or if you have frequent PVCs, your health care team needs to know. Symptoms include lightheadedness, weakness, fainting spells, shortness of breath, and chest pain. You may be monitored closely and may be treated by medications.

When your heart beats too fast

You may have one of the following problems if your heart is beating too fast.

Sinus tachycardia

Sinus tachycardia is when your heart beats speed up when you are exercising, being active, feeling anxious or afraid and when you have a fever. You may feel pounding in your chest (palpitations), lightheadedness, weakness, shortness of breath or other symptoms, if your heart rate stays at this faster rate for a long period of time. It is normal for your heart to speed up with exercise or exertion, and then slow down when you are resting.

Atrial fibrillation

In atrial fibrillation, electricity travels through the top part of your heart in a random or disorganized way. This causes the atria to beat (or contract) many times for each one time that the ventricles contract. When your atria are fibrillating, they are not able to pump blood effectively. If you have atrial fibrillation, your risk of stroke is up to five times greater than people with a normal rhythm. Heart failure can also be caused with prolonged atrial fibrillation. Your doctor will recommend medication to decrease your risks and regulate your heart rhythm. Sometimes atrial fibrillation occurs in healthy people, but usually it happens if you also have high blood pressure, a history of valve or heart disease, coronary artery disease or hyperthyroidism.

Ventricular tachycardia

If you have multiple premature ventricular contractions, in a row, it's called **ventricular tachycardia (V-tach)**.

Some people tolerate this; others, may faint. It can be life-threatening. An **electrophysiology study** can tell your doctor if you have this rhythm, or one that looks similar.

Ventricular fibrillation

In ventricular fibrillation, electrical impulses in your heart travel through the bottom chambers of your heart (the ventricles) in a disorganized manner, preventing your ventricles from contracting correctly. When your ventricles are fibrillating, they are not able to pump blood to your body. You will pass out or lose consciousness. An electrical shock or defibrillation can put your heart back into a normal rhythm. This can be a lethal rhythm problem and is not common.

When your heart beats too slowly

You may have one of the following problems if your heart is beating too slowly.

Sinus bradycardia

If your heart beats slower than normal — less than 60 beats a minute, it's called bradycardia (a normal adult heart rate is 60-100 beats per minute). A slow heart rate may be caused by medications and is not a problem, unless it causes symptoms such as fatigue, shortness of breath, or lightheadedness. Also, athletes in prime condition may have slower heart rates. Your doctor may recommend a temporary or permanent pacemaker for you or may also change your medication if your heart rate is too slow.

Heart block

Heart block is the blocking of electrical impulses through the heart. Some heart blocks do not need to be treated. It becomes serious when your heart beats too slowly to maintain good circulation. Heart block is caused by certain medications, or because the conduction path is worn or diseased. This condition occurs in varying degrees. It may cause your heart to beat out of rhythm. If it worsens into complete heart block, impulses from the heart's atria don't reach the ventricle. The ventricles beat independently at a very slow rate. You'll become weak, dizzy or lightheaded. If you have a complete heart block, you may need a permanent pacemaker.

Problems With the Blood Vessels in the Rest of Your Body

Rather than a specific heart problem, you may be experiencing circulation problems with your blood vessels throughout your body. You may feel aches, pains, cramps, numbness or muscle fatigue during exercise or at rest. These feelings may be caused by **atherosclerosis**, or **peripheral vascular disease (PVD)**, in your arm or leg blood vessels. This means that fatty deposits are collecting on the insides of the walls of your blood vessels. The walls thicken and less blood moves through your blood vessels. It is most common for this to occur in the blood vessels of the legs.

To diagnose PVD, your health care team may use doppler studies and angiograms. A doppler study uses sound waves to detect blockages in your blood vessels. During an angiogram, your doctor can inject a dye into your blood vessels to determine where blockages are and how bad they are. To treat PVD, your health care team may advise you to exercise regularly and follow a specific eating plan. If you have severe blockages in your leg vessels, your doctor may recommend an angioplasty or creating a bypass in your circulatory system, connecting the vessels below the blockage to a large vessel above the blockage.

Your Notes

Heart Failure

Heart failure occurs when your heart isn't pumping blood as efficiently as it should. Because your heart isn't able to pump the normal amount of blood out of your ventricles, the blood vessels leading into your heart can become congested or "backed up" with blood. Eventually, parts of your body hold excess fluid that isn't being circulated very well by your heart. This is called "becoming congested," and is why this condition is sometimes called "congestive heart failure" (CHF).

Important

Learn the signs and symptoms of worsening heart failure (see the bullet items to the right). If you experience them, call your health care team right away. Doing this quickly can help you feel better, stay more healthy and could even prevent re-hospitalization.

Common Symptoms of Heart Failure:

- difficulty breathing
- swelling in feet, ankles and legs
- abdominal swelling or in the small of your back
- weight gain, despite loss of appetite
- extreme fatigue
- dizziness, lightheadedness, inability to concentrate

It's important to know that heart failure symptoms can be managed. If you notice recurring symptoms and respond to them quickly, you can help keep yourself out of the hospital.

Even though heart failure cannot be cured, there are many things in addition to what other heart patients do that can help you feel better and manage your disease better:

- Take your medications as directed.
- Follow a low-sodium diet.
- Exercise regularly based on your health care team's guidelines.
- Monitor your weight daily.

Heart Failure Questions and Answers

Q. *What is heart failure?*

A. Heart failure means your heart is unable to supply your body with enough blood to meet its demands. Your heart may be damaged and pump with less force. When your heart cannot pump enough, your heart gets larger, so it can hold more blood. Your heart muscle begins to wear out as it tries to pump this increased blood. Because your heart is weakened, it pumps less blood to your organs — especially to your kidneys, which normally help your body remove excess fluid. Your body holds excess fluid, causing congestion sometimes called “congestive” heart failure.

Q. *What causes heart failure?*

A. The most common causes are coronary artery disease, heart attack, cardiomyopathy, high blood pressure and valve disease.

Q. *What are common signs and symptoms of heart failure?*

A.

- difficulty breathing
- swelling, extra fluid (edema) in your feet, ankles and legs
- abdominal swelling
- weight gain, despite loss of appetite
- extreme fatigue
- dizziness, lightheadedness, inability to concentrate.

Q. *When do I need to call my doctor?*

A.

- weight gain of more than two pounds in one day, or five or more pounds in one week
- swollen ankles, legs or abdomen
- increased fatigue
- increased shortness of breath on exertion, shortness of breath at night or when lying flat
- unexplained cough, or a “hacking” night cough

- coughing up pink or blood-tinged phlegm
- decreased urination during the day, but more frequent need to urinate at night
- need to sleep with more pillows at night
- lightheadedness, dizziness
- nausea or inability to eat and/or take medications.

Q. *When do I need to call 911?*

A. Call 911 if you:

- pass out or faint
- become extremely short of breath or are unable to talk due to breathlessness
- have severe chest pain that is not helped by three nitroglycerin pills taken at five-minute intervals
- have a continuously rapid, racing heartbeat.

Q. *What activities can I do? And when?*

A. Check with your health care team for what's right for you. Some general guidelines:

- Balance exercise with rest.
- Increase exercise slowly.
- Do not exercise immediately before or after meals.

Q. *How do I know if I'm doing too much?*

A. If you experience any of these symptoms, stop and rest:

- dizziness or lightheadedness
- nausea and vomiting
- cold sweat
- shortness of breath which makes conversation difficult
- extreme exhaustion or unusual fatigue
- feeling as if your heart is suddenly racing or pounding
- any chest pain or pressure referred to the teeth, arm, jaw, ear, neck or between your shoulder blades
- any new orthopedic problem, such as joint or muscle pain. See your doctor for advice.

Tip:

Every day, weigh yourself at the same time and on the same scale. Be sure to write it down.

Q. *What if my weight increases? How much is too much?*

A. A buildup of water in your body causes weight gain. When your body retains fluid, your weight goes up. Let your doctor know if you gain two pounds or more in one day, five pounds or more in a week, or if your weight stays the same but you're not eating well. This is why it is important that you weigh yourself at the same time every day.

Q. *Is my scale OK to use?*

A. Yes. Write down your weight when you get home from the hospital so you have a baseline weight. Weigh yourself at the same time on the same scale every day.

Q. *Are there diet restrictions I need to follow?*

A. ■ Limit your sodium — this is very important to prevent fluid retention.
■ Maintain appropriate weight — being overweight makes your heart work harder.

Q. *What medications are used for heart failure and what do they do?*

A. A combination of different types of medications are helpful for people with heart failure. For example, **ace inhibitors** relax your blood vessels and make it easier for your heart to pump blood. Sometimes it takes several weeks before you feel benefits. **Diuretics** help rid your body of excess fluid by increasing your production of urine. The workload of your heart is reduced when the amount of fluid in your body is reduced. **Digoxin** strengthens your heart so it can pump more blood, and controls irregular heart rhythms. **Warfarin (Coumadin®)** decreases the clotting ability of the blood and helps to prevent blood clots. **Beta blockers** reduce the work load on your heart and help your heart work with less oxygen.

Tip

If you have heart failure, remember to weigh yourself first thing in the morning with the same amount of clothes on. Record your weight on a calendar to track whether you are gaining, losing, or staying the same.

Tip

You should have enough breath to talk during exercise!

Nutrition

Diet is very important if you have heart failure. A reduced sodium diet can improve your heart health. When sodium intake is high, your body retains more water to help to dilute the extra sodium. This extra fluid causes your heart to work harder.

Fluid consumption

Congestive heart failure is sometimes treated by reducing fluid intake. Your health care team may recommend that you limit how much fluid you consume in a day.

Exercise

Talk with your health care team about what kind and how much exercise you should be doing now — and what goals you should be setting for later.

It may seem hard to imagine yourself exercising when right now it may be difficult to even catch your breath. There are ways to help yourself feel more comfortable breathing, during daily activities and during exercise. Ask your team for suggestions and try these tips:

How to help you breathe easier

You'll be less short of breath and be able to do more if you follow these steps:

1. Before doing any work or exercise, take in deep abdominal breaths.
2. Do the hardest part of your work or exercise while you are breathing out.
3. Try to breathe in through your nose and out through pursed lips for twice as long as you breathe in. For example, when walking, develop a rhythm of breathing in for two steps and breathing out for four steps.
4. Never hold your breath while performing daily activities or exercises.
5. Don't rush through an activity to get it over with. Take your time and rest if needed.
6. Pace yourself.

How to do deep abdominal breathing

Singers and athletes learn how to do this kind of breathing, using their diaphragm, to breathe better. You can use it this way, too.

