Living with Coronary Artery Disease
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**Talk to your doctor or health care team if you have any questions about your care.**

For more health information, go to [patienteducation.osumc.edu](http://patienteducation.osumc.edu) or contact the Library for Health Information at 614-293-3707 or health-info@osu.edu.

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Welcome

Living with coronary artery disease (CAD) means understanding your risks for problems and taking steps to reduce them. These steps include:

- Heart healthy eating
- Staying at a healthy weight
- Managing stress

You may also need to take medicines or have other procedures.

CAD is the most common type of heart disease. Fortunately, more and more people with CAD are living long and active lives, thanks to advances in diagnosis and treatment.

Starting your recovery

Our goal is to help you return to the highest possible quality of life. We will work with you to:

- Learn more about your disease.
- Know what to expect as part of your recovery.
- Understand your current and future barriers to your rehabilitation.
- Identify signs to watch for to prevent complications.
- Inform you about outpatient or community resources for follow up care and more education.
- Answer your questions and help make the transition from hospital to home easier.

Your health care team includes your doctors, nurses, dietitians, physical therapists, exercise physiologists, social workers, pastoral care, psychologists and others. But the most important member of the team is you. **Be an active partner in your care.** This partnership is best for your health and will help you become as independent as possible.

If you have questions

- **After You Go Home:** If you have any questions or concerns about your care, please call the doctors who provided your care or refer to your **After Visit Summary** for contact information.
- **After Hours:** If you have questions about your care after hours, please call the hospital operator at 614-293-8000 and ask to speak to the doctor on call.
- **Cardiac Rehabilitation Program:** If you would like a referral to attend our Cardiac Rehabilitation Program or to meet with one of our dietitians, you can ask for a referral from your doctor. There is more information about the program later in this book.
- **General Health:** If you have questions about your general health or issues not related to coronary artery disease, please call your primary care doctor.

Thank you for choosing The Ohio State Wexner Medical Center for your health care.
Your heart is a muscle. It is slightly larger than your fist and weighs less than a pound. It is located to the left of the middle of your chest. Your heart pumps blood to the lungs and to all parts of your body. The blood provides your body with oxygen and nutrients. It also carries away waste.

**Structures of the heart**

**Layers**

Your heart muscle has three layers:

- **Myocardium**: This thickest layer is also the middle layer
- **Pericardium**: This outside layer surrounds the myocardium
- **Endocardium**: This thin layer lines the inside of the myocardium

**Chambers**

The normal heart has four chambers. A wall divides the heart into a right side and a left side. Each side of the heart is divided into two chambers.

The upper chamber is called the **atrium** and the lower chamber is called the **ventricle**.

These chambers are separated by valves that open and close.

**Valves**

The valves allow blood to flow only in one direction. Valves direct the flow of blood through the heart, to the lungs and to the rest of the body. There are four valves:

- **Tricuspid**: Located between the right atrium and ventricle
- **Pulmonic**: Located between the right ventricle and lungs
- **Mitral**: Located between the left atrium and ventricle
- **Aortic**: Located between the left ventricle and the rest of the body
**Blood vessels**

Blood vessels carry blood to and away from the heart. Vessels that carry blood from the heart to the body are called **arteries**. Vessels that carry blood from the body back to the heart are called **veins**.

**Blood flow through the heart**

Your heart acts as a double pump:

- The right side pumps blood to your lungs, where the blood picks up oxygen and then returns it to the left side of the heart.
- The left ventricle then pumps blood out to your body through the large artery, called the aorta.
- Oxygen is removed from your blood by the cells, so it can be used by your body.
- The blood then returns to the right side of the heart through your veins. The right side of the heart once again pumps your blood to the lungs where oxygen is picked up.
- This process occurs with each heartbeat.

Each heartbeat has two phases:

- The resting phase is called **diastole**. During diastole, blood from the atria fills the ventricles.
- Then the ventricles pump blood to your body or lungs. This pumping phase is called **systole**.

Systole and diastole are shown in your blood pressure numbers. Systole is the top number and diastole, the bottom, as in 120/80.

The work of the heart changes with your body’s needs. For example, when you exercise, your body needs more blood and oxygen. Your heart pumps harder and faster to deliver more blood to the body. When you sleep, less blood and oxygen is needed and your heart slows down.

**The heart’s conduction system**

Your heart has a normal conduction or electrical system that stimulates the heart muscle to beat. Electrical impulses travel in a normal fashion from the upper chambers to the lower chambers over this conduction system.
This diagram shows how the impulse travels over the conduction system.

1. Normal heartbeats begin at the **SA node** that acts as the heart’s “pacemaker.” The SA node is also called the **sinus node**.

2. The electrical impulse spreads across the right and left atria.

3. The impulse travels through the **AV node** to the **Bundle of HIS**.

4. The Bundle of HIS divides into a **left and a right bundle branch**.
   The impulse spreads through these bundle branches into the **Purkinje** (pūr-kin’jē) **fibers** in the ventricles.

**Blood supply of the heart (coronary arteries)**

The heart muscle itself must receive a constant supply of oxygen. Oxygen is carried in the blood through the coronary arteries.

Two main coronary arteries, a right and a left, supply the heart muscle with blood. These arteries are located on the surface of the heart. They divide into many smaller branches that go into the heart muscle.

All parts of the heart muscle are supplied with oxygen-rich blood through these small arteries.

Here is how these arteries wrap around from the front to the back of the heart:
Coronary Artery Disease

Limited blood flow to the heart

When blood flow is decreased in the arteries to the heart, it is called **coronary artery disease (CAD)**. CAD happens when the arteries that supply blood to heart muscle become hardened and narrowed, causing the heart to not get the blood supply it needs. The arteries can build up fatty deposits, called **plaque**, along the inside walls, blood traveling through them may become limited. You may hear this called **hardening of the arteries or atherosclerosis** (ath-RO-skla-RO-sis).

When the blood flow is decreased, less oxygen and nutrients reach the muscles and other organs. Vessels can be partially or fully blocked. This can cause angina, shortness of breath or even a heart attack.

Angina

Angina is a pain or discomfort in the chest, arms or jaw. It often occurs during exercise, stress or other activities when your heart rate and blood pressure increase. With these activities, the heart muscle needs more blood with oxygen. The pain is a signal that not enough blood is getting through the arteries.

Angina is often brief, lasting a few minutes and is relieved by rest and nitroglycerin. **Angina is not a heart attack.** During angina, the **flow of blood** to the heart muscle is only **reduced temporarily**.

Heart attack (myocardial infarction or MI)

A heart attack results from a lack of blood to a part of the heart muscle. This occurs when a blood clot forms in the narrowed artery, and the artery becomes blocked. A blood clot forms when there is a crack in the plaque. A heart attack causes part of the heart muscle to be **permanently damaged**.
Is it angina or heart attack?
Knowing the difference between angina and heart attack pain is important, so you do not delay getting help. Below are the typical ways to know the difference.

<table>
<thead>
<tr>
<th></th>
<th>Angina</th>
<th>Heart Attack</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>Temporary lack of blood supply to the heart muscle.</td>
<td>Lack of blood supply to the heart muscle is longer, resulting in permanent damage.</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Pain behind breastbone, which spreads across chest. May go to shoulder, arms, neck or stomach.</td>
<td>Pain is located in the same areas as angina.</td>
</tr>
<tr>
<td><strong>Type of Pain</strong></td>
<td>Pressure, crushing, aching, choking, squeezing, burning or feeling of heartburn.</td>
<td>Same type of pain as angina, but more intense.</td>
</tr>
<tr>
<td><strong>How long does it last?</strong></td>
<td>Brief, gone within 15 minutes.</td>
<td>Lasts longer than 15 minutes.</td>
</tr>
<tr>
<td><strong>What triggers the pain?</strong></td>
<td>Angina is related to things that require your heart to do more work, such as exposure to extreme temperatures, exercise, etc.</td>
<td>Not related to things that require the heart to do more work. May occur at rest.</td>
</tr>
<tr>
<td><strong>Relief of Pain</strong></td>
<td>Rest and nitroglycerin.</td>
<td>Only temporary relief with rest and nitroglycerin.</td>
</tr>
<tr>
<td><strong>Other Signs</strong></td>
<td>Mild sweating and shortness of breath.</td>
<td>Severe sweating, shortness of breath, profound weakness, nausea, anxiety, vomiting and dizziness.</td>
</tr>
</tbody>
</table>

**Actions to Take**

1. Stop. Rest.
2. Put 1 nitroglycerin under your tongue every 5 minutes for a total of 3 tablets over 15 minutes. **At any time if your chest discomfort or pain does not improve or is getting worse even with nitroglycerin, call 911. Do not drive yourself to the hospital.**
3. If pain is relieved, call your doctor.
4. If pain is not relieved after 3 tablets, **call 911 right away.**

**Know Your Own Signs**
No two people have the same signs. People with diabetes may not have pain due to nerve damage, called neuropathy. Women may have “atypical” signs, such as back pain, unusual fatigue or shortness of breath. **Know your signs of angina or heart attack and take action!**
Testing

Your doctor may order different tests to check if you have coronary artery disease. These may include:

- **Electrocardiogram:** The test is also called an **EKG** or **ECG**. It records the electrical activity of the heart.
- **Exercise stress test:** This test measures how the heart works when you exercise on a treadmill or exercise bike. The goal of the test is to measure your heart, lungs and general muscle function when more blood and oxygen are needed when you are active.
- **Nuclear stress test:** This test uses medicine to speed up the heart rate and check the flow of blood to the heart.
- **Cardiac or heart catheterization:** This procedure is done to check for problems in coronary arteries. A long, thin tube, called a catheter, is inserted into the leg or wrist artery and advanced toward the heart. A special medicine, called contrast, is injected into the artery to help find blockages or other problems.
- **Cardiac MRI** may also be done to get images of your heart.