1. Relax. Rest one hand on your abdomen and the other on your upper chest.
2. Breathe in through your nose and let your abdomen come out as far as it will. The hand on your abdomen should move outward and upward.
3. Keep your upper chest relaxed. The hand on your upper chest should not move.
4. Breathe out slowly through pursed lips. If you feel dizzy, wait for a few breaths before you try it again.

Make abdominal breathing second nature by practicing it every day as often as you think about it. Do it first while lying down or sitting, then while you are walking. The more you do it, the easier it will become. The muscles you use will become stronger while your breathing becomes deeper and easier.

Your Heart Failure Exercise Program

If you have heart failure, your regular exercise sessions should include the following:

1. Begin with deep abdominal breathing.
2. Warm up for five to 10 minutes until low-level activity slowly raises your heart rate and increases blood flow to the muscles you'll be exercising.
3. Stretch in slow, controlled movements that extend your muscle fibers and put your joints through their full range of motion.
4. Do aerobic exercise that continuously uses large muscle groups and raises your heart rate, like biking, walking and swimming.
5. Do low-level activity and stretching that gradually allows your heart rate to return to normal and helps you cool down.

Tip

If you skip more than two days of exercise, restart your program at a lower level and gradually increase again.

Tip

If it feels too hot or too cold — for your usual outdoor exercise, take it indoors. Walk inside an air-conditioned (or heated) shopping mall or gym. Be careful in cold or hot weather.

In the summer, if the air temperature plus the percent humidity are greater than 160, exercise indoors. For example, 75 F plus 80 percent humidity equals 155 so exercise outside would be OK. If the temperature is 85 F plus 87 percent humidity equals 172, then exercise indoors.

Tip

Winter weather advice

Cold air constricts your blood vessels. When you go outside in cold weather, use a face mask or scarf to cover your nose and mouth — it helps warm the air before you breath it in. The higher the wind chill factor, the more difficult you may find it to take a deep breath. If the wind chill factor is 25 below zero or more, there is an increased danger to your skin as well.

Dress for the weather

- In cold weather, wear a scarf or mask over your mouth. Dress in layers.
- Avoid saunas, hot tubs and very hot or cold showers.
- Don't exert yourself in hot and humid or cold and windy weather.

Conserve energy

When you have heart failure, you may experience a lack of energy. Here are tips for how you can help yourself:

- Use your energy wisely. Find the time of day when your energy level is highest and use this time for your most taxing activities. If you get fatigued in midafternoon, try cooking and doing housework earlier in the day. Save this time for lighter activities or a nap.
- Change your position frequently. Break up your work with a stretch or a walk.
- Avoid long holding positions. Use a purse with a shoulder strap, rather than a clutch bag. Use a speakerphone or headset instead of holding the telephone receiver.
- Avoid reaching and bending. Use lazy susans, pull-out shelves and reacher devices.
- Avoid lifting. Slide items and use carts. When you have to lift (nothing heavier than 15 pounds!), bend your knees slowly, squat and lift with your thighs, not with your back. Don't twist or reach to the side. Exhale as you lift.
- Don't hold your arms high for more than brief periods. When washing, curling or blow-drying your hair, bring your arms down to rest every 15 seconds.
- Don't stoop or bend for long periods. Sit on a stool to weed the garden.
- To avoid decreased circulation in your legs, cross them at the ankles, rather than at the knees. Better yet, don't cross them at all! Try to avoid crossing your legs in bed, too.

Rest and relax

- Avoid over-tiring yourself or pushing yourself to finish a job. If you are tired, stop and rest, no matter what you are doing.
- Climb stairs slowly. Limit stair climbing to a few trips a day. Don't carry heavy items when you climb.
- Limit visitors and don't hesitate to excuse yourself from company when you feel tired.

Reduce stress

- Avoid rush hour traffic, rush time shopping and rushing to appointments.
- Give yourself plenty of time to get from one place to another.
- Learn to let go. Don't be a perfectionist. If you enjoy entertaining, have people over for dessert or potluck, instead of a five-course meal. Let others help.
- Simplify your life. Buy easy care, wash-and-wear clothing. Skip ironing and hand washing. Try a low-maintenance hairstyle. Look for other ways to make your life easier.

Equip yourself

Visit medical supply stores, discount stores and pharmacies to find equipment and devices that can help you. What one patient finds useful, another doesn't need. Experiment!

Some possibilities:

- long-handled reachers
- bath/shower chairs
- hand-held shower kit
- grab bars for the bathroom
- raised toilet seats
- long-handled sponge
- long-handled shoe horn
- long-handled sock aid.

Plan ahead

- Plan ahead for rest. Schedule rest breaks or "power naps."
- Find shortcuts. Combine shopping trips with errands, when possible. Don't make two trips when you can make one. Plan your trips up and down the stairs. Keep a basket at the bottom of the stairs for items that must go up. Make one trip instead of four.

Let Your Health Care Team Know if You Are Experiencing:

- more shortness of breath than normal
 - weight gain of two or more pounds in one day, or five pounds in one week
 - swelling in your feet, ankles, legs or abdomen
 - increased coughing
 - increased weakness or fatigue
 - loss of energy
 - waking up at night breathless
 - having to use more pillows at night, or finding you can sleep more comfortably in a chair.
- **Plan meals in advance.** Cooking can be simplified if you plan, shop and prepare in advance. Cook a double portion and freeze half for an easy meal later. Use a shopping list to avoid return trips.
 - **Find a balance.** Don't try to do everything in one day. Spread housework over the whole week, balancing heavy and light chores. Clean one room a day. Vacuum one day, dust the next.
 - **Delegate.** Have family and friends help. Give duties to children or friends. Have groceries delivered. If you can afford it, hire a cleaning person and lawn help. Many communities offer services to help with meals, transportation and chores.
 - **Eliminate.** Many chores can be eliminated without serious consequences. Leave your bed unmade. Let dishes air dry. Use your energy to do something you want to do, instead of something you feel you have to do.
 - **Make your health your number one priority.**

Your Notes

Risk Factors

You are an important member of your own health care team. There are things only you can do that will be critically important to your own recovery and continued health.

Many people with heart conditions find that making a variety of changes in their everyday routines and habits are key to feeling their best. You can help your heart and your health by managing your risks factors and living a healthy lifestyle. Certain behaviors, habits and other elements can put your heart at a high risk for problems. Some of these you can control; others you cannot.

Become an Active Member of Your Health Care Team:

- Understand your plan of care.
- When you don't understand, ask questions! Write them down and bring them with you to appointments.
- Know your medications — carry a list of their names, doses and how often you take them.
- Take your medications at the correct time and in the right amount.
- Keep regular appointments with your health care team.
- Make suggestions and talk honestly with your health care team.

Risks You Cannot Control

Tip

After menopause, women's risk of heart disease is equal to men. This may be due to a decrease in estrogen levels. Discuss hormone replacement therapy with your doctor.

- family history and genetics
- age (men over 55 and women over 60)
- gender (men develop heart disease earlier than women).

Risks You Can Help Control

Tip

Three major risk factors are:

1. tobacco use
2. hypertension (high blood pressure)
3. high cholesterol.

Tobacco use

Smoking increases your heart rate, blood pressure and workload of your heart. If you smoke, your blood clots faster, increasing your risk of heart attack, stroke and circulatory problems. Smoking also adversely affects your cholesterol levels, and causes your blood vessels to contract (get smaller), which can cause chest pain. Avoid places where you will be exposed to "second-hand" smoke. Request non-smoking sections in restaurants and public places.

Help control this risk by quitting altogether or at least by reducing your use of tobacco. Ask your health care team for help.

High blood pressure

A reading of 140/90 or greater is considered high blood pressure, or **hypertension**. The first (top) number is the **systolic blood pressure**. It measures the amount of pressure within the walls of your blood vessels *during* heart beats. The second (bottom) number is the **diastolic blood pressure**. It measures the amount of pressure within the walls of your blood vessels in *between* heart beats, when your heart is resting. It is usually written like a fraction (120/85).

Blood pressure for adults

	Systolic number (mmHg)	Diastolic number (mmHg)
Optimal	less than 120	less than 80
Normal	less than 130	less than 85
Normal to high	130-139	85-89
HYPERTENSION		
Stage 1	140-159	90-99
Stage 2	160-179	100-109
Stage 3	180	110

Help control your risk by following your health care team's recommendations about managing your blood pressure. These recommendations may include: a diet low in fat, sodium, and cholesterol; lowered fluid intake; regular exercise; decreasing your alcohol consumption; stopping smoking; using medication. You should also check your blood pressure regularly and alert your health care team to changes. Ask your health care team to tell you what your target blood pressure should be.

Tip

There are several risk factors you can help control. Your health care team may ask you to concentrate on just one or two for now. You can make these decisions together.

Did You Know?

For every one pound of extra weight that you carry, your heart has to pump your blood through an extra mile of blood vessels.

Stress

Strong emotions (like excitement, tension, fear, anger, frustration and anxiety) can stimulate higher chemical releases, which increase your heart rate and blood pressure. Tension causes small arteries throughout your body to contract and may temporarily raise your blood cholesterol levels.

Help manage this risk by trying to reduce the causes of stress in your life and by developing effective ways of coping with stress. Learn to recognize what causes your stress. Avoid things that cause high emotional stress. Experiment with positive ways of dealing with the stress you can't eliminate. Take deep breaths and release them slowly. Learn to relax. Schedule activities at a leisurely pace. Avoid rush hour traffic and busy shopping times. Schedule time to "do nothing" or do activities that you enjoy. Take time to take care of yourself. Attend a relaxation class and ask your health care team for guidance. You can also try other complementary therapies, such as massage, to cope with stress.

Lack of exercise

Regular exercise is important to maintain your ideal body weight and manage your cholesterol levels, stress level and blood pressure. Exercise will also improve your muscle tone, improve how well your heart and circulation work, increase your resistance to fatigue, help prevent blood clot formation in your arteries, improve your mental and emotional well-being, decrease your blood fats, suppress your appetite and more.

Help manage this risk by beginning and maintaining an exercise program. Start small, but keep at it. Your health care team will have suggestions for you.

Weight

Being overweight makes your heart work harder. But eating an inadequate diet to try to lose weight is not healthy, either. Help manage this risk by working to maintain the body weight that is right for you:

- Eat a well-balanced diet.
- Limit fats and sweets.
- Do activities and exercise as you are able.
- Eat only when you are hungry, not when you are bored, tired or feeling stressed.

Eating habits

What you eat directly affects the health of your heart and your own comfort. High cholesterol (also called hyperlipidemia) is a major risk factor for heart disease. Eating too much saturated fat can raise your cholesterol count and lead to coronary artery disease. Eating too much sodium makes your body retain fluid and makes heart failure and other symptoms worse such as increasing your blood pressure. Eating too much or too little potassium can make your heart rhythm irregular. Help manage this risk by following the eating plan prescribed for you by your health care team.

Did You Know?

People with diabetes are two to four times more likely to get heart disease than people without diabetes.

Diabetes

Having diabetes puts you at increased risk for heart problems because of the disease's effect on your blood vessels. When diabetes is not under control, you have a build up of sugar in your blood which leads to an increase in triglycerides. These can clog your blood vessels.

Though you can't control whether or not you have diabetes, you can manage your diabetes effectively — and that will help manage this risk factor. Work with your health care team to keep your fasting blood glucose below 120 mg/dl, and your hemoglobin A1c below 7.5 percent.

Alcohol

There is evidence linking excessive alcohol consumption and heart disease. Heart enlargement and heart failure can occur after long-term moderate or high levels of alcohol intake. Also, alcohol adds high numbers of calories to your diet and elevates your triglyceride count.

Medications

Tip

Don't believe everything about heart problems and medications that you read on the Internet. Bring in your Web site information and talk it over with your health care team.

The kinds and dosages of medications your health care team prescribes for you depends on your individual health, your particular heart problem, your other medical problems and your reaction to each medication itself. You may have a friend or family member with a similar heart problem who takes very different medication types and dosages. Although there are some general guidelines for each type of heart problem, your medications will be chosen specifically for your situation.

Expect an adjustment period. Your body needs time to get used to the medication, and your doctor needs to adjust the dosages to find the most effective prescription for you.

With heart problems, it's common for a doctor to start with one medication, add others, switch to new ones and adjust dosages. Try to be patient as you and your health care team work together to find:

- the right medicines for you
- the right dosages for you
- the best times of day for you to take medications.

Medication Questions You Should Ask

Before leaving your doctor's office, drug store or hospital with any prescription, be sure to ask you doctor, nurse clinician or pharmacist:

- What is the name of the drug and what will it do?
- How often should I take it?
- How long should I take it?
- When should I take it? As needed? Before, with, after or between meals? At bedtime?
- If I forget to take it, what should I do?
- What side effects might I expect? Should I report them to you?
- Is there any reading material about this drug that I can take with me?
- If this drug doesn't work, are there others that should be tried?
- Does this drug interact with any of the other drugs that I am currently taking?

Medication Do's and Don'ts

Tip

You may want to choose one pharmacist or pharmacy to help you manage all of your medications. This can help you keep track of changes and be a good source for answers to drug questions.

Tip

When you are taking certain cardiac medications, drinking grapefruit juice may be harmful. Ask your pharmacist if this affects you.

- Do store medications out of the reach of children.
- Do store medication away from heat, light and humidity.
- Do refill your prescriptions before they run out.
- Do tell each doctor, dentist and health care team member about all the drugs you are taking.
- Do ask your pharmacist for an easy-open cap if there are no children in your home.
- Do take all your medication — don't stop early!
- Do check with your health care team about herbal medicines and dietary supplements that you are using or want to start using.
- Don't take medications prescribed for someone else.
- Don't substitute one drug for another.
- Don't refrigerate your drugs unless your pharmacist tells you to do so.
- Don't store medication in the bathroom or near the kitchen sink — humidity can affect drugs.
- Don't keep outdated medication.
- Don't get caught without your medication when you leave home or go on vacation.
- Don't mix different pills in the same bottle — it can lead to mix-ups.
- Don't skip a dose and don't take more than your prescribed dose.

Tips for taking medications safely

You may find your changing medications and dosages difficult to remember. Write down your doctor's instructions. Ask your pharmacist to repeat medication directions to you clearly. Write down what you take and when you take it.

When your heart isn't healthy, it is critically important that you take your medication in exactly the right dose at exactly the right times. Take your medication as prescribed — it's very important to work with your health care team to design a daily schedule for your medications that meets your needs.

Remember to refill your prescriptions on time. Keep at least a one week supply on hand. Call your pharmacy for refills a week before you need them. Plan ahead for vacations.

If you have a financial problem and can't afford your medications, talk with your health care team. There may be a less expensive alternative or financial assistance may be available.

If you miss a dose of medication, take it as soon as you can, and then go back to your regular dose schedule. If you don't realize you've missed a dose until it's time for the next dose, don't take a double dose! (To help you keep track of your medications, see the Medications Worksheet in the Worksheet section of this book.) If you have questions, ask your pharmacist.

What's In a Name?

Medications usually have two names: a generic name of the type of drug, and then a brand name the specific pharmaceutical company gives the drug. Different companies call the same drug different names. Learn both the generic and the brand names of the drugs you take.

Taking Over-the-Counter Medications

Learn the names and dosages of the medications prescribed for you. When you select an over-the-counter medication, including herbs and vitamins, tell your pharmacist which heart medications you are taking, and ask if a particular over-the-counter medication is safe for you.

If you have heart failure, these tips may help:

Medication Rules:

- Write down your doctor's instructions.
- Ask your pharmacist to repeat them to you clearly.
- Write down what you take and when.
- Take your medication exactly as prescribed.
- Remember to refill your prescriptions on time.
- Don't skip a dose!

The safest cough and cold medications for you are:

- chlorpheniramine (Chlortrimeton®)
- diphenhydramine (Benadryl®)
- dextromethorphan (Robitussin DM®)
- guaifenesin (Robitussin®)

Medications and ingredients in medications that you should *not* take:

They contain stimulants that make your heart work harder.

- pseudoephedrine (Sudafed®, Actifed®, Comtrex®, CoTylenol®, Nyquil®)
- phenylephrine (Neo-Synephrine®)
- phenylpropanolamine
- ephedrine or any kind of appetite suppressant.

Medications that are high in sodium:

- Vicks Cough Syrup® or Vicks Formula 44®
- Alka Seltzer® or Alka Seltzer Pain Relief®
- Phospho-Soda®
- Fleets Enema®.

Medications that may cause you to retain sodium and fluid:

- ibuprofen (Nuprin®, Advil®, Motrin®, and many others)
- ketoprofen (Orudis KT®, Actron®)
- naproxen (Aleve®)
- glucocorticoids (prednisone, methylprednisolone).

Herbal products, dietary supplements such as vitamins and alternative medicine

These products may seem harmless because they are “natural,” but they may also interfere with the work of your prescribed medications. Talk with your health care team or your pharmacist before starting a new herbal, vitamin or other alternative medicine therapy. Also tell your team what things you are currently taking.

Nutrition

When it comes to the health of your heart, what you eat is as important as the medication you take. To help your heart, your health care team may advise you to: lower your cholesterol, eat less saturated fat, consume less sodium or to do some combination of these.

The American Heart Association recommends certain guidelines for you to follow regarding the amount of fat, sodium and cholesterol in your diet.

Manage Your Dietary Risk Factors

Tip

Eventually, you may have to make changes in several areas of your diet. There are several dietary factors you can address. Your health care team may ask you to concentrate on just one or two. Ask them what they want you to focus on now.

Tip

You can reduce triglycerides by limiting alcohol use, by doing aerobic exercise and by losing weight if you are over weight.

Cholesterol

One risk factor that is strongly linked to cardiovascular disease is a diet that is high in cholesterol. Blood cholesterol naturally occurs in your body. It is a white, waxy substance that is found in cell walls, hormones and bile acids in your body. How much cholesterol you have in your body is determined by several factors: your genetics, your food choices, your weight and your activity level.

There are two kinds of cholesterol, sometimes called “good” and “bad.”

“Good” cholesterol is called **high density lipoprotein**, or **HDL**. HDLs are believed to help remove “bad” cholesterol from your body, so the more you have — the higher your HDL levels — the better. HDL levels under 35 mg/dl is considered a risk factor for heart disease. You can increase your HDL level with aerobic exercise, losing weight and not smoking.

“Bad” cholesterol is **low density lipoprotein**, or **LDL**. LDL carries cholesterol from your liver to other tissues in your body, and forms deposits on blood vessel walls. Too much cholesterol can build up in your blood vessels and “clog the pipes.” LDL levels of 100 mg/dl are desirable in a person with heart disease. For a healthy person, levels below 130 mg/dl are desirable.

Sometimes, you’ll hear **triglycerides** discussed along with cholesterol. Triglycerides are a normal part of your blood. High levels can be caused by alcohol use or high sugar and fat intake. High triglycerides with low HDL are associated with increased risk of heart disease. Check the following chart for good levels.

For people with coronary artery disease

Risk level	Total Cholesterol	LDL "Bad" Cholesterol	HDL "Good" Cholesterol	Triglycerides
High	Above 200	Above 130	Less than 35	400-1000
Borderline	180 - 200	100- 139	Less than 35	200-400
Desirable	Below 180	Below 100	Above 35	Below 200

To keep your heart its healthiest, your cholesterol levels should fall within the recommended range. Record your test results in the Worksheets section, and watch your levels improve over time.

Fat

Tip

One way to tell the difference between unhealthy saturated fats and healthier unsaturated fats:

- Saturated fats are usually solid at room temperature (butter, meat fat, lard).
- Unsaturated fats are usually liquid at room temperature (safflower oil, corn oil, olive oil, canola oil).

Because butter is rich in both saturated fat and cholesterol, it is potentially a cholesterol raising food — a kind of food that causes arteries to be blocked. Most margarine is made from vegetable fat and provides no dietary cholesterol.

There are three types of fat: **saturated**, **polyunsaturated**, and **monounsaturated**. Saturated fats tend to raise blood cholesterol levels. Polyunsaturated and monounsaturated fats tend to lower it.

Saturated fats

Saturated fats are found in animal products such as butter, cheese, whole milk, ice cream and fatty meats. They are also found in some vegetable products, such as coconut, palm, and palm kernel oil. Saturated fats raise blood cholesterol more than anything else you eat. Saturated fats are solid at room temperature.

Polyunsaturated fats

Polyunsaturated fat can actually help reduce blood cholesterol, if you substitute them for saturated fats. Polyunsaturated fats are usually of vegetable, seed or nut origin: corn, safflower, sunflower, soybean, cottonseed and sesame seed oils, for example. These fats are liquid at room temperature.

Monounsaturated fats

Monounsaturated fat, in limited amounts, may reduce total cholesterol and LDL levels. Monounsaturated fats are usually of seed or nut origin: olive, peanut and rapeseed (canola) oils, for example. These fats are liquid at room temperature.