Treatment

The goal of medical care is to restore blood flow, often by opening the artery with a balloon or stent, or bypassing it completely with a new vessel.

There are three types of treatment for CAD:

- Medical therapy
- Catheter treatments or repair of artery using a catheter
- Coronary artery bypass surgery

The type of treatment depends on the coronary artery disease a person has. All of these treatments improve blood flow to the heart muscle and decrease the risk of a heart attack. No matter what type of treatment is done, it does not cure coronary artery disease. Treatments must be combined with lifestyle changes to reduce your coronary risk factors for long term success.

**Medical therapy**

Treatment with medicines is done to decrease the heart’s demand for oxygen and nutrients. **Medicines** can increase blood flow to the heart muscle by relaxing the coronary arteries, decreasing the heart rate and decreasing the blood pressure. Medical therapy is often used first or sometimes as a temporary treatment until angioplasty or bypass surgery is done.

Common types of medicines used are nitroglycerin, beta blockers and calcium antagonists. If medical therapy fails, angioplasty or surgery is often the next step.
Heart catheter treatments (angioplasty)

These treatments are done to decrease the amount of blockage in the coronary arteries. All of the treatments are done by passing a small tube, called a catheter, into one of the arteries in the leg, up to the heart and into the coronary artery. Balloon angioplasty “cracks” the blockage and pushes it to the side of the wall.

Often a stent, a small metal tube, is placed at the site to help prevent the blockage from returning. Most stents contain medicine to help prevent the blockage from returning. Sometimes a laser and roto blader is used to decrease the amount of blockage.

Coronary artery bypass surgery

Coronary artery bypass surgery is done to improve the blood flow to the heart muscle by bypassing the blockages. Surgery should decrease or stop your angina. Bypass surgery is not a cure for heart disease, but it should improve the quality of your life.

During bypass surgery, a blood vessel from your leg or chest wall is used to bypass the blockage in your coronary artery. Most often, one end of the blood vessel is sewn into the coronary artery below the blockage. The blockage remains, but blood is directed around it. This surgery gives the heart muscle a new supply of oxygen and nutrient-rich blood.
Controlling Your Risk Factors

Work with your health care team to manage the things that put you at higher risk for making your condition worse, called risk factors. There are some risk factors you cannot change, such as your age, sex, race and family history. Some risk factors you can change or control by understanding them and making lifestyle changes.

Blood pressure

- Blood pressure is the force put on artery walls when your heart pumps and relaxes with each heart beat. It is measured with a blood pressure cuff.
- High blood pressure is also called **hypertension**. It is caused by the narrowing of arteries from plaque deposits. The harder it is for your blood to flow through your arteries, the higher your blood pressure.
- Having high blood pressure puts you at risk for heart disease, kidney disease and stroke. Most people have no symptoms. The only way to know is to have it checked.

Your blood pressure reading

The top number of your blood pressure reading is called **systolic**. It is the pressure measured in the arteries when the heart pumps out blood to the body. The bottom number is called **diastolic**. It is the pressure measured in the arteries when the heart relaxes and fills up with blood to prepare for the next pump of blood to the body.

- **Normal blood pressure**: systolic less than 120 and diastolic less than 80.
- **Elevated blood pressure**: systolic 120 to 129 and diastolic less than 80.
- **High blood pressure (hypertension) stage 1**: systolic 130 to 139 or diastolic 80 to 89.
- **High blood pressure (hypertension) stage 2**: systolic 140 or higher or diastolic 90 or higher.
- **Hypertensive crisis (consult your doctor right away)**: systolic higher than 180 and/or diastolic higher than 120.

Lowering your blood pressure

- Check your blood pressure often. Call your doctor if it stays high.
- Take your blood pressure medicine as ordered. Continue to take your medicine even if you feel well and your blood pressure is normal.
- Lose weight if you are overweight.
- Limit sodium in your foods and drinks.
- Stop tobacco use and limit alcohol.
- Aim to be active at least 30 minutes a day.
- Practice relaxation daily to reduce stress.
Cholesterol and triglycerides

Cholesterol and triglycerides are different types of fats found in your blood. Too much cholesterol or triglycerides in your blood can be harmful and increase your risk for heart disease and stroke.

- **Total cholesterol** is a measure of the total amount of cholesterol in your blood and is based on HDL, LDL and triglycerides numbers (HDL + LDL + 20 percent of your triglycerides level). A healthy level is below 200.

- **LDL cholesterol** makes up the majority of your body’s cholesterol. It is known as “bad” cholesterol because it causes plaque to build up on artery walls, making it hard for blood to flow. The higher the level of LDL cholesterol in your blood, the greater your risk of heart disease and stroke. A healthy level is less than 70.

- **HDL cholesterol** carries extra cholesterol away from your arteries and back to your liver, which flushes it from your body. It is known as “good” cholesterol because having high levels can reduce your risk of heart disease and stroke. A healthy level is at least 40 for men and at least 50 for women. An HDL above 60 is optimal for cardiovascular health.

- **Triglycerides** are a type of fat found in the blood that your body uses for energy. The combination of high level of triglycerides with low HDL cholesterol or high LDL cholesterol can increase your risk for heart disease and stroke. High triglycerides can also be caused by poorly controlled diabetes. A healthy level is less than 150.

Your triglycerides may be high if you regularly eat more calories, like carbohydrates and fats, than your body needs for energy. Examples of foods that increase triglycerides include:

- Alcohol: Beer, wine, hard liquor and liqueurs.
- Sugar: Concentrated sweets, such as sugar, honey, molasses, jams, jellies and candy. Desserts, such as cakes, cookies, candy, doughnuts, ice cream and sweetened gelatin.
- Starch: Concentrated starchy foods, such as bagels, pasta, rice, potatoes, large rolls, pizza, pretzels, popcorn, chips, many fat-free foods and ready-to-eat cereals. Choose small portions of these due to their high carbohydrate density. Choose whole grains and legumes (starchy beans) over refined starches.
- Saturated fats: Fats solid at room temperature, including animal fats, lard, butter and shortening. Also, fried foods, whole milk, whole milk dairy products, cheese, cream cheese, high-fat meats and fast foods.
- Trans fats: Hydrogenated fats found in margarine, vegetable shortening, fried foods, fast foods and most commercial snack foods, such as pastries, cakes, pies and crackers.

**Lowering your cholesterol and triglycerides**

- Take your cholesterol lowering medicine as ordered.
- Eat a heart healthy diet that is low in fat and cholesterol and high in fiber.
  - Limit foods that contain high amounts of cholesterol, such as beef, pork, butter, cheese, egg yolks and whole milk.
- Eat foods high in fiber, such as whole grains, beans, fruit and vegetables. Fiber helps to block cholesterol and fats from being absorbed through the wall of your intestines and into your blood stream.
- Bake, grill or roast foods instead of frying them.
- Exercise at least 30 minutes a day, 5 days a week.

**Quitting tobacco use**

Cigarettes, cigars, pipes and smokeless tobacco all expose the body to toxic chemicals and make it harder for the body to get enough oxygen. The more you use, the greater your risk for:

- High blood pressure and blood clots that can lead to a heart attack or stroke
- Cardiovascular disease where the blood vessels and arteries get blocked or narrow
- Cancer, including lung, liver, throat, trachea (airway), larynx (voice box) and others
- Diseases, such as emphysema or chronic bronchitis, that make it hard to breathe and get enough oxygen
- Type 2 diabetes
- Other problems, including vision loss, bone loss or problems with pregnancy or reproduction

**Benefits of quitting - if you quit right now...**

- Within 20 minutes, your heart rate and blood pressure drop.
- Within 12 hours, the carbon monoxide level in your blood drops to normal.
- Within 3 months, your circulation and lung function improves.
- Within 9 months, you will cough less and breathe easier.
- After 1 year, your risk of heart disease is cut in half.
- After 5 years, your risk of cancer of the mouth, throat, esophagus and bladder are cut in half. Your risk of cervical cancer and stroke return to normal.
- After 10 years, you are half as likely to die from lung cancer.
- After 15 years, your risk of coronary heart disease is the same as a non-smoker’s.

**The 5 steps to quitting tobacco**

1. Set a quit date.
2. Tell family and friends you plan to quit. Having support is key to successful quitting.
3. Prepare for your quit date. Buy gum, throw away tobacco products, clean your home and car, and visit your dentist to clean your teeth of tobacco stains.
4. Talk to your doctor or pharmacist about quit aids, nicotine replacement products and support groups.
5. Plan a reward system for quitting. Reward yourself for healthy behaviors that replace tobacco use and for meeting milestones, such as 1 day, 1 week, 1 month, 3 months and 6 months.
Resources to quit

**Quit Lines:**
- Ohio Tobacco Quit Line, 1-800-QUIT-NOW (784-8669)
- Quit for Life program from the American Cancer Society at 1-800-227-2345
- American Lung Association, 1-800-586-4872
- BeTobaccoFree.gov Smoking Quit Line, 1-877-448-7848

**Ohio State Clinics:**
- Ross Heart Hospital Smoking Cessation Clinic, 614-293-0932
- The Lung Center, Tobacco Dependence Clinic, 614-293-4925

**Quitting Tobacco Use Book:** Available from your health care provider.

**Mobile Apps:**
Search your mobile device’s app store for quit smoking apps, such as QuitGuide and QuitSTART.

### Maintaining a healthy weight

Maintaining a healthy weight is important for overall health. It can help you prevent and control many diseases and conditions, such as heart disease, high blood pressure, type 2 diabetes, gallstones, breathing problems and certain cancers. If you need to lose weight, losing just 5 to 10 percent of your current weight over 6 months will lower your risk for heart disease and other conditions.

To control your weight:

- **Keep snacking in check.** Keep snacks between meals to 200 to 300 calories. Choose a serving of fruit or vegetables plus a protein, like peanut butter or hummus.
- **Keep serving sizes moderate.** Practice portion control and avoid second helpings.
- **Satisfy your appetite** with raw vegetables, raw fruits, water and other calorie-free beverages. Pick caffeine-free beverages as your doctor or dietitian directs.
- **Do not skip meals** to avoid overeating at the next meal.
- **Eat mindfully.** Keep distractions to a minimum while eating and focus on your food. Tune into your body and stop eating when you feel full. Pay attention to whether you are eating out of hunger or to satisfy an emotion.
- **If you have diabetes, eat to control your blood sugar levels.** Limit total calories and high amounts of carbohydrates to keep your blood sugar levels in control.
- **Be active every day** to help your body burn stored calories.

### Be active every day

Follow the activity guidelines and home exercise program information given to you. Health experts recommend that adults be active at least 150 minutes per week. This may sound like a lot, but you can break it up into bouts as short as 10 minutes. Talk to your doctor before beginning a new exercise program.
Diabetes

Diabetes results in high blood sugar levels (glucose). Diabetes occurs when the pancreas does not produce enough insulin or the body cannot use insulin properly. With diabetes, there is an abnormal amount of lipoprotein, which speeds up atherosclerosis and raises the risk of heart attack. Having high blood pressure and being overweight are more common in people with diabetes.

To control diabetes

- Check your glucose levels at home and try to keep them as close to normal as possible.
- Follow your meal plan as prescribed.
- Take medicines as prescribed.
- Control your weight.
- Exercise regularly.

Diet and alcohol use

Eat a healthy diet with fruits, vegetables, whole grains, fat-free or low-fat milk products, and plant-based protein or lean cuts of meat.

- Choose foods low in saturated fats, cholesterol, sodium and added sugars.
- Read food labels and plan for low sodium meals and snacks. Cook at home and use herbs and spices for great tasting meals instead of pre-packaged meals or processed foods.

Limit alcohol use. If you do choose to drink, limit to 1 drink a day (women) or 2 drinks a day (men).

Stress and tension

Stress is a normal part of our lives. Stress causes the release of adrenalin, which speeds up your heart rate, narrows your blood vessels and increases your blood pressure. Stress makes you heart work harder. It is not the stressful situation, but your reaction to stress that is important.

People who feel time pressures and who are hard-driving are more prone to heart disease. Those who are calm, unhurried and easy-going are at less risk.

Suggestions to reduce stress

- Identify events in your life that create stress and how you respond to it.
- Avoid things that cause stress, if possible.
- Learn stress management techniques, such as journaling, yoga and listening to music.
- When you cannot avoid stressful situations, choose to respond in a way that is less stressful for you.
- Exercise regularly.
Activity Guidelines for Heart Patients

Your activities will be limited at first when you are in the hospital for a heart problem. Resting in bed for long periods, however, can cause problems with your body’s ability to recover.

Slowly returning to normal activity helps improve your circulation, muscle tone, and heart and lung functions. Doing self-care activities, such as bathing, walking to the bathroom and walking in the halls while in the hospital, will help make your body stronger and prepare you to go home.

Activity in the hospital

Getting Started

- Activities such as sitting up at the bedside or in a chair and walking short distances near the bed will begin as soon as possible.
- The nursing and rehabilitation staff will help you begin, progress and pace your self-care activities (getting out of bed, bathing, dressing and exercise).

Setting the Pace

- How often activities are done is also important in the recovery process.
- Once you are out of the intensive care unit, you will start with short walks daily. The distance will be increased each day. This will help prevent problems from the effects of bed rest.

Balancing Activity and Rest

- A balance between activity and rest is important to make your recovery smoother. Small amounts of activity several times a day is best not to make you too tired.
- Walking is one of the best forms of activity to help prevent problems caused by too much bed rest. Even walking around your room is better than lying in bed or sitting in a chair too long.
- A rest period after any activity is important at first to help prevent symptoms.
- Rest before you get tired and spread activities out over the entire day.

Using Proper Technique

- Use proper technique to get out of bed, a chair or toilet, or to change position in bed. You may put unneeded strain on your heart if you use only your arms or hold your breath while getting up or changing position.
- Your health care team will show you how to move in a way that puts less strain on your heart.
If you have had open heart surgery or heart transplantation:

- It will take about 6 to 8 weeks for your sternum (breastbone) to heal, so it is important to prevent strain or pressure on this area. Use proper techniques to get out of bed or to get up from a chair or the toilet.
- Do not do tasks that require you to lift anything heavier than 10 pounds.
- As you become more active, you may have muscle soreness in your chest. As your sternum and chest muscles heal from surgery, the soreness will go away.

Conditioning Exercises

After only a day or two on bed rest, muscles begin to get weak and stiff. Conditioning exercises stretch and bend your muscles at different angles. This type of exercise helps prevent stiffness and weakness, and are also useful as warm-up exercises before walking. There are examples of these later in this book.

Exercises after you go home

Regular exercise should be a part of everyone’s life. Benefits of exercise include a decrease in resting blood pressure and heart rate, a sense of well being and improved activity tolerance.

The home exercise program will be given to you before discharge and is a continuation of exercises done in the hospital. Do these exercises slowly and rhythmically. Breathe normally during your exercises and never hold your breath.

Dangers of bed rest

Spending too much time lying down can have many dangerous effects on your body, such as:

- Changes in hearing and eyesight
- Muscle weakness
- Blood clots
- Feelings of nausea
- Depression
- Dizziness with movement
- Poor balance
- Blood sugar changes
- Skin problems
- Pressure sores

A balance between activity and rest reduces most effects of bed rest and helps you feel less tired.
Starting Your Home Exercise Program

Regular exercise will improve your recovery and future health. To get the most benefit, work with your doctor or therapist to create an exercise plan.

**Benefit without straining**

When starting an exercise program, the goal is to **slowly** improve your heart and lungs. There are three things to keep in mind as you start to exercise:

- How hard you exercise, also called intensity.
- How often you exercise, also called frequency.
- How long you exercise, also called duration.

**How Hard (Intensity)**

You want to exercise enough to benefit your heart, but without straining. Pay attention to how your body feels. You are working too hard if you have trouble breathing or you feel weak, faint or dizzy during or after exercising.

**How Often (Frequency)**

How often you exercise can change based on how long you will do it for. Start with 2 to 3 short walks each day for 10 minutes. As you are able to walk for longer periods of time, you may walk fewer times each day. It is best if you can exercise at least 5 days a week.

**How Long (Duration)**

How long you exercise may start as only a few minutes. Add a few minutes each day. A goal over time is to be able to exercise for 30 to 60 minutes per day.

**Types of exercise**

There are different types of exercise that are good for your health. Vary the type of exercise you do to increase the health benefits and prevent boredom and injury. Talk to your doctor about what type and how much exercise is right for you before starting any exercise program.

### Aerobic Exercise

Aerobic exercises, also know as “cardio” exercise, moves large muscles and increases the heart rate for a period of time. This promotes more use of oxygen to stimulate and strengthen the heart and lungs.