Cholesterol

Dietary cholesterol is found only in animal products such as meats, dairy products and eggs. Blood cholesterol levels are affected by saturated fat in the diet as well as dietary cholesterol.

Fiber

Tip

When increasing fiber in your diet, do so gradually and increase your fluid intake at the same time (unless your health care team advises differently). Otherwise, you may experience cramping or bloating.

Tip

Your total dietary fiber intake should be 25-30 grams a day from food — not from supplements. Most people only eat half as much fiber as they need.

Hydrogenation

You may see food labels listing “hydrogenated fat.” This fat should be avoided as much as possible in your diet. **Hydrogenation** is a chemical process that changes liquid vegetable oils into solid fats, like vegetable shortening. This increases the amount of saturated fat in the food.

Transfatty acid

Transfatty acids begin as unsaturated fats and are processed, or hydrogenated, to remain hard at room temperature (vegetable shortening and stick margarine, for example). These fats can have the same harmful effects on your circulatory system as cholesterol.

Dietary fiber means the parts of plants that your body can’t digest. Though that makes it sound like something you shouldn’t eat, fiber is actually a highly desirable part of a healthy diet. There are two kinds of fiber, soluble and insoluble.

Soluble fiber

When eaten on a regular basis as part of a low-fat, low-cholesterol diet, soluble fiber helps lower your blood cholesterol. Foods high in soluble fiber include oat bran, oatmeal, beans, peas, barley, citrus fruits, strawberries and apple pulp. Of these, oats have the greatest proportion of soluble fiber.

Insoluble fiber

Insoluble fiber does not help lower blood cholesterol, but aids in normal bowel function. Foods high in insoluble fiber include whole wheat breads, wheat cereals, wheat bran, rye, rice, barley, most other grains, cabbage, beets, carrots, brussels sprouts, turnips, cauliflower and apple skin.

Making fiber a part of your diet

The American Heart Association (AHA) Eating Plan suggests eating a variety of food fiber sources. Foods that contain fiber also are often good sources of other essential nutrients. Depending on how these foods are prepared, they are often low in fat, saturated fatty acids, and cholesterol, too. Good sources of dietary fiber include fruits, vegetables, whole grain foods, beans and legumes.

The AHA recommends the following nutrition guidelines on the following pages.

Food Group	Recommended	Avoid or use sparingly
<p>Grains 6 servings or more</p> <p>Breads/starches One serving=1 slice of bread or 1/2 hamburger bun, 1/2 English muffin, or 1/2 bagel</p> <p>Crackers</p> <p>Cereals 1 serving=1 oz. dry cereal or 1/2 cup cooked cereal.</p> <p>Potatoes/Pasta/Rice 1 serving=1/2 cup cooked rice, pasta, mashed potatoes, barley, kasha, or one small baked potato</p>	<p>Breads: All kinds (wheat, rye, raisin, white, oatmeal, Italian, French, and English muffin bread). Low-fat rolls: English muffins, frankfurter and hamburger buns; water (no egg) bagels; pita bread; tortillas (not fried). Pancakes, waffles, biscuits, and muffins made with recommended oils. If eating snack chips, choose baked or reduced fat varieties.</p> <p>Low-fat crackers and snacks: animal, graham, rye, saltine (with recommended oil and no lard), bread sticks, melba toast, rusks, flatbread, pretzels, popcorn (made with a recommended fat), zwieback, wheat crackers. <i>Crackers should contain 2 grams or less of total fat per serving!</i></p> <p>Hot or cold cereals: All kinds except granola-type cereals made with coconut or coconut oil.</p> <p>All kinds of potatoes, rice, and pasta (such as macaroni, spaghetti, and noodles), barley, and kasha — except those listed to avoid.</p>	<p>Products made with egg yolks, oils, or whole milk products. Butter rolls egg breads, egg bagels, cheese breads, croissants. Commercial doughnuts, muffins, sweet rolls, biscuits, waffles, pancakes, store-bought mixes.</p> <p>High-fat crackers: cheese crackers, butter crackers, and those made with coconut or palm oil. Buttered popcorn.</p> <p>Cereals containing coconut, hydrogenated vegetable fat, animal fat or nuts.</p> <p>Pasta or rice prepared with whole eggs, cream sauce or high fat cheese. Egg pasta, chow mein noodles, french fries.</p>
<p>Vegetables 3 servings or more 1 serving=1 cup raw or 1/2 cup cooked</p>	<p>All vegetables and vegetable juices.</p>	<p>Fried vegetables. Vegetables in cream, butter or high fat cheese sauces.</p>
<p>Fruits 2 servings or more 1 serving=1/2 cup juice or canned fruit or 1 piece of fresh fruit</p>	<p>All fruits (e.g. apple, pear, orange, etc. All fruit juices)</p>	<p>Fruit in cream or custard.</p>
<p>Meat & substitutes Maximum 6 oz. cooked weight per day. 2 servings of lean meat, poultry or seafood. 1 serving=3 ounces lean meat or 1/4 cup canned tuna or salmon (packed in water)</p>	<p>Limit your intake of meat, seafood, and poultry to no more than 6 ounces, cooked weight, per day. Choose lean, trimmed cuts of USDA Choice or Select grades. Beef: top round, top loin, round tip, eye of round, sirloin, tenderloin, flank. Pork: loin chops, roasts, butterfly chops, sirloin chops, tenderloin, Canadian bacon, ham. Lamb: chops, leg, roast. Poultry: choose skinless cut. All fish and shellfish (limit shrimp, lobster, and sardines to no more than 1 serving per week). Wild game: wild duck, rabbit, pheasant, venison. Meatless dishes: recipes with dried beans, peas, lentils, tofu (soybean curd), vegetarian type burgers and peanut butter (non-hydrogenated).</p>	<p>Prime grade and other heavily marbled and fatty meats such as short ribs, spare ribs, rib eye roast or steak. Also, mutton and caviar. Commercially fried fish. Domestic duck, goose; venison sausage. Organ meats: liver, gizzard, heart, chitterlings, brains, kidney, sweetbreads. Avoid battered and breaded products as well as frankfurters, sausage, salt pork, bacon and high-fat luncheon meats (salami, bologna, summer sausage).</p>

Food Group	Recommended	Avoid or use sparingly
<p>Eggs Maximum of 4 egg yolks per week</p>	<p>2 egg whites=1 egg in recipes Limit egg yolks to no more than 4 per week, including those used in cooking. Egg whites or low cholesterol egg substitutes may be used as desired.</p>	<p>More than 4 egg yolks per week, including those used in cooking.</p>
<p>Milk 2 -3 servings 1 serving=1 cup milk, 8 oz. non fat or low fat yogurt, 1/2 cup low fat cottage cheese, or 1 oz. low fat cheese</p>	<p>Skim or 1 percent milk: liquid, powdered, or evaporated. Buttermilk, drinks made with skim or low fat milk or cocoa. Chocolate milk or hot cocoa made with skim or low fat milk. Non fat or low fat yogurt. Low fat cheeses: see meat and substitute section. Low fat cheeses: nonfat or low fat cottage cheese (1 percent or 2 percent fat); cheeses made with part skim milk, such as mozzarella, farmer's, string or ricotta. Cheeses should be labeled no more than 2-6 g fat per oz.</p>	<p>Whole milk and whole milk products, 2 percent milk. Custard style yogurt. Cream, half & half. Whole milk type cheeses, including colby, cheddar, muenster, monterey jack, havarti, brie, camembert, American, Swiss and blue. Creamed cottage cheese, cream cheese.</p>
<p>Soups & combination foods</p>	<p>Low fat soups: broth, bouillon, dehydrated soups, homemade broth, soups with the fat removed. Homemade cream soups made with skim or low fat milk. Low fat combination foods: spaghetti, lasagna, chili and Spanish rice are examples of foods that can be low fat if low fat ingredients and low fat cooking techniques are used.</p>	<p>Cream soups made with whole milk, cream or high fat cheese.</p>
<p>Desserts & sweets <i>In moderation</i></p>	<p>Ice milk, sherbet, frozen yogurt, popsicles, fruit ices, gelatins, meringues, angel food cake. Homemade desserts with recommended fats, oils, and milk products. Use the weekly egg yolk allowance, or try egg whites in recipes. Vanilla wafers, ginger snaps, fortune cookies, fig bars, anything fat-free. Jam, jelly, honey, marmalade, sugars, and syrups. Pure sugar candy such as gum drops, hard candy, jelly beans, marshmallows and non-chocolate mints.</p>	<p>Commerically prepared cakes, pies, cookies, doughnuts, croissants, pastries. Refer to label reading section. Ice cream or ice cream drinks. Candy that contains coconut, butter, hydrogenated fat. Recent research indicates eating <i>small</i> amounts of dark chocolate are fine.</p>

Food Group	Recommended	Use in small amounts
<p>Fats & oils Maximum of 5-7 servings per day (varies with calories needed) Serving size (5 g fat/serving)= 1 tsp. soft margarine, 1 tsp. oil, 1 Tbsp. diet margarine, 1 Tbsp. reduced calorie mayo, 2 tsp. peanut butter, 1 Tbsp. regular salad dressing, 2 Tbsp. light salad dressing, 2 Tbsp. non-dairy, low fat creamer, 1/8 medium avocado, 5 large olives, 1 Tbsp. sunflower seeds, 1-2 Tbsp. low fat cream cheese or low fat sour cream (fat contents vary), limit to less than 5 grams fat per serving.</p>	<p>Vegetable oils: canola, olive, peanut, safflower, sunflower, corn, soybean, cottonseed, sesame. Margarines: spray, tub, or squeeze, with one of the above oils listed as a liquid as the first ingredient. Salad dressing or mayonnaise: homemade or commercial, made with a recommended oil. Low or non fat salad dressing or mayonnaise. Limit added fats and oils to 6 to 8 servings per day (includes fats used in cooking, baking, salads, and spreads on bread). <i>Remember to read labels.</i> Avocado and olives can be used in small amounts, as they are high in fat, but good sources of monounsaturated fats. Benecol and Take Control are cholesterol-lowering food supplements that can be used in place of margarine.</p>	<p>Solid fats & shortenings: butter, lard, salt pork, bacon drippings. Gravy containing meat fat, shortening or suet. Margarines in which the first ingredient is not a liquid oil. Chocolate, cocoa butter, coconut. Coconut oil, palm oil or palm kernel oil - these ingredients are often used in bakery products. Non dairy creamers, whipped toppings, candy, and commercially fried foods. <i>Read labels carefully.</i> Half & half, heavy or whipping cream.</p>
<p>Beverages</p>	<p>Coffee (regular or decaffeinated), tea. Regular or diet carbonated beverages. Mineral water. Alcohol: check with your doctor. Moderation is recommended.</p>	<p>Any beverage that contains avoided fats or egg yolks. Limit rich specialty coffees.</p>
<p>Condiments & misc.</p>	<p>All seasonings and condiments. Cocoa powder. "Cream" sauces made with recommended ingredients. Use herbs & spices to season.</p>	<p>Carob powder made with hydrogenated fats.</p>

Heart-healthy Cooking

The more liquid the margarine is, the less hydrogenated it is with less transfatty acids. Margarine is a good substitute for butter, and soft margarines are better than hard ones.

Tip

Many commercial oat bran and wheat bran products, like muffins, chips, and waffles, actually contain very little bran — and, may be high in sodium, total fat and saturated fatty acids. Read your labels!

You can easily alter most recipes in ways that reduce calories, fat, saturated fat, cholesterol. With just a few minor changes in the ingredients and preparation methods, most of your favorite foods can probably become healthy foods in your new eating plan. See the recipe modification section on this page.

- Choose low-fat cuts of meat. (See previous chart for examples.)
- Remove all fat from meats and skin and fat from poultry before cooking.
- Broil, roast or bake meat to allow fat to drip into a pan and away from the meat.
- Don't deep-fry foods. Instead, saute meats or vegetables in a small amount of oil, water or broth.
- Pan broil foods on a non-stick surface (Teflon®, Silverstone®). Remove any fat as it accumulates.
- Coat cookware with a low-calorie vegetable oil cooking spray, instead of "greasing" the cookware with shortening, margarine or butter.
- Avoid gravies made with fatty drippings. Use an ice cube to congeal and remove fat, or a gravy strainer to separate fat from the juices.
- Skim fat off soups and stews before serving.
- Use herbs and spices to season, rather than butter, margarine or bacon.

Recipe modifications

Use this chart to help alter your favorite recipes in heart-healthy ways.

Ingredients

1 whole egg
1 cup butter, shortening, or lard
1 cup oil in baked goods
1 cup whole milk
Cream
1 cup sour cream

1 oz. (1 square) baking chocolate
1 cup ice cream
Cream soup
1 Tbsp. Cream cheese

1 oz. cheddar, colby, swiss cheese

Substitutions

1/4 cup egg substitute
2 egg whites
1 cup margarine
1/2 cup margarine plus 1/2 cup fruit puree (applesauce)
Equal amounts of fruit puree or applesauce or decrease oil to 2/3 cup
1 cup skim milk
Evaporated skim milk
1 cup plain low fat yogurt
1 cup low fat cottage cheese blenderized with 1 Tbsp. lemon juice, add skim milk to desired consistency
1 cup low fat sour cream
3 Tbsp. powdered cocoa and 1 Tbsp. oil
1 cup sherbet, frozen low fat yogurt, or low-fat ice cream
Reduced fat or fat free cream soup
1 Tbsp. Neufchatel cheese
1 Tbsp. Light cream cheese or fat free cream cheese
1 oz. Cheese containing 6 grams or less fat per ounce

Sodium

- Most Americans consume 4,000-6,000 milligrams of sodium a day.
- The recommended intake is 2,400 milligrams a day.
- Heart failure patients benefit from a sodium intake limited to 2,000 milligrams a day.

One teaspoon of salt contains 2,400 milligrams of sodium – and a low sodium diet allows 2,000 milligrams a day! A high sodium intake can be especially harmful if you have heart failure. When you have heart failure, your heart cannot pump as well as it once did. Greater water volume caused by a high sodium intake increases the work of your heart as it pumps blood through your body.

A guide to choosing low sodium foods

If you are on an eating plan of 2,000 milligrams of sodium a day, this chart may be a help in planning your meals and snacks. It is best to limit yourself to only one food a day with more than 400 milligrams of sodium per serving.

Food Group	Use	Limit (2-3 times/week)	Avoid
Milk products	<ul style="list-style-type: none"> ■ Yogurt ■ Low-sodium cheese ■ Dried or fluid milk 	<ul style="list-style-type: none"> ■ Buttermilk ■ Cottage cheese ■ Natural cheese (e.g., cheddar, colby, etc.) ■ Instant mixes with more than 200 mg of sodium per serving 	<ul style="list-style-type: none"> ■ Processed cheese (i.e. American) ■ Cheese spreads
Meat	<ul style="list-style-type: none"> ■ Fresh or frozen fish, poultry, beef, pork, lamb, veal ■ Low sodium tuna ■ Low sodium bacon ■ Eggs 	<ul style="list-style-type: none"> ■ Reduced-sodium processed meats and cheeses 	<ul style="list-style-type: none"> ■ Canned meat and fish ■ Sausage ■ Pickled herring ■ Ham, bacon, cold cuts ■ Corned or dried beef ■ Salted nuts ■ Beef jerky ■ Anchovies, herring, and kosher meats ■ Sardines ■ Luncheon meats, frankfurters, bratwurst
Vegetables and fruits	<ul style="list-style-type: none"> ■ Fresh or frozen, unsalted vegetables ■ Canned vegetables or tomato products with no added salt ■ Dried beans, peas and lentils ■ All fruits ■ Low-sodium canned vegetables 		<ul style="list-style-type: none"> ■ Sauerkraut ■ Vegetables or potatoes with sauces or seasoning mixes ■ Pickled vegetables ■ Olives ■ Canned tomato products or juice ■ Vegetables canned with salt

Food Group	Use	Limit (2-3 times/week)	Avoid
Grains	<ul style="list-style-type: none"> ■ Graham crackers ■ Saltines with unsalted tops ■ Melba toast, rolls, unsalted bread sticks ■ Homemade pancakes and waffles (no salt added) ■ Potatoes, rice, pasta ■ Breads and cereals with less than 180 mg of sodium per serving ■ Unsalted pretzels or popcorn ■ Low sodium chips and crackers ■ Potatoes, rice, or noodles prepared without salt 	<ul style="list-style-type: none"> ■ Baking powder biscuits ■ English muffins ■ Bran cereals 	<ul style="list-style-type: none"> ■ Mixes: stuffing, rice mix, pancake, biscuit, casserole mix, potato and noodle mixes ■ Salted crackers ■ Salted snack food: potato chips, pretzels, popcorn ■ Instant cooked cereals ■ Commercially prepared refrigerated dough
Combination foods	<ul style="list-style-type: none"> ■ Homemade combination foods and soups with less or no salt ■ Commercial low sodium soup 	<ul style="list-style-type: none"> ■ TV dinners with less than 600 mg sodium per meal ■ Reduced sodium soup 	<ul style="list-style-type: none"> ■ Chow mein ■ Pot pies ■ Canned stew, casseroles ■ Prepared baked beans ■ TV dinners with more than 600 mg sodium per serving ■ Canned and dried soups ■ Bouillon
Desserts	<ul style="list-style-type: none"> ■ Fruit ■ Sherbet and fruit ice ■ Plain cake or meringue ■ Ice cream and frozen yogurt ■ Jams, jellies, honey ■ Homemade desserts, cooked puddings, and box mixes with less than 200 mg or sodium per serving 	<ul style="list-style-type: none"> ■ Limited to one sodium-containing dessert per day: ■ Baked desserts made from commercial mixes ■ Commercial cookies ■ Instant puddings ■ Desserts and candies prepared with salted nuts ■ Cream and fruit pie 	
Beverages	<ul style="list-style-type: none"> ■ Sparkling water ■ Unsoftened water ■ Fruit juices or drinks, lemonade, coffee, tea, pop ■ Choose beverages with less than 70 mg of sodium per serving 	<ul style="list-style-type: none"> ■ Club soda 	<ul style="list-style-type: none"> ■ Commercial sport drinks such as Gatorade®, Instant Preplay® or Take Five® ■ Softened water ■ Cocktail beverage mixes ■ Instant cocoa

Food Group	Use	Limit (2-3 times/week)	Avoid
Other	<ul style="list-style-type: none"> ■ Oil, vinegar, lemon juice ■ Fresh or powdered onion or garlic ■ Salt-free herbs and spice mixes ■ Flavoring extracts ■ Homemade gravy with less or no salt ■ Salt-free bouillon or broth ■ Unsalted ketchup, mustard, BBQ sauce ■ Salt-free nuts and seeds ■ Table wine (not cooking wine) ■ Homemade salad dressings 	<ul style="list-style-type: none"> ■ Ketchup and mustard ■ Tartar sauce (1 Tbsp) ■ BBQ sauce (1 Tbsp) ■ Steak sauce (1 Tbsp) ■ 1-2 Tbsp of commercial salsa ■ Prepared horseradish ■ Regular and low-calorie salad dressing 	<ul style="list-style-type: none"> ■ All pickles, olives ■ Seasoned salts ■ MSG ■ Soy sauce ■ Tenderizers ■ Commercial gravy mixes ■ Light salt products ■ Cooking wine ■ Salted nuts and seeds ■ Barbecue sauce

Tip

Sodium is a compound found widely in nature and in foods. Many foods contain sodium naturally, but do not taste salty.

Read food labels for sodium content.

Half of the people with high blood pressure can also benefit by reducing sodium intake. This is especially true for older adults and for African-Americans.

Unfortunately, there is no way to tell exactly which people are salt-sensitive. If you take a medication for high blood pressure, it is likely that lowering your sodium intake will allow your medication to work more effectively.

Special low sodium cooking tips

- Try new seasonings. Herbs and spices don't contain sodium. Experiment with flavored vinegar, sherry, wine and lemon juice. Try growing herbs in your garden or indoors. Parsley, thyme, and basil are easy to grow and flavorful in many foods.
- Throw out your salt shaker. At the very least, get it off the kitchen table!
- Reduce or eliminate salt in cooking. Many recipes don't need salt — leave it out!
- If salt is important to the flavor of the food, reduce the salt amount gradually (by a fourth, then by a half, and then by three-fourths).
- Cut back on processed foods (e.g., luncheon meats, TV dinners, etc.) — they already contain salt.
- Eliminate obviously salty foods: pickles, olives, sauerkraut, salted snacks, flavored salts, seasoned salts.
- Be a detective when reading labels. Avoid products with these words on the labels: monosodium glutamate (MSG), sodium nitrate, sodium benzoate, sodium bicarbonate.
- Reads labels to see how much sodium per serving that food product contains. Then, compare that to the amount that your health care team has recommended. You may be able to include this food in your eating plan if you reduce your serving size.
- Use bouillon granules in half the amount called for on packaging because they contain a high amount of sodium or use lower sodium bouillon granules.

Tip

If you have heart failure, your health care team may advise you to focus on eating less sodium and not worry so much about eating too much fat.