Examples include: walking, running, aerobic classes, stair climbing, biking and swimming.
Strength Training Exercise
Strength training exercises increase strength and build strong bones and muscles. Weight lifting, push-ups and sit-ups are examples of strength training.

Talk to your doctor before beginning strength training if you have high blood pressure or other health problems. People with heart failure should not do strength training.

Stretching Exercise
Stretching exercises increase the length of the muscles, which improves balance and joint health. Stretching is important before and after exercising and as an exercise itself. Examples include stretching exercises, yoga and tai chi.

Do at least a 5 minute warm up, such as walking, before stretching to reduce risk of muscle strain.

Hold each stretch for 20 to 30 seconds.

If you have heart failure
If you have heart failure, avoid weight lifting and strength training, also called isometric exercises. Examples are pushing, pulling, lifting and carrying. These types of exercises can raise your blood pressure and put more strain on your heart.

Aerobic exercise and stretching are still important to do if you have heart failure.

Tips to put less stress on your heart
• Begin and end with 5 minutes of gentle, stretching exercises or use this time to slowly increase or decrease the exercise. For example, walk 5 minutes before and after jogging. Warming up helps prevent irregular heartbeats and injuries, and lessens strain on the heart.
• Exercise at a comfortable pace, slowly building up your level of activity over weeks.
• Drink water before, during and after exercise.
• Cool down at the end of your exercise. This helps prevent strain on the heart, large drops in blood pressure and light-headedness from stopping suddenly.
• Exercise after you are rested, not when you are tired from other activities.
• In hot or humid weather, exercise in the morning or evening when it is cooler. In cold weather, cover your nose and mouth with a scarf.
• Walk in a mall or fitness center when the temperature is above 85 degrees Fahrenheit. This is also a good idea when the temperature is cold, below 32 degrees.
• Wear loose, comfortable clothing when you exercise. Wear light layers that you can put on or take off as you warm up or cool down.
Pacing Your Activity

**Effort signs**
Signals that show your heart is working too hard are called *effort symptoms or signs*. These include:

- Shortness of breath
- Dizziness
- Irregular pulse (not steady)
- Chest discomfort or pain
- Nausea

If you have one or more of these signs, **stop your activity and rest**. Be sure to tell your nurse or cardiac rehabilitation specialist. It is not unusual to have muscle or incision discomfort in your chest during activity. Over time, the discomfort should decrease.

**Rating how you feel**
Rating how you feel during exercise can be used to check if your heart is working too hard. When you are doing activities or exercise, you should be able to talk easily and not feel out of breath.

**Your heart rate** (pulse) can be used as a guide for how hard your heart is working.

- Before doing your exercise, check your heart rate.
- After doing exercise, stop and check your heart rate again. **Your heart rate should not be more than 20 beats a minute above your resting heart rate.** See below for how to find resting heart rate.
- If it is too high, rest and recheck it in 5 minutes. A large increase in heart rate can be a sign that you did more activity than your heart was ready for on that day.
- If your heart rate regularly goes above the target rate or if you feel effort signs with a rise in heart rate, talk about this with your health care team. There may be other things causing your heart rate to go up.

Once you start an outpatient program, you will be given a target heart rate range to meet, which may be more than 20 beats a minute.
**Finding Your Heart Rate**

Determine your *resting heart rate*. Take your pulse before you get out of bed in the morning:

- Find your pulse on your wrist. Use the tips of two fingers to apply light pressure on the thumb side of the wrist.
- Count your pulse for 10 seconds and then multiply that number by 6.
- **My resting heart rate is _________.**

During exercise:

1. Warm up for 5 minutes then check your heart rate. Exercise at 20 beats above your resting heart rate. Slow down if your heart rate is too high. **My heart rate goal for exercise is ________ to _________.**
2. End with a 5 minute cool down and then check your heart rate. Your heart rate should be within 10 beats of your resting heart rate. If it is too high, continue to cool down. **My heart rate should cool down to at least _________.**

**Borg Rating of Perceived Exertion (RPE) Scale**

This scale rates how hard you are working. It lets us know how the exercise feels to you.

*A rating between 11 and 14 is a safe level of exertion.* This means you are comfortably tired after an activity. If your rating is less than 11, it is safe for you to increase your intensity (pace) or exercise longer. If your rating is greater than a 14, slow down.

<table>
<thead>
<tr>
<th>#</th>
<th>Level of Exertion</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>No exertion at all</td>
</tr>
<tr>
<td>7</td>
<td>7.5 Extremely light (7.5)</td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Very light</td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Light</td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Somewhat hard</td>
</tr>
<tr>
<td>14</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Hard (heavy)</td>
</tr>
<tr>
<td>16</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Very hard</td>
</tr>
<tr>
<td>18</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Extremely hard</td>
</tr>
<tr>
<td>20</td>
<td>Maximal exertion</td>
</tr>
</tbody>
</table>

9 on the scale is “very light” exercise. It is like walking slowly at your own pace for some minutes.

13 on the scale is “somewhat hard” exercise. It still feels okay to continue.

17 on the scale is “very hard” exercise. You can still go on, but you really have to push yourself. It feels very heavy, and you are very tired.

19 on the scale is “extremely hard” exercise. This is the most strenuous exercise you have ever done.

*Borg RPE scale*  
Watch for warning signs

Know the signs to watch for that you are exercising too hard:

- Pain or pressure in your chest, down your arms or shoulders, or in your throat or jaw
- Irregular, skipped or fast heart beats
- Extreme fatigue or shortness of breath
- Blurred vision
- Sudden weakness in face, arm or leg
- Severe leg pain with exercise
- Feeling light-headed, dizziness or confused
- Consistent sore muscles

If you experience any of these warning signs, you are exercising too hard. **Stop exercising and rest!** Talk to your doctor, nurse or cardiac rehab therapist about what your signs were and what you were doing.
Stretching Exercises

Walk around the room, step side to side, ride a bike or walk on a treadmill for at least 5 minutes to warm up before doing these stretches. Stretch warm muscles only.

Hold each stretch for 30 to 60 seconds. Do NOT bounce. You should feel the stretch in the muscle, not the joint.

**Lower body stretches**

**Calf muscle stretch:**
1. Move your left foot back and keep your leg straight.
2. Move your right foot forward with the knee bent. Keep the knee in line with your ankle.
3. Press the heel of your left foot into the floor.
4. You should feel a stretch up the back of your left lower leg, from your heel up to the back of your knee.
5. Repeat with the right leg back and the left leg forward.

**Hamstring stretch:**
1. Sit in a chair or on the edge of the chair.
2. Bring your left foot forward, placing the heel down and your toes raised to the ceiling. The knee should be slightly bent.
3. Lean forward and feel the stretch in the back of your upper leg.
4. Bring your right foot forward and repeat.
**Quadriceps stretch:**
1. Sit in a chair.
2. Bring your foot back under the chair, so the top of your foot is on the floor.
3. Keep your lower back straight and lean back.
4. Feel the stretch in the front of your upper leg.
5. Repeat with your other leg.

**Upper body stretches**

**Side and triceps stretches:**
1. Raise one arm into the air and reach for the ceiling. Feel the stretch through your side.
2. Bring the hand down behind your head reaching across towards the opposite shoulder blade.
3. Reach up with your other hand and gently pull your elbow towards your back. If you cannot reach to pull your elbow back from behind your head, gently push your elbow back from the front of your arm.
4. Feel the stretch in the back of your upper arm.
5. Repeat with the other arm.

**Stretch for the back of your shoulders:**
1. Sit or stand and bring one arm across your body at shoulder height.
2. Place your other hand on your elbow or upper arm and pull it close to your chest.
3. Feel the stretch in the back of your shoulder.
4. Repeat with the other arm.

**Wrist circles:**
1. Hold your arms in front of you at shoulder height.
2. Move your wrists to the right and to the left in circles.
**Neck stretches:**

1. Sit facing forward. Relax your arms at your sides.
2. Press your chin into your chest. You should feel a stretch up the back of your neck.
3. Return to looking straight ahead.
4. Press your right ear to your right shoulder. Do not raise your shoulder to your ear. Feel the stretch in the side of your neck.
5. Return to looking straight ahead.
6. Press your left ear to your left shoulder. Do not raise your shoulder to your ear. Feel the stretch in the side of your neck.
7. Return to looking straight ahead.
8. Turn your head to the right as far as you can and feel the stretch.
9. Return to looking straight ahead.
10. Turn your head to the left as far as you can and feel the stretch.
11. Return to looking straight ahead.
Conditioning Exercises: Standing

Do all these exercises slowly. Do not hold your breath during these exercises. If unusual pain occurs in your joints or muscles while you are exercising, do not continue the exercise.

Do only the exercises checked (✓) below.

Repeat each exercise ______ times, ______ times a day

- **Heel Raises**
  - Stand with your hands on your hips and your feet slightly apart.
  - Rise up on your toes and return to your heels.

- **Hip / Knee Flexion**
  - Stand with your feet slightly apart.
  - Lift your right knee up to waist level.
  - Return your foot to the floor.
  - Repeat with your left leg.
- **Hip Abduction**
  - Hold onto a chair for balance.
  - Move your leg out to the side then return to the starting position.
  - Repeat with your other leg.

- **Trunk Lateral Flexion**
  - Stand with your hands on your hips and your feet slightly apart.
  - Bend to the right and then return to an upright position.
  - Bend to the left and then return upright.

- **Trunk Rotations**
  - Stand with your hands on your hips and feet slightly apart.
  - Turn your upper body and head toward the right and then turn back to the starting position.
  - Turn toward the left and then back to the starting position.
- **Shoulder Abduction**
  - Stand with your feet slightly apart and your arms at your sides.
  - Move your arms out from your side and up over your head.
  - Return your arms to your sides.

- **Shoulder Flexion**
  - Stand with your feet slightly apart and your arms at your sides.
  - Raise your arms over your head in front of you as far as you can.
  - Lower your arms to your sides.

- **Shoulder Circles**
  - Stand with your feet slightly apart.
  - Raise your arms out to the side at shoulder level.
  - Make arm circles forward and then backward.
Eight-Week Walking Program

Talk to your doctor about how much exercise is right for you before starting any exercise program. If you have been inactive, this program can help improve your fitness. Consider investing in comfortable walking shoes to prevent injury. Walk most days of the week and over time walk longer or faster.

About the program

This program starts slowly to rebuild your strength and stamina. You will walk short distances and then rest. This is called interval training. Your speed or pace when walking will slowly increase over time.

Walk at a pace that does not leave you out of breath. Only move to the next level if you feel you can. It is okay to repeat a week if the effort needed is moderately difficult for you to achieve. The goal is to increase activity safely for your body.

<table>
<thead>
<tr>
<th>Week #</th>
<th>Walking interval</th>
<th>Rest interval</th>
<th>Repeat the intervals</th>
<th>Total activity time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 minutes</td>
<td>1 minute</td>
<td>5 times</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>4 minutes</td>
<td>2 minutes</td>
<td>4 times</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>5 minutes</td>
<td>2 minutes</td>
<td>4 times</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>7 minutes</td>
<td>2 minutes</td>
<td>3 times</td>
<td>21</td>
</tr>
<tr>
<td>5</td>
<td>5 minutes</td>
<td>2 minutes</td>
<td>5 times</td>
<td>25</td>
</tr>
<tr>
<td>6</td>
<td>10 minutes</td>
<td>2 minutes</td>
<td>3 times</td>
<td>30</td>
</tr>
<tr>
<td>7</td>
<td>15 minutes</td>
<td>2 minutes</td>
<td>2 times</td>
<td>30 *</td>
</tr>
<tr>
<td>8</td>
<td>20 minutes</td>
<td>2 minutes</td>
<td>2 times</td>
<td>40</td>
</tr>
</tbody>
</table>

*If you have chest pain, nausea or light-headedness during exercise, stop exercising and seek medical help.*
DASH, or Dietary Approaches to Stop Hypertension, is an eating plan that lowers blood pressure and LDL (bad) cholesterol to reduce your risk of getting heart disease. Your health care provider may also recommend DASH to prevent or control other diseases and conditions, such as stroke, type 2 diabetes, and kidney stones. Along with DASH, other lifestyle changes can help improve your health. They include staying at a healthy weight, exercising, and not smoking. Talk to your provider for support as you make changes to your diet and lifestyle.

Follow the DASH eating plan

The food groups listed show examples of daily or weekly servings for a 2,000-calorie-a-day diet. You may need more or less servings each day based on your calorie (energy) needs. Talk to your provider for support.

Sodium - limit to 2,300 mg or less per day

Your provider may recommend 1,500 mg or less per day.

- 1 teaspoon of salt has about 2,300 mg of sodium.
- Most of the sodium in our diets comes from processed foods, like lunch meat, canned soups and vegetables, and boxed or packaged mixes.
- Read food labels to learn how much sodium is in a food.

Grains - eat 6 to 8 servings per day

- 1 serving equals:
  - 1 slice of bread
  - 1 ounce of dry cereal (about 1/2 to 1 1/4 cups, depending on cereal type)
  - 1/2 cup of cooked rice, pasta, grains, or cereal
- Choose whole grains (100% whole wheat or whole grain bread, brown rice, quinoa, or oatmeal) over refined grains (white flour, degemermed cornmeal, white bread, or white rice).

Vegetables - eat 4 to 5 servings per day

- 1 serving equals:
  - 1 cup raw, leafy vegetables
  - 1/2 cup chopped raw or cooked vegetables
  - 1/2 cup low-sodium vegetable juice
Fruits - eat 4 to 5 servings per day
- 1 serving equals:
  - 1 medium fruit
  - ¼ cup dried fruit
  - ½ cup fresh, frozen or canned fruit
  - ½ cup fruit juice
- Choose whole fruits (fresh, frozen or dried) over juice.

Fat-free or low-fat dairy - eat 2 to 3 servings per day
- 1 serving equals:
  - 1 cup fat-free or 1% low-fat milk
  - 1 ½ ounces low-fat cheese
  - 6 ounces fat-free or low-fat yogurt

Lean meats, poultry and fish - eat 6 to 8 servings per day
- 1 serving equals:
  - 1 ounce cooked meat, fish or poultry
  - 1 egg
- Trim away visible fat.
- Remove skin from poultry.
- Use low-fat cooking methods, like broil, roast, poach, bake and grill.
- Limit meat to 3 ounces at meals (about the size of the palm of your hand).
- Limit egg yolks to 4 per week.

Fats and oils - eat 2 to 3 servings per day
- 1 serving equals:
  - 1 teaspoon butter, margarine or oil
  - 1 tablespoon mayonnaise
  - 2 tablespoons salad dressing
- Use small amounts of butter or margarine.
- Use olive oil as your first choice for oils.

Seeds, nuts and legumes (beans, lentils and peas) - eat 4 to 5 servings per week
- 1 serving equals:
  - ½ cup or 1 ½ ounces of nuts
  - 2 tablespoons nut butter
  - 2 tablespoons or ½ ounce seeds
  - ½ cup cooked beans, lentils or peas
- Eat more vegetarian or meatless meals.
Sweets and added sugars - eat 5 or less servings per week

- 1 serving equals:
  - 1 tablespoon of sugar, honey, maple syrup or chocolate sauce
  - 1 tablespoon jelly or jam
  - ½ cup sorbet, sherbert or ice cream
  - 2 small cookies

- Keep sugar on the food label to less than 10 grams per serving.
- Men: limit sugar to no more than 150 calories or about 3 tablespoons (38 grams) per day.
- Women: limit sugar to no more than 100 calories or about 2 tablespoons (25 grams) per day.
- A 12-ounce can of regular soda has about 40 grams of sugar!

For more information about DASH, visit:

- National Heart, Lung and Blood Institute at [www.nhlbi.nih.gov/health/health-topics/topics/dash](http://www.nhlbi.nih.gov/health/health-topics/topics/dash)
- MedlinePlus at [https://medlineplus.gov/dashdiet.html](https://medlineplus.gov/dashdiet.html)
# DASH 2-day sample menu

<table>
<thead>
<tr>
<th></th>
<th>Day 1</th>
<th>Day 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 cup bran flakes cereal</td>
<td></td>
<td>½ cup oatmeal</td>
</tr>
<tr>
<td>1 medium banana</td>
<td></td>
<td>1 mini 100% whole wheat bagel</td>
</tr>
<tr>
<td>1 cup 1% low-fat milk</td>
<td></td>
<td>1 tablespoon peanut butter</td>
</tr>
<tr>
<td>1 slice 100% whole wheat bread</td>
<td></td>
<td>1 medium apple or 1 cup other whole fruit</td>
</tr>
<tr>
<td>1 teaspoon butter or soft margarine</td>
<td></td>
<td>1 cup 1% low-fat milk</td>
</tr>
<tr>
<td>½ cup orange juice or orange segments</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>¾ cup chicken salad on 2 slices 100% whole wheat bread</td>
<td>Chicken breast sandwich with 3 ounces skinless chicken breast, 2 slices 100% whole wheat bread, 1 slice low-fat cheddar cheese, 1 large romaine leaf, 2 slices tomato, 1 tablespoon low-fat mayonnaise</td>
<td></td>
</tr>
<tr>
<td>Salad with ½ cup fresh cucumber slices, ½ cup tomato wedges, 1 tablespoon sunflower seeds, 1 teaspoon Italian dressing</td>
<td>1 cup cantaloupe chunks</td>
<td></td>
</tr>
<tr>
<td>½ cup fruit cocktail</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dinner</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 ounces lean beef with 2 tablespoons fat-free beef gravy</td>
<td>1 cup whole grain spaghetti with ¾ cup spaghetti sauce (with no meat and less than 10 grams of sugar per serving) and 3 tablespoons Parmesan cheese</td>
<td></td>
</tr>
<tr>
<td>1 cup green beans sauteed in ½ teaspoon olive oil</td>
<td>Spinach salad with 1 cup spinach leaves, ¼ cup fresh grated carrots, ¼ cup sliced mushrooms, 1 tablespoon vinaigrette dressing</td>
<td></td>
</tr>
<tr>
<td>1 small baked potato topped with 1 tablespoon fat-free sour cream, 1 tablespoon low-fat shredded cheddar cheese, 1 tablespoon chopped scallions</td>
<td>½ cup corn, cooked from frozen</td>
<td></td>
</tr>
<tr>
<td>1 small whole wheat roll with 1 teaspoon tub margarine</td>
<td>½ cup fresh or canned pears</td>
<td></td>
</tr>
<tr>
<td>1 small apple</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 cup 1% low-fat milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Snack</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>½ cup almonds, unsalted</td>
<td></td>
<td>½ cup walnuts, unsalted</td>
</tr>
<tr>
<td>¼ cup raisins</td>
<td></td>
<td>½ cup applesauce</td>
</tr>
<tr>
<td>½ cup low-fat, low-sugar Greek yogurt</td>
<td></td>
<td>1 low-fat mozzarella string cheese</td>
</tr>
</tbody>
</table>
Using Food Labels to Make Healthier Choices