Did You Know?

One dill pickle contains 1,900 milligrams of sodium.

Why Are Salt Substitutes Not Recommended?

Many are high in potassium. Some people with heart failure should not take excessive potassium, especially if they are taking an ACE inhibitor. Check with your physician.

- Use lemon and lime juices or tomatoes to add zest to meat, salads, vegetables and fruits.
- Save cooking liquid from vegetables to use in place of water in sauces and gravy.
- Add drinking wine to sauces and gravies to enhance flavor. Cooking wines should not be used — they contain salt.
- Replace garlic and onion salt with garlic and onion powder.
- Rinsing canned vegetables removes some of the sodium, but only about one third. Better to use fresh, frozen or low-sodium canned vegetables, instead.

Great low-sodium meals

■ Breakfasts:

- Two pieces of raisin toast with margarine or cream cheese, fresh or canned fruit, juice and coffee
- Cereal with 6-8 oz. milk, juice and coffee
- Omelet of 1/2 c egg substitute with vegetables, toast with cream cheese, juice and coffee
- Oatmeal (not instant), toast with jelly, juice, fruit and coffee

■ Lunches and dinners:

- Sandwich of unprocessed turkey on two slices of bread with lettuce and tomato, fruit, carrot sticks
- Broiled or baked fish, baked potato with 1 t. margarine, dinner salad, salad dressing
- Macaroni and cheese from Kraft® using only *half* the cheese packet, dinner salad, salad dressing
- 2 oz. boiled shrimp, 1 c. rice, sliced tomatoes
- Healthy Choice® frozen dinner, mashed potatoes, fruit cup

Spice blend recipe

Throw out the salt — but save the shaker! Fill it with this spice blend and use it on homecooked meals:

- 4 Tbsp. dry mustard
- 1 Tbsp. garlic powder
- 4 Tbsp. onion powder
- 2 Tbsp. white pepper
- 1 Tbsp. thyme
- 1 tsp. basil
- 4 Tbsp. paprika .

Combine spices and blend well. Put a small amount of rice in the bottom of your shaker to allow the spice blend to flow easily. Fill shaker with spice blend, using a funnel. Label and store.

Tip

To add taste to your food without salt, herbs and spices do the job with more taste and variety than using salt substitutes. Ask your dietitian for hints and recipes.

Tip

Become a label reader. Find the serving size on boxes and cans. Do you eat that much, or twice that? Figure your own serving size, then calculate how much sodium the product contains per *your* serving.

Herb blend recipe

This blend of herbs and spices is especially good on meats and vegetables.

- 1 tsp. each:
 - dried basil
 - dried marjoram
 - thyme
 - dried oregano
 - dried parsley
 - ground cloves
 - ground mace
 - black pepper
 - dried savory
- 1/4 tsp. each:
 - ground nutmeg
 - cayenne.

Vary the amounts to suit your taste.

Foods may be tastily prepared using herbs and spices.

Flavor ideas:

Beef	bay leaf, curry, dry mustard, sage, marjoram, mushrooms, nutmeg, onion, pepper, thyme
Lamb	curry, garlic, mint, pineapple, rosemary
Pork	apples, applesauce, garlic, onion, sage, peaches
Veal	apricots, bay leaf, curry, ginger, marjoram, oregano
Fish	bay leaf, lemon juice, marjoram, mushrooms, paprika
Chicken	cranberries, paprika, thyme, sage
Asparagus	lemon juice
Corn	green pepper, tomato
Green beans	marjoram, lemon juice, nutmeg, dillweed, unsalted french dressing
Peas	onion, mint, mushrooms, green pepper
Potatoes	onion, mace, green pepper
Squash	ginger, mace, onion, cinnamon
Tomatoes	basil, marjoram, onion

Fluids

Heart failure is sometimes treated by reducing fluid intake. Your health care team may recommend that you limit how much fluid you consume in a day.

Reducing your fluid intake

To help you measure and monitor your fluids, follow this conversion chart.

Tip

When you are first learning to limit your daily fluids, it might be helpful to mark a container with the total amount that you can have in a day. Then each time you have a fluid, you add that amount of water to your container. As the day goes on, you can monitor how close you are to your total and make adjustments.

Fluid measurements

2 Tablespoons	=	1 ounce	30 cc
2 ounces	=	1/4 cup	60 cc
4 ounces	=	1/2 cup	120 cc
8 ounces	=	1 cup	240 cc

To ensure accuracy, use a glass measuring cup to measure all fluids.

These are considered fluids. A half cup of any of these items equals a half cup of fluid.

- milk
- ice cream
- sherbet
- pudding
- soup
- tea
- liquid cream substitute
- Jell-O®
- cream
- yogurt
- beer
- cooked cereal
- watermelon
- liquor
- fruit juice
- fruit drink
- carbonated beverages
- coffee
- ice water
- ice chips.

All fruits and vegetables should be drained before eating, or else count the liquid as part of your fluid allowance.

Tips for controlling your fluid intake:

- Measure your fluids and keep a record of how much you actually drink.
- Measure how much fluid your household cups and glasses actually hold. Do not guess.
- Plan ahead to spread your fluids throughout the day, allowing enough for medications, meals and snacks.
- Take the pills you can with your meal time liquids.
- Drink from small cups and glasses. Four ounces of juice will look like more in a six ounce glass than it does in a 12-ounce glass.

A Success Story

Bob had his first open heart surgery when he was 39 and his second 20 years later. His procedure lasted 20 years because Bob and his wife improved their diet and increased their exercise. "I want my second open heart surgery to last me another 20 years," says Bob. "I know I can do it by sticking to a heart healthy diet and exercise."

- Use ice cubes instead of fluids. Ice may satisfy your thirst more than the same amount of water. Remember that ice must be counted as part of your fluid intake. Melt one cube to measure how much fluid it contains. Ice melts to one half of its original volume. For example, 12 ounces of crushed ice melts to six ounces of fluid. You may also fill your ice cube trays only half full or buy smaller trays.
- Add a little lemon or lime juice to water or ice. The sour taste will help quench your thirst.
- Try freezing flavored mineral water or lemonade in ice cube trays, or try freeze pops or Popsicles®.
- Use sour hard candy or gum. They will help moisten your mouth and decrease your desire for liquids.
- Chill your fruit and vegetable servings to help quench your thirst.
- Try a mouth spray to moisten your mouth.
- Rinse your mouth out with water or chilled mouthwash when you are thirsty. Do not swallow it.

Potassium

Potassium is a mineral that naturally occurs in your body. Potassium helps maintain the correct electrical environment for your heart. It is important to have the right amount of potassium in your body. If you have too much or too little, it can affect your heart rhythm. Some medications may increase the amount of potassium in your body. Other medications may cause your potassium level to drop.

Depending on your situation, you may need to avoid or eat more foods high in potassium. Ask your health care team about which course is best for you.

Foods high in potassium

- avocado
- eggnog
- baked potato
- canned prune juice
- canned tomato juice
- canned vegetable juices
caution: high sodium choice
- all varieties of winter squash
- banana
- blackstrap molasses
- french-fried potatoes
- frozen orange juice
- salt substitutes

Foods moderately high in potassium

- All Bran®
- Bran Buds®
- dates
- dried figs
- lima beans
caution: high sodium choice
- raw mushrooms
- raw orange
- cooked parsnips
- raw plums
- dried prunes
- raw spinach
- yams, baked in the skin

- apricots and apricot nectar
- canned white or red beans
caution: high sodium choice
- cantaloupe
- honeydew melon
- canned grapefruit juice
- milk and buttermilk
- canned pineapple juice
- mashed or hashed brown potatoes
- raw tomatoes
- yogurt

Heart-healthy Dining Out

Fortunately, many restaurants today realize the importance of a heart-healthy eating style and have adapted their menus. Even when your favorite restaurant doesn't offer specific heart-healthy foods, you can make wise choices.

- Ask how foods are prepared. Good choices: steamed, in its own juice, garden fresh, broiled, roasted, poached. Poor choices: fried, breaded, battered, creamed, escalloped, butter sauce, pan-fried, sauteed, au gratin.
- Ask for substitutions. In place of butter, can you get margarine? Is skim milk available?
- Order salad dressings and sauces to be served on the side so you control the amount. Ask for light dressing.
- Try lemon juice or vinegar and oil in place of salad dressings.
- Ask for mustard or ketchup on sandwiches instead of mayonnaise — and if you have mayonnaise, use only a small amount.
- Substitute fruit or vegetables for potato chips or french fries.
- Order vegetarian pizza instead of pepperoni or sausage.
- At fast food restaurants, order plain foods, such as a regular hamburger or a broiled chicken breast. Skip the bacon, cheese and sauces.
- For dessert, try a scoop of frozen yogurt, sherbet, gelatin or fresh berries.

Type of restaurant	Making low-fat choices	Making low-sodium choices
Fast food	This is generally not your heart-healthiest choice. Here's how to make the best of it. Head for the salad bar. Pass on the deep-fried fish, chicken and fries, and try roasted or broiled meat. A plain hamburger is better than fried fish. Omit cheese on your sandwich.	Order a plain sandwich – hold the pickles, ketchup, mustard, cheese and special sauces. Ask to have your meal prepared without salt. Many fast food restaurants will, but be prepared to wait. Request lettuce, tomato and onion for garnishes or sides. Order unsalted french fries.
Oriental food	Avoid deep-fried egg rolls, wontons, meats and noodles. Skip sauces and gravies. Ask that your dish be prepared with less oil, and for steamed instead of fried rice.	Choose menu items that are made to order, rather than prepared ahead of time (like in a buffet). Ask that your food be prepared without salt, soy sauce or MSG. Choose menu items without sauces.
Mexican food	Avoid deep fried tortilla chips and taco shells, and skimp on the cheese and sour cream. Choose beans, rice and corn tortillas.	At a Mexican restaurant, choose lower sodium items such as tacos, burritos and tostados.
Italian food	Skip pastas in heavy cream sauce, high fat sausage or veggies in olive oil. Instead, choose pasta with tomato sauce (unless you're going easy on sodium).	Ask which menu items are not prepared ahead of time, so could be prepared for you without sodium.
Vegetarian food and salad bars	Your choices are many here. Most vegetarian dining is heart-healthy, and even uses whole grain breads, which deliver good fiber. Go easy on foods that contain: cheese, coconut and cashews. Choose legumes, grains, pastas, soybean, tofu and vegetables.	If you eat one meal out a day, eat the other two at home and make them especially low in sodium. Choose fresh vegetables and canned or fresh fruits as a major part of your meal. Choose vinegar and oil or lemon juice as salad dressing. Limit your higher sodium ingredients, like bacon bits, pickles, cheese and meat salads.
Middle Eastern food	Avoid deep fried anything and skip dipping foods in oily sauces. Instead, choose lean beef and lamb, or vegetables and rice.	Shish Kebab, souvlaki, coucous, tabouli salad, rice pilaf, pita bread
French food	Avoid heavy sauces rich in cream, egg yolks and butter. "Nouvelle" french cuisine offers light dishes. Bordelaise wine sauces are lower in fat and cholesterol.	Request that sauces or salad dressings be served on the side. Ask that your food be prepared without salt. Avoid foods marinated in teriyaki sauce or lemon soy sauce.