Claims on food packages can be confusing. Knowing what is in food may help you to make healthier choices. Reading food labels is the best way to get information about what is in your foods. This can help you make better choices and eat healthier overall.

Nutrition Facts

1. **Look for the Nutrition Facts on the food label.** The numbers on this illustration match the numbers in the Nutrition Facts section of this handout. Refer back to this page as you learn what each item means.

2. **Serving Size:** The amount of food recommended to be eaten at one time. All of the following nutrition information is based on this serving size. For instance, if you ate 2 servings, you would need to double the numbers listed below. Also note how many servings are in the entire container to help estimate what one serving size looks like.

3. **Calories:** The average adult needs about 2,000 calories a day from food and beverages. Use this number to help determine if this product fits into your daily eating plan or not. Too many calories each day can lead to weight gain.

4. **Fat:** Not all fat is created equal. There are 4 types of fat in our foods: saturated fat, trans fat, monounsaturated fat, and polyunsaturated fat. The FDA only requires that food manufacturers list saturated fat and trans fat on their Nutrition Facts labels, but sometimes you might find all 4 types listed. Too much saturated fat or trans fat in the diet can lead to worsening heart problems or cancer.

Source: Adapted from U.S. Food and Drug Administration
An average adult following a 2000 calorie diet should aim to limit total fat to 45 to 75 grams per day (20-35% total calories), saturated fat to 11 to 13 grams per day (5-6% total calories), and trans fat should be avoided as much as possible. Check the list below to see how much you should have if you eat a different amount of calories per day.

<table>
<thead>
<tr>
<th>Your daily calorie total is:</th>
<th>Your total fat limit per day is:</th>
<th>Your saturated fat limit per day is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 calories</td>
<td>45 to 75 grams</td>
<td>11 to 13 grams</td>
</tr>
<tr>
<td>1800 calories</td>
<td>40 to 70 grams</td>
<td>10 to 12 grams</td>
</tr>
<tr>
<td>1500 calories</td>
<td>35 to 60 grams</td>
<td>8 to 10 grams</td>
</tr>
<tr>
<td>1200 calories</td>
<td>25 to 45 grams</td>
<td>6 to 8 grams</td>
</tr>
</tbody>
</table>

Note: Although the food label may say the food item has 0 grams of trans fat, it may contain up to 0.5 gram per serving. The best way to check for trans fats is to look at the ingredient list and look for “partially hydrogenated oils.” If you see these words, try to find an alternative product made with different ingredients.

5. Cholesterol: Cholesterol is found in animal products, such as cheese, egg yolks, milk, and butter. Eating too many of these foods can increase your risk for heart disease. Try to limit total cholesterol intake to 300 mg per day. If you are at risk for heart disease or have Type 2 Diabetes, 200 mg per day is the maximum recommended amount. Plant-based foods do not contain any cholesterol.

6. Sodium: Many processed foods contain sodium, which acts as a preservative and adds flavor. Most Americans are eating too much sodium. Keeping your sodium intake low may decrease high blood pressure and lower your risk for stroke, heart disease, and kidney disease. The 2015 Dietary Guidelines for Americans suggests limiting sodium intake to no more than 2,300 mg per day, although some older individuals or those with high blood pressure may want to limit this intake even more.

Guideline: Look for foods that have less than 300 mg of sodium per serving. Watch the number of servings of any food you eat.

7. Total Carbohydrates: Carbohydrates are in foods like bread, pasta, potatoes, fruits, and vegetables. Some individuals, like those with diabetes, may want to control the amount of carbohydrate that they have with their meals and snacks.

8. Dietary Fiber: Fiber is the bulk part of grains, beans, peas, fruits and vegetables. Fiber helps the body’s digestive system work well and may help lower the risk of some cancers and heart disease. If you want to increase your fiber intake, look for foods with at least 3 grams of fiber per serving.

9. Added Sugar: Some sugars are naturally occurring, like those in fruit, and others are added during the processing or packaging of foods. Too many of these “added sugars” can increase your risk for developing diabetes, heart disease, obesity, and other health conditions. Aim to limit added sugar intake to 10% of total calories, or about 30 to 55 grams per day for most people. Make sure to check beverages for added sugar content.

10. Protein: Protein can help to build muscle, regulate hormones, and is involved in immune function. Most individuals should aim for about 60 to 100 grams of protein per day.
11. **Vitamins and Minerals:** Most Americans are not meeting the recommended amount of these nutrients each day. Look for food products that are a good source of these nutrients. Your goal is to reach 100% of each for the day.

12. **% Daily Value:** Daily values are the percentage of nutrients the product provides based on a diet of 2,000 calories per day. Your nutrient needs may be less or more than the Daily Value depending on your individual health concerns. For certain nutrients, like sodium and added sugar, aim for lower percentages. For other nutrients, like fiber, vitamins, and minerals, aim for 100% a day.

### The Ingredient List

In addition to the Nutrition Facts Label, look at a product’s ingredient list to help you make better food selections. The ingredient list tells you what is in the food. Manufacturers list ingredients by weight in order of greatest amount to least amount in the food. It is a valuable resource for people with food allergies. Use the table to help you identify ingredients that are high in a nutrient.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Common Ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>• Baking powder</td>
</tr>
<tr>
<td></td>
<td>• Baking soda</td>
</tr>
<tr>
<td></td>
<td>• Monosodium glutamate</td>
</tr>
<tr>
<td></td>
<td>• Salt (regular or sea salt)</td>
</tr>
<tr>
<td></td>
<td>• Sodium</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>• Any animal fats</td>
</tr>
<tr>
<td></td>
<td>• Lard</td>
</tr>
<tr>
<td></td>
<td>• High fat products, such as whole milk and cheese</td>
</tr>
<tr>
<td>Saturated and Trans Fats</td>
<td>• Any animal fats except fish</td>
</tr>
<tr>
<td></td>
<td>• Coconut butter</td>
</tr>
<tr>
<td></td>
<td>• Coconut oil</td>
</tr>
<tr>
<td></td>
<td>• Palm oil</td>
</tr>
<tr>
<td></td>
<td>• Partially hydrogenated oils</td>
</tr>
<tr>
<td>Sugar</td>
<td>• Brown sugar</td>
</tr>
<tr>
<td></td>
<td>• Carob powder</td>
</tr>
<tr>
<td></td>
<td>• Corn syrup/solids</td>
</tr>
<tr>
<td></td>
<td>• Dextrin</td>
</tr>
<tr>
<td></td>
<td>• Dextrose</td>
</tr>
<tr>
<td></td>
<td>• Fructose</td>
</tr>
<tr>
<td></td>
<td>• Glucose</td>
</tr>
<tr>
<td></td>
<td>• High fructose corn syrup</td>
</tr>
<tr>
<td></td>
<td>• Honey</td>
</tr>
<tr>
<td></td>
<td>• Invert sugar</td>
</tr>
<tr>
<td></td>
<td>• Lactose</td>
</tr>
<tr>
<td></td>
<td>• Mannose</td>
</tr>
<tr>
<td></td>
<td>• Molasses</td>
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<td>• Sucrose</td>
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Making Restaurant Choices

Tips to eat healthy at restaurants
Restaurant foods are often high in calories, fat and sodium. Eat at home most of the time to better control what and how much you eat. When you do eat out, follow these tips to help you make heart healthy choices.