Heart-healthy Shopping

To cook and eat heart-healthy foods, first you have to become a heart-healthy shopper! Learning to read labels carefully and accurately is important.

Become a label reader

Reading food labels will help you choose foods low in saturated fat, total fat, cholesterol, and sodium. Food labels have two important parts: nutrition information and an ingredients list.





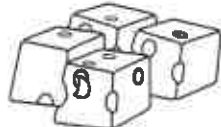







Nutrition Facts			
Serving Size: 1 cup (228g)		Servings Per Container: 2	
Amount Per Serving			
Calories 90	Calories from Fat 30		
% Daily Value *			
Total Fat	3g	5%	
Saturated Fat	0g	0%	
Cholesterol	0mg	0%	
Sodium	300mg	13%	
Total Carbohydrate	13g	4%	
Dietary Fiber	3g	12%	
Sugars	3g		
Protein	3g		
Vitamin A 80%	Vitamin C 60%		
Calcium 4%	Iron 4%		
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:			
	Calories	2,000	2,500
Total Fat	Less than:	65g	80g
Saturated Fat	Less than:	20g	25g
Cholesterol	Less than:	300mg	300mg
Sodium	Less than:	2400mg	2400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9	Carbohydrate 4	Protein 4	

Become a label reader. Find the serving size on boxes and cans. Do you eat that much, or twice that? Based on the amount you eat, calculate how much sodium and saturated fat the product contains per serving.

Read the nutrition information. Look for the amount of saturated fat, total fat, cholesterol, and sodium in a serving of the product. Compare similar products to find the one with the least amounts.

Look at the ingredients. All food labels list the product's ingredients in order by weight. The ingredient in the greatest amount is listed first. The ingredient in the least amount is listed last.

When a food scale or measuring cups aren't handy, you can still estimate your portion. Remember:

1	Three ounces of meat is about the size and thickness of a deck of playing cards or an audiotape cassette.		=	
2	A medium apple or peach is about the size of a tennis ball.		=	
3	One ounce of cheese is about the size of four stacked dice.		=	
4	One-half cup of ice cream is about the size of a racquetball or tennis ball.		=	
5	One cup of mashed potatoes or broccoli is about the size of your fist.		=	
6	One teaspoon of butter or peanut butter is about the size of the tip of your thumb.		=	

Tip

Look for foods that have less than three grams of fat per 100 calories, (e.g. a product with 200 calories can have up to six grams of fat).

Label fat guidelines

When looking for low fat foods, check the nutrition label for the amount of fat per serving and compare it to the guidelines listed below for the maximum amount of fat per serving.

Food Choices	Grams of fat per serving
Dinner entree	10 grams of fat
Soup	5 grams
Luncheon meats	3 grams
Potato, rice, pasta, vegetable	2 grams per oz.
Cheese	2-5 grams per oz.
Yogurt	3 grams
Crackers	3 grams
Frozen desserts	3 grams
Quick breads	5 grams/serving
Cake	2-5 grams/serving
Cookies	3 grams/serving

How much fat should you eat?

This chart can help you determine how many fat grams are typically contained in eating plans set at various calorie levels:

Calorie Level	Total Fat Grams	Saturated Fat Grams
1,200	40 or less	9-13
1,500	50 or less	12-17
1,800	60 or less	14-20
2,000	67 or less	16-22
2,200	73 or less	17-24
2,500	83 or less	19-28
3,000	100 or less	23-33

Tip

If you have diabetes, eating the right foods throughout the day will help control your blood glucose. Some tips include: eating three well-balanced meals a day, eating a small snack if meals are four to five hours apart, eating a bedtime snack, not skipping meals and asking for advice about your food choices.

Working with a dietitian

A dietitian can be a valuable help to you and your family as you learn new patterns of eating. Ask your doctor for a referral to a clinic or hospital dietitian. However, just because you have a referral doesn't mean your insurance will cover it — talk to your health care team for more information.

If your insurance doesn't cover a dietitian visit, and you'd like the support and advice of a dietitian, ask your team for a recommendation. If you are hospitalized, a staff dietitian is available to review heart-healthy eating. After your discharge, your doctor can send a referral to your hospital's outpatient nutrition department. A dietitian can help you understand the daily eating plan that is best for you, and can give you written materials that can help you establish new habits.

Recommended Cookbooks

The New American Heart Association Cookbook, 25th Anniversary Edition, 6th edition

American Heart Association, Times Books, 1999

Nearly 600 recipes, nutritional analysis, shopping tips and information about healthy cardiac diet and lifestyle.

Quick and Easy Cookbook, Spiral Edition

American Heart Association, Times Books, 1998

More than 200 heart healthy recipes that are quick and easy to prepare, with shopping tips, nutrition analysis and preparation times.

Low-Salt Cookbook

R. Starke and M. Winston, American Heart Association Times Books, 1990

Recipes for salt or sodium intake levels below 2,000 milligrams/day, plus a nutrient guide and a helpful herb, spice, and seasoning guide.

Low-Fat, Low Cholesterol Cookbook, 2nd Edition

American Heart Association, Times Books, 1997

Creative low-fat cooking recipes with nutrient analysis, Step I and Step II Cholesterol lowering diets and easy-to-understand information on lipid lowering drugs.

Tip

Your clinic and hospital has many outpatient services that can help you. Dietitians, physical therapists, rehabilitation therapists, nurses and more. Ask your health care team what's available in your area.

Recommended Internet Sites With Nutrition Information:

- American Heart Association
www.americanheart.org
- Heart Failure Online
www.heartfailure.org
- American Dietetic Association
www.eatright.org
- National Heart, Lung and Blood Institute
www.nhlbi.nih.gov/nhlbi/cardio
- Interactive Healthy Eating Index
www.usda.gov/chpp

Pillsbury Fast and Healthy Cookbook

Pillsbury Company, Clarkson Potter, Random House, Inc., 1998.
This cookbook features 350 healthy and easy to prepare recipes with nutrient analysis and dietary exchanges, plus cooking times and tips.

Cooking À La Heart, 2nd Edition

Appletree Press, Inc., 1992.

Easy to read and prepare recipes that are low in fat and sodium, with an extensive list of salt free herb blends, nutrient analysis and canning information.

Jane Brody's Good Food Book: Living the High Carbohydrate Way

Jane Brody, W.W. Norton, 1987.

This combination cookbook/nutrition guide emphasizes complex carbohydrates in vegetarian, fish, poultry and pasta recipes (a few beef dishes are included). Nutrient analysis is not provided.

The New American Diet System

Sonja L. Connor and William E. Connor, Simon and Schuster, 1991.

A scientifically-based reference book and cookbook that includes 300 recipes that provide fat, calorie and cholesterol-saturated fat index (CSI) for 1,000 foods.

Moosewood Restaurant Low-Fat Favorites, 1st. Edition

The Moosewood Collection. Clarkson Potter, Random House, 1996.

An award-winning vegetarian cookbook featuring low fat versions of the popular vegetarian restaurant favorites. Nutrient analysis is given.

Don't Eat Your Heart Out Cookbook

Joseph Piscatella, Paperback (November 1994) Workman Publishing Company.

This book includes 400 recipes for a heart-healthy diet.

American Heart Association Around the World Cookbook: Healthy Recipes with International Flavor

American Heart Association (editor), Paperback (February, 2000), Times Books

This book features heart-healthy recipes from Italy, France, Asia, Greece, the Caribbean, Germany, the Middle East and more. These recipes are low in fat, cholesterol, sodium and calories.

Dictionary

Acute coronary syndrome

Unstable angina and acute myocardial infarction.

Aerobic exercise

Exercise of repetitive, continuous movement, such as walking, running or biking. It promotes cardiovascular and physical fitness.

Afterload therapy

Drugs that enable your heart to pump more easily by altering the resistance to contraction. This works a bit like making it easier to run into a strong wind by calming the wind.

AICD (automatic implantable cardiac defibrillator)

An implantable device that delivers electricity to an abnormally beating heart, restoring normal beating.

Aneurysm

A section of heart muscle or blood vessel wall that weakens and balloons outward.

Angina pectoris/angina

Pain or discomfort felt when there isn't enough blood flow to the heart. This is caused by narrowing of the coronary arteries.

Angiogram/angiography

An X-ray procedure using dye injected into the blood stream to evaluate heart or other arteries.

Angioplasty

Another name for PTCA, percutaneous transluminal coronary angioplasty. A way to open a narrowed or blocked artery using a very small balloon on a catheter.

Anticoagulants (blood thinners)

Medications that decrease your blood's ability to make clots.

Aorta

The large blood vessel that carries blood from the heart to the rest of the body.

Aortic valve

A valve at the junction of the aorta and the left ventricle of the heart.

Arrhythmia

An irregular or abnormal heart rhythm. An irregular rhythm can effect your heart's ability to function normally.

Arteriosclerosis

Hardening of the arteries. A condition which causes the artery walls to become thick and narrow and lose their flexibility.

Artery

A blood vessel that carries oxygenated blood from the heart to the body.

Asystole

A lethal heart rhythm that occurs when the heart does not beat. Absence of heart rhythm.

Atherosclerosis

A thickening and irregularity of artery walls due to the deposit of fatty plaque.

Atria

The heart's two upper chambers that receive blood.

Atrial fibrillation

An abnormal heart rhythm where electrical activity travels through the atrium in a disorganized manner.

Atrial flutter

A heart rhythm where the atria beat multiple times for each ventricle beat.

Atrial tachycardia

A heart rhythm where the atrium beats regularly but faster than normal.

Atrioventricular (AV) node

A group of cells between the atria and ventricles that send electrical signals into the ventricles of the heart.

Atrium

An upper chamber of the heart. There are two atria, the left and right.

Bacterial endocarditis

Bacterial infection of the membrane that covers the heart valves or the inner lining of the heart.

Blood cholesterol

Fatty substance suspended in your blood, derived both from your food and manufactured by your liver.