- Restaurant meal portions are enough to feed at least 2 people. Split a meal with another person, or take at least half of the meal home for leftovers.
- Choose lean cuts of meat (round, sirloin, tenderloin cuts), fish or poultry prepared with no added fat. Broiling, poached, grilled, baked and roasted are usually good choices.
- Ask for sauces, gravies, margarine, butter, salad dressing and sour cream on the side. Use small amounts of these for flavor. Dip your fork in them before getting your bite of food.
- To reduce sodium, ask that foods be prepared without salt when possible. Avoid soy sauce and teriyaki sauce, which contain very large amounts of sodium.

Restaurant foods to choose
The following pages have lists with some key words to help you choose lower fat food options in various types of restaurants. However, some low fat foods are very high in sodium. If you need to limit your sodium, avoid those marked as such.

<table>
<thead>
<tr>
<th>Type of Food</th>
<th>Choose These Foods</th>
<th>Limit These Foods</th>
</tr>
</thead>
</table>
| American     | • BBQ sauce (high sodium)  
               • Cocktail sauce (high sodium)  
               • Green or red onions  
               • Honey mustard  
               • Lettuce and tomatoes  
               • Mustard  
               • Sautéed onions, peppers or mushrooms (with little or no oil)  
               • Foods that are mesquite marinated, grilled, charbroiled or broiled | • Bacon (strips, crisps or crumbled)  
               • Blue cheese  
               • Butter or garlic butter  
               • Cheese (grated, melted, topped or smothered)  
               • Guacamole  
               • Sausage  
               • Sour cream  
               • Food that is battered or fried  
               • Food that is described as large, jumbo, piled high, stacked, layered or stuffed |
## Choose These Foods

### Chinese
- Assorted vegetables
- Bean curd
- Light wine sauce
- Sizzling platter
- Foods that are simmered, steamed, roasted or stir-fried

### Italian
- Artichoke hearts
- Capers
- Florentine
- Herbs and spices
- Light red or wine sauce
- Mushrooms
- Peppers
- Primavera
- Shallots or onions
- Sun-dried tomatoes
- Foods that are sautéed or grilled

### Mexican
- Enchilada sauce
- Lettuce and tomatoes
- Mole sauce
- Picante sauce (high sodium in large amounts)
- Salsa (high sodium in large amounts)
- Soft corn tortillas
- Spicy beef or chicken
- Foods that are grilled, marinated or simmered
- Guacamole (eat in small amounts - high in fat but healthy monounsaturated fat)

## Limit These Foods

### Chinese
- Duck
- Egg Foo Young with cashews
- Hoisin sauce
- Foods that are breaded, fried or crispy

### Italian
- Alfredo sauce
- Cannelloni
- Pasta alla Carbonara
- Creamy sauce
- Egg and cheese batter
- Manicotti
- Oil
- Pancetta
- Parmigiana
- Prosciutto
- Saltimbocca
- Veal sausage
- Foods that are stuffed with cheese or fried

### Mexican
- Bacon
- Cheese sauce
- Chorizo
- Fried taco bowls
- Refried beans
- Sour cream
- Tortilla chips
- Foods that are covered with cheese or fried
A General Guide for Taking Medicines

Use this guide to help you learn about your medicines to take them safely. Ask your doctor, nurse or pharmacist for more specific information about each medicine you are taking.

Keep a list of all of your medicines

Keep an up to date list of all of your medicines with you, so you can show the list to your doctor and dentist at each visit. Be sure to include:

- Prescription and over the counter medicines
- Vitamins and herbal products such as St. John’s Wort, garlic, gingko biloba or vitamin E
- Dietary supplements and homeopathic remedies such as juices, teas or other products
- Sample medicines you may have been given by your doctor
- Skin patches, eye drops, inhalers, creams and ointments
- Medicines delivered by pumps, such as insulin or pain medicine

Before taking a new medicine, tell you doctor if:

- You have an allergy or ever had a reaction to any medicine, herbal product, food or other substance.
- You are on a special diet, such as a low salt or low sugar diet. Being on a special diet may change how a medicine works.
- You are pregnant, plan to become pregnant or are breastfeeding.
- You are taking any prescription or over the counter medicines, herbal products, vitamins or other dietary supplements.

Ask questions to learn about your medicines

Ask questions of your doctor or pharmacist to learn about your medicines and write down the answers so you can refer to them later. Questions you may want to ask:

- What is the generic and brand names of the medicines?
- Why am I taking this medicine and what does it do?
- How much do I take and how often should I take it?
- What time should I take it?
- Should I take it with food?
- What food, drink or activities should I avoid while taking this medicine?
- What are the usual side effects and what do I do if they occur?
• What do I do if I forget to take my medicine?
• When should I expect the medicine to start working and how can I tell if it is working?
• Are there any tests I need to have while taking this medicine?
• How long do I need to take it?
• Is it safe to take with other medicines that I am taking?
• Should I stop taking my medicine for any special reasons?

Use your medicines safely
• Take your medicines exactly as your doctor ordered, even if you are feeling better.
• Get refills of your medicine 5 to 7 days before your supply is gone so you don’t miss a dose.
• Do not stop taking your medicines without checking with your doctor.
• If you have any side effects that you did not expect, call your doctor.
• Always read the label before taking any medicine.
• Check the date on the bottle and throw out any medicines that have expired.
• Take over the counter medicines as directed on the label. Ask your pharmacist to help you choose an over the counter medicine.

Child proof caps are required by law to reduce the number of accidental poisonings. If there are no children in your home, you can ask your pharmacist for an easy open cap.

Storing medicines
• Keep your medicine tightly capped and in the original bottle. If you use a pill reminder box, put only enough medicine for the day or week.
• Store your medicines away from heat and direct sunlight. Do not put medicines in the bathroom cabinet because heat and moisture may cause changes in the medicines.
• Store medicines where children and pets cannot get to them.
• Do not store medicines in the refrigerator or freezer unless you are told to do so.
• Outdated medicines or any prescription medicines not used for more than 1 year should be thrown out. Check with your pharmacist about how to safely get rid of them. Do not throw old medicines in the trash can. Watch for community drug take back programs.

Other precautions
• Do not give your medicines to other people. This is dangerous and against the law.
• Use only 1 pharmacy, so the pharmacist has a record of all of your medicines.
• Check all of your medicines before leaving the pharmacy. Read the name, strength and instructions on the bottle. Open each and look at the pills. If anything looks different than you expected, talk to the pharmacist before you leave.
• If you take more medicine than prescribed, call the poison control center, your doctor or pharmacist right away.
Nitrates

These medicines help relax the blood vessels, so blood flows more easily through the body. They open the coronary blood vessels, so more oxygen is supplied to the heart. These medicines are used to treat angina (chest pain) and may be used for heart failure.

**Side effects may include:** headache, dizziness, light-headedness, flushing of face, or neck, and skin rash.

**Nitroglycerin**

Nitroglycerin, also called nitro, may be given to patients who have chest discomfort (angina) due to coronary artery disease (CAD). The blood vessels widen to allow for better blood flow to the heart. **For your safety, always carry your nitroglycerin with you.**

- **Sublingual nitro tablets or spray**
  - You may feel tingling or a headache when you take nitro.
  - Keep your nitro tablets or spray with you at all times.
  - Keep nitro bottle out of moist areas, such as the bathroom.
  - Check the expiration date and be sure to throw the medicine away after the expiration date. Keep refills up to date.

**Use sublingual nitro tablets or spray if you have chest pain:**

1. Sit down and rest before using nitroglycerin.
2. If you have nitroglycerin tablets, put one tablet under your tongue and let it dissolve. **Do not swallow the tablet.** If you use nitroglycerin spray, spray it into your mouth towards the back of your throat.
3. Rest and wait 5 minutes. Take a second tablet under your tongue if you still have chest discomfort or pain or use the spray. **At any time if your chest discomfort or pain does not improve or is getting worse even with nitroglycerin, call 911 and seek emergency treatment. Do not drive yourself to the hospital because you may be having a heart attack.**
4. Rest and wait another 5 minutes. Take a third tablet under your tongue or use your spray if the chest discomfort or pain has not gone away.
5. If you have taken 3 tablets or sprays and your chest discomfort or pain is still present after 15 minutes, **call 911 and seek emergency treatment.**

**Other Nitrates**

There are other nitrate medicines that are used to decrease chest pain, but **should NOT be used for a sudden attack.** These medicines include:

- Nitroglycerin patch (Nitro-dur, Minitrin, Transderm-nitro), place on non-hairy skin and rotate sites
- Isosorbide dinitrate (Isordil) - short acting
- Isosorbide mononitrate (Imdur) - long acting
Coping with Heart Disease

You may have physical, mental and emotional effects as you deal with heart disease. Dealing with these normal responses takes different ways of coping.

**Stress management**

Stress is the response to a perceived demand, internal or external, on our mind, body or emotions.