Blood pressure

The amount of pressure within the walls of the arteries. The top number (systolic) indicates when the heart is pumping blood. The bottom number (diastolic) when the heart is relaxing and refilling with blood.

Blood thinners (anticoagulants)

Medications that lengthen the time it normally takes for blood to clot. These help prevent clots from forming inside blood vessels.

Bradycardia

A slow heartbeat in an adult, with a rate of less than 60 beats per minute.

Bundle branches

Cells that carry the electrical signal through the ventricles of the heart. As the signal moves, the ventricles squeeze.

Capillaries

Very small blood vessels that connect larger blood vessels throughout the body.

Cardiac

Pertaining to the heart.

Cardiac "rehab" / cardiac rehabilitation

A program to assist a person with cardiovascular disease to return to good physical, emotional, social and vocational health.

Cardiac catheterization

A procedure that places small tubes into blood vessels and the heart to record information and perform treatments.

Cardiac enzymes

Proteins in heart muscle cells that are released into the bloodstream when the heart is injured.

Cardiologist

A physician specially trained in the study and treatment of heart and blood vessel disease.

Cardiovascular

Pertaining to the heart and blood vessels.

Cardiovascular step down unit

A monitored unit for heart patients that need less intensive care than CCU or ICU.

Cardioversion

Restoring normal heart rhythm using electrical shock.

Catheters

Small insulated wires or tubes that fit inside blood vessels temporarily when studying the heart.

CCU

Coronary Care Unit or Critical Care Unit.

Cholesterol

Fatty substance suspended in your blood, derived both from your food and manufactured by your liver.

Cardiomyopathy

Disease of the heart muscle.

Commissurotomy

Surgical incision of a fibrous band in the heart. For example, "mitral commissurotomy" is a surgical incision of the heart's mitral valve opening.

Congestive heart failure (also called heart failure)

A condition in which the heart cannot pump adequate blood to meet the body's demands.

Coronary

Related to the heart. Also, a common term for heart attack (myocardial infarction).

Coronary arteries

Blood vessels that wrap around the heart and supply the heart muscle with blood.

Coronary artery bypass

Using surgery to help blood flow move around a coronary blockage. One or more grafts of blood vessels may be removed from the leg, arm or inside the chest wall. It is used as a detour for the blood around the blockage.

Coronary artery disease

Abnormalities in the wall or lining of heart arteries that can reduce or block blood flow.

Coronary artery spasm

A sudden contraction or constriction of a blood vessel of the heart that causes pain and a decreased oxygen supply to the heart.

Coronary care unit (CCU)

A specialized facility equipped with monitoring devices and staffed with personnel trained to treat coronary patients.

Coronary occlusion

Obstructed heart artery.

CVS

Cardiovascular step down unit.

Demand pacemaker

A kind of pacemaker that senses the heart's own electrical activity and turns on only when the heart "demands" help.

Diastolic reading

The bottom number of a blood pressure reading. It measures the blood pressure in the arteries when the heart is relaxed and refilling with blood before it pumps again.

Dysrhythmia

Another term sometimes used for arrhythmia.

Edema

Swelling from excessive fluid in the body tissue.

Electrocardiogram /ECG/EKG/12-lead

A printed record of the electrical waves from the heart.

Enzymes

Factors in the blood that may indicate heart muscle damage.

Fat

A necessary nutrient that provides calories to the body and helps absorb certain vitamins.

Fibrillation

Fast, irregular, uncoordinated heartbeats.

Fluid retention

The collection of extra fluid in the tissues.

Flutter

Regular but rapid heart contractions, sometimes reaching 200-300 per minute.

Generic drugs

Drugs not marketed under a trade name by a pharmaceutical company. The generic name is the chemical name of the drug.

HDL

High density lipoprotein, called the "good cholesterol." HDL is believed to be responsible for removing excess cholesterol from the blood.

Health care directive

Written or spoken wishes to your family or health care team about issues surrounding end-of-life care.

Heart attack

Called a "myocardial infarction." It is caused by blockage in one or more of the coronary arteries that severely reduces or stops the flow of blood to an area of the heart muscle. This results in damage or death of that area of the heart and is repaired by a scar.

Heart block

A condition seen when the electrical system path between the atria and ventricles is blocked.

Heart disease

An abnormal condition of the heart or the circulation.

Heart enlargement

A heart that has increased in size beyond normal. Multiple causes.

Heart rate

The number of times the heart beats a minute. Also called "pulse rate." When you are connected to a heart monitor. This can be printed out on paper.

Heart rhythm

The regularity of the heart's beat.

Heart valves

One-way "doors" that control the flow of blood through the heart. Your heart has four valves.

Hypertension

Also called "high blood pressure." An unstable or persistent elevation of blood pressure above normal range.

Incision

A cut made with a scalpel, or knife, during surgery or a procedure.

Incompetence of valve

Also called regurgitation, this term is used when your heart valve does not close properly and allows blood to leak back into a chamber.

Intensive care unit (ICU)

A specialized area of a hospital equipped with monitoring devices and staffed with highly trained personnel. The ICU staff cares for critically ill patients.

Isometric

Exercise which involves muscles tightening against heavy resistance with little movement (like weight lifting). This can cause changes in heart rate and blood pressure.

LDL

Low density lipoprotein, called the "bad" cholesterol. LDL carries cholesterol from the liver to other tissues and forms deposits on blood vessel walls.

Magnesium

A mineral in the blood. Abnormalities of the level of magnesium can affect the heart's rhythm.

Metabolic energy equivalent (MET)

A way of measuring how much energy an action consumes.

Mitral valve

The valve between the upper and lower chambers on the left side of the heart.

Monounsaturated fat

A slightly unsaturated fat found in greatest amounts in foods from plants, including olive and canola oil. When substituted for saturated fat, monounsaturated fat helps reduce blood cholesterol.

Myocardial infarction

Another phrase for "heart attack."

Myocardium

Another word for heart muscle.

Nitroglycerin

A drug used to dilate blood vessels in treatment of angina pectoris, chest pain or myocardial infarction.

Normal sinus rhythm

A regular heart rhythm at a rate at 60-100 beats per minute for an adult. Most people's heart fits this category.

Pacemaker

A natural island of tissue in the right atrium of the heart that serves as a "battery" for the heart and normally discharges an electrical force 60-100 times a minute at rest for an adult. When this does not function properly, an artificial pacemaker may be needed. See SA node.

PAD (peripheral artery disease)

A common circulatory condition caused by a blockage in the blood vessels in the legs. Also known as peripheral vascular disease (PVD).

Palliative care

Comfort care and treatment to make a condition better even if it cannot be completely cured.

Palpitation

Sensation of irregular heart rhythm.

PCCU (post coronary care unit or telemetry unit)

After a patient leaves the coronary care unit or the intensive care unit, he or she moves to this "step down" unit. It is equipped with monitoring equipment, staffed with trained personnel, and designed to provide for the physical, education and rehabilitation needs of patients.

Pericarditis

Inflammation of the sac (the pericardium) enclosing the heart.

Pericardium

Thin tissue sac that surrounds the heart.

Polyunsaturated fat

A highly unsaturated fat found in greatest amounts in plant foods, such as oils from safflower, sunflower, corn and soybean. When substituted for saturated fat, polyunsaturated fat helps reduce blood cholesterol.

Potassium

A normal mineral in many foods and body fluids. High or low blood levels can affect the heart's rhythm.

Premature beats

A heartbeat stimulated by a muscle cell in the heart that causes the heart to beat prematurely. The early beat cancels the regular heart beat, which causes a pause in the heart rhythm. This may cause a sensation of a thump in the chest as the heart works to return to a normal rhythm.

Proprietary drug

The trade name or brand name of a drug.

Pulmonary artery

The large blood vessel that carries blood from the heart to the lungs.

Pulse rate

A measurement of how fast the heart is beating, determined by counting the number of pulses in an artery during one minute.

PVD (peripheral vascular disease)

Disease of the arteries of the legs.

Reflux

Backward flow.

Regurgitation of valve

The back flow of blood through a defective heart valve.

Rehabilitation

After illness or surgery, the process of becoming self-sufficient again. Involves learning new eating habits, decreasing risk factors and becoming accustomed to an exercise plan.

Risk factors

Conditions that predispose a person to a particular disease or illness.

Saturated fat

A type of fat found in greatest amounts in foods from animals, such as dairy products and meat. It is also high in some vegetable oils, like coconut, palm kernel and palm. Raises blood cholesterol more than any other food in your diet.

Sinoatrial node (SA)

The electrical cells that set the pace of the heartbeat.

Sinus node

Same as "sinoatrial node."

Sodium

Salt present in food and beverages. Table salt is the most common source. Also, normal mineral in body tissue and fluids.

Soluble fiber

A type of fiber thought to help lower cholesterol. Examples: oat bran, dried peas and beans.

Stenosis

Tightening and narrowing of an opening. Refers to narrowing of an artery due to build up of fatty deposits, or narrowing of a heart valve.

Stent

Small, slotted stainless steel tube inserted into an artery to help hold it open.

Sternal incision

In cardiac surgery, an incision through the sternum or the breastbone.

Stroke

An impeded blood supply to a part of the brain that causes cell death. Also called cerebral vascular accident or CVA.

Systolic reading

The highest number in a blood pressure reading. Measures the pressure when the heart is pumping.

Tachycardia

A fast or rapid heartbeat which keeps the heart rate over 100 beats per minute in an adult.

Target heart rate

The heart rate aim in an exercise program to build cardiovascular fitness.

Telemetry unit

Another phrase for PCCU or post coronary care unit.

Total fat

The sum of the three types of fat present in food: saturated, monounsaturated and polyunsaturated.

Triglycerides

Fats in the blood that come from either the diet or the liver. A high level often signals the presence of a blood lipid problem and increased risk of heart disease. The most common causes are obesity and excess fat, sugar or alcohol in the diet.

Unsaturated fat

A type of fat that is usually liquid at refrigerator temperature. Monounsaturated fat and polyunsaturated fat are two kinds of this fat.

Unstable angina

When there is pain or discomfort felt that increases in frequency or duration when there isn't enough blood flow to the heart. This is caused by narrowing or complete blockage of the coronary arteries.

Valvuloplasty

This procedure uses a balloon catheter to open a valve that is narrowed.

Valves

Gate-like "doorways" that open and close to let blood move between the chambers of the heart.

Veins

A system of blood vessels that return blood to the heart.

Ventricles

The two lower chambers of the heart that pump blood to the body and lungs.

Ventricular fibrillation

Disorganized beating of the heart ventricles that if not immediately corrected is fatal.

Ventricular tachycardia

Rapid regular beating of heart ventricles that may lead to fainting or death.