**Signs of stress:**

- Muscle tension
- Racing heart
- Headache
- Anxiety
- Depression
- Thought distortions or “should” statements, such as “I should be able to do more”

**Ways to cope with stress:**

- Exercise!
- Deep breathing
- Yoga
- Journaling
- Talking with others
- Balance positive and negative thoughts - your “self talk”
- Progressive muscle relaxation
- Guided imagery

**Self-talk**

- The habitual things we say to ourselves and the way we think of ourselves.
- Negative self-talk can make chronic conditions seem like an uphill battle with new obstacles to overcome each day.
- Work to transition negative thought to positive thoughts. Think of “The Engine That Could”: I think I can; I think I can.
  - Negative thought: “My future frightens me. My life will never be the same”
  - Positive thought: “I’m still the same person I’ve always been. I can cope.”
Progressive muscle relaxation

- Some people cannot relax due to muscle tension.
- Alternate tensing and relaxing the different muscle groups throughout the body, starting in the feet and moving to head.
- Become fully aware of each muscle and changes in sensations as you let go of the tension and relax.

Depression

Unhappy feelings or depression often occur with chronic illness. These feelings are part of the normal ups and downs that all paths have.

Although everyone feels down sometimes, signs of depression can linger and interfere with your ability to live your life and cope with stressors.

Recognizing you are depressed is the first step toward feeling better.

Signs of depression:

- Loss of interest
- Isolation withdrawal
- Changes in sleep patterns
- Increased or decreased appetite
- Unintentional weight loss or gain
- Low energy or fatigue
- Confusion or lack of concentration

Coping methods:

- Contact with others - call a friend or family member
- Plan ahead for a special event
- Get out of the house
- Do something nice for yourself
- Exercise!

Dealing with anger, fear and frustration

These feelings are among the most common responses to chronic illness.

Health is very important to us. When we have a chronic illness, we often feel a loss of control and worry about the future.

These feelings and emotions are normal and happen to almost everyone.
Depression resources

Not all depression can be handled through self-management. Sometimes depression is severe and needs professional treatment. Talk to a member of your care team for a referral for counseling or call one of the resources below.

- **Ohio State Harding Hospital Outpatient Services**: 614-293-9600
  Provides treatment of mental health issues, including:
  - Adjustment disorder (a group of symptoms, such as stress, feeling sad or hopeless, and physical symptoms that occur after a stressful life event)
  - Anxiety disorders, such as panic attacks, obsessive-compulsive disorder (OCD) and post-traumatic stress disorder (PTSD)
  - Depression

- **Ohio State Couple and Family Therapy Clinic**: 614-247-7883
  The clinic can help you adjust to lifestyle changes, manage stress and connect with resources of support.

- **Beating the Blues US**, [www.beatingthebluesus.com](http://www.beatingthebluesus.com)
  A self-help, online treatment program for depression using Cognitive Behavioral Therapy. The program consists of 8 weekly online treatment sessions of 50 minutes.

- **Ohio State Employee Assistance Program (EAP) for Faculty, Staff and Their Families**
  Offers tools and resources to help address complex issues that affect your mental and emotional well-being. EAP services are also available to benefits-eligible faculty and staff’s immediate families, members of their household, parents and parents-n-laws.
  For more information, visit [https://osuhealthplan.com/eap](https://osuhealthplan.com/eap) or call 1-800-678-6265 for live, immediate assistance 24/7.
Relaxation Techniques

Learn relaxation techniques to reduce stress and anxiety. Try different techniques to find what works best for you. Practice your techniques often and your ability to relax will improve over time.

Listening to music

Listen to your favorite music by itself or play music while using another relaxation technique. Look for new music, which you find soothing and helps you feel calm and relaxed, such as classical music or nature sounds. Try also guided meditation music.

Breathing exercises

1. Find a quiet room.
2. Turn on music that you find relaxing.
3. Get into a relaxing position.
4. Close your eyes and think of an image in your mind that will help you to relax, such as a calm, peaceful setting or a place you have enjoyed visiting.
5. Breathe in deeply. Hold your breath and tense your muscles. Keep them tense for a second or two.
6. Relax your muscles as you breathe out.
7. Starting with the muscles in your lower legs, work your way up your body to your head, tightening and relaxing each muscle group.

Guided imagery

Close your eyes and think of a time and place when you felt safe and comfortable. Imagine those surroundings, sights, smells, and sounds. Bring as much of that experience back to the here and now as possible. When you feel ready, take a deep breath and open your eyes.

Aromatherapy

Aromatherapy is the use of essential oils from plants as therapy to improve your well-being. Some oils, such as lavender, are thought to produce a calming effect. They can be inhaled or diluted and used on skin. Dodd Hall has aromatherapy machines, so let staff know if you are interested in trying it.

Positive thinking

Thinking negative thoughts can cause stress and muscle tension. Create some positive statements to replace negative self-talk. Repeat these statements to yourself and use them to motivate you. Some examples:

- I am doing the best that I can.
- I care for my well-being.
- I will try again.

Relaxation resources

- Guided Imagery Exercises
  go.osu.edu/guidedimagerypractices
- Mindfulness
  go.osu.edu/mindfulness
- Heart Centered Practices
  go.osu.edu/heartpractices
- Relaxation Response
  go.osu.edu/relaxationresponse
Cardiac Rehabilitation Program

Our goal is to help you return to the highest possible quality of life. Cardiac rehabilitation works to address activity and lifestyle after you leave the hospital. It is offered in several phases.

**Phase 1 (inpatient)**
We provide education during your hospital stay and work with you on skills to keep you active when going home. Before you leave the hospital, we will also provide a referral for a local cardiac rehab program.

**Phase 2 (outpatient)**
After leaving the hospital, you will have a visit to check your heart health with a cardiac rehab nurse and exercise physiologist. After this evaluation, which may include testing, you will start a personalized wellness program. These are some of the skills covered:

- Learn more about your condition and know how to best manage your condition at home.
- Improve your heart and cardiovascular function.
- Improve your fitness level.
- Reduce the chance of future health problems by working to improve diet, weight, activity level, diabetes and/or cholesterol, stop tobacco use and manage stress.
- Ability to do daily activities without symptoms.
- Reduce fear or anxiety about your heart condition.
- Have a faster return to work and/or normal activities.

**Phase 3 (maintenance)**
This is an ongoing fitness and wellness program that continues at the end of Phase 2 cardiac rehab. The program will support you as you work toward your health, fitness and lifestyle goals.

If you would like to attend the program, you can ask for a referral from your doctor.

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**Cardiac rehabilitation is offered at two locations:**

<table>
<thead>
<tr>
<th>Location</th>
<th>Address</th>
<th>Phone</th>
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<tbody>
<tr>
<td>Ohio State Outpatient Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Arlington</td>
<td>1800 Zollinger Rd, 2nd Floor</td>
<td>614-293-6937</td>
</tr>
<tr>
<td>Columbus, OH 43221</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ohio State Outpatient Care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>East (Phase 2 only)</td>
<td>543 Taylor Ave, Room 3068</td>
<td>614-688-6306</td>
</tr>
<tr>
<td>Columbus, OH 43203</td>
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Resources

Community resources
Look for resources in your community to help you during your recovery:
- Local cardiac rehabilitation programs
- Your local doctor
- YMCA
- Local hospital community health education programs
- Local American Heart Association
- School adult education programs
- Mental health clinics
- Churches and synagogues
- Local department of health
- Home health nursing

Hands-On Central Ohio
211centralohio.org or call 2-1-1
Reach thousands of social service, government, and community resources in Franklin County.

Heart healthy recipes
American Dietetic Association
www.eatright.org
American Heart Association, www.heart.org
Select “Healthy Living” from the menu bar
Cooking Light, www.cookinglight.com
EatingWell, www.eatingwell.com

Organizations
American Heart Association
www.americanheart.org / 1-800-AHA-USA1
Central Ohio Office: (614) 848-6676
5455 North High St, Columbus, Ohio 43214
Information about heart disease, care, and how to prevent disease. There are links to podcasts, online videos, and articles.

WomenHeart
www.womenheart.org
This Web site is organized by women who have survived heart disease. Medical experts provide disease care and prevention information. There are links to online chat and survivor stories.

National Heart, Lung, and Blood Institute
www.nhlbi.nih.gov
The U.S. National Institutes of Health sponsors this web site, which has trustworthy and up-to-date information about the disease, treatment, and prevention.

Support and mental health
Call Social Work at 614-293-8427
A social worker will answer questions about insurance, finances, support groups and getting to clinic appointments. The social worker also will help you contact agencies near you.

Ohio State’s Couple and Family Therapy Clinic can help you adjust to lifestyle changes, manage stress and connect with resources of support. For more information, call 614-247-7883.

Weight loss / management
Ohio State’s Comprehensive Weight Management, Metabolic and Bariatric Surgery
Programs designed to meet your needs for weight loss or management.
www.wexnermedical.osu.edu/weight-management