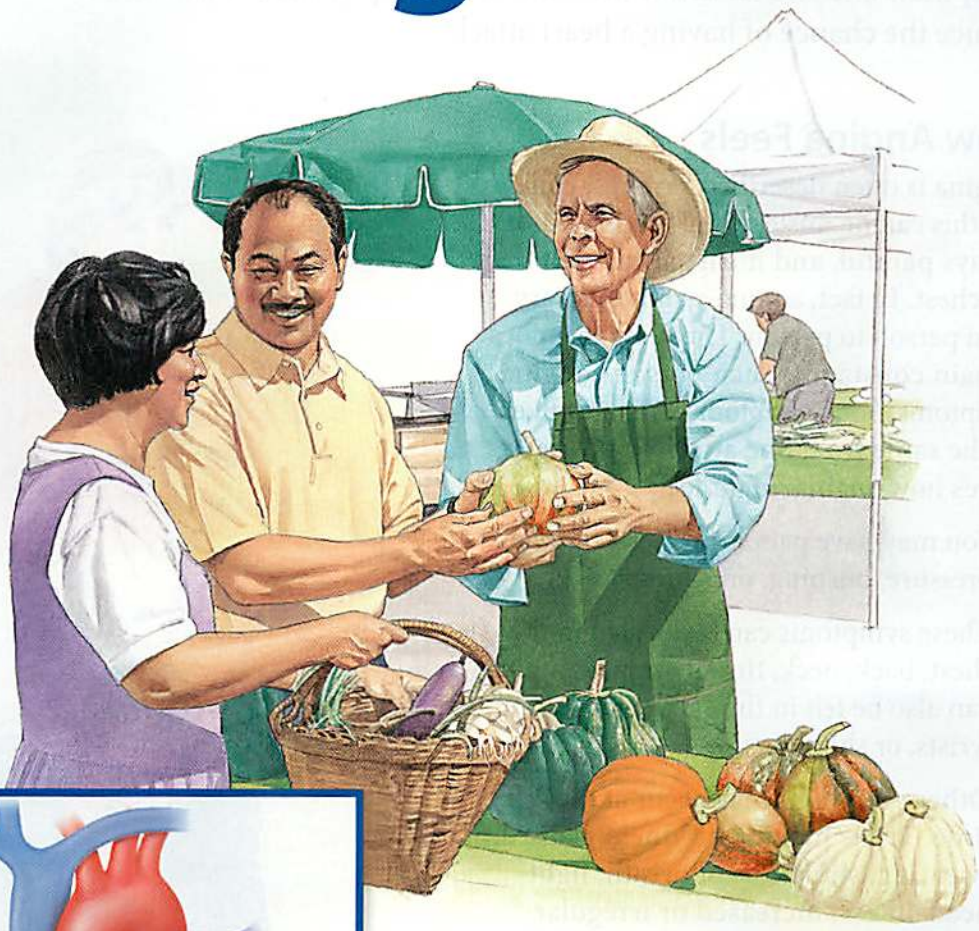
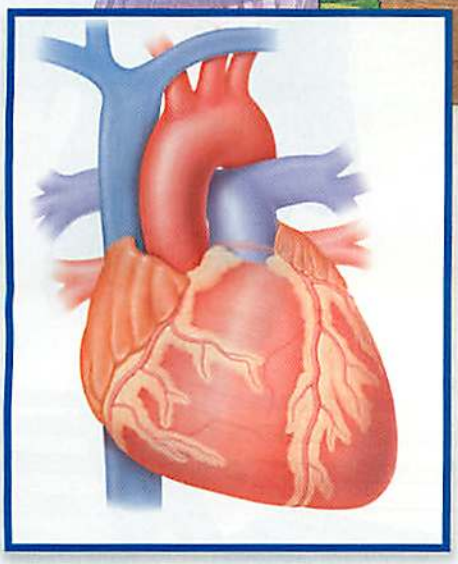
Living with

Angina





- Causes of Angina
- Treatments for Angina
- Ways to Live a Heart-Healthy Life

What Is Angina?

Angina is a painful or uncomfortable feeling in or near your chest. It happens because the heart isn't getting enough oxygen. Angina is not the same as a heart attack. It doesn't cause lasting damage to the heart. But it is a symptom of heart disease (**coronary artery disease**). Angina is a sign that you're at risk of having a heart attack. If you have angina, this booklet can help you take steps to relieve your symptoms and live an active life. And it can help you learn how to reduce the chance of having a heart attack.

How Angina Feels

Angina is often described as "chest pain," but this can be misleading. Angina is not always painful, and it isn't always felt in the chest. In fact, angina symptoms vary from person to person. The thing that does remain constant is each person's angina symptoms. Your symptoms will most likely be the same from one attack to the next. Here's how angina might feel:

- You may have pain, heaviness, tightness, pressure, burning, or aching.
- These symptoms can be located in the chest, back, neck, throat, or jaw. Angina can also be felt in the arms, elbows, wrists, or shoulders.
- Other symptoms may occur at the same time. These include tiredness, nausea, sweating, shortness of breath, light-headedness, increased or irregular heart rate.
- In some cases, especially in people with diabetes, there may be no obvious symptoms.

Stable and Unstable Angina

There are two kinds of angina: stable and unstable. Both types need to be treated. If you have had angina for less than 6 months, it may be treated as unstable until it is shown to be stable. Call your doctor right away if your angina starts to occur more often, lasts longer, or causes more discomfort.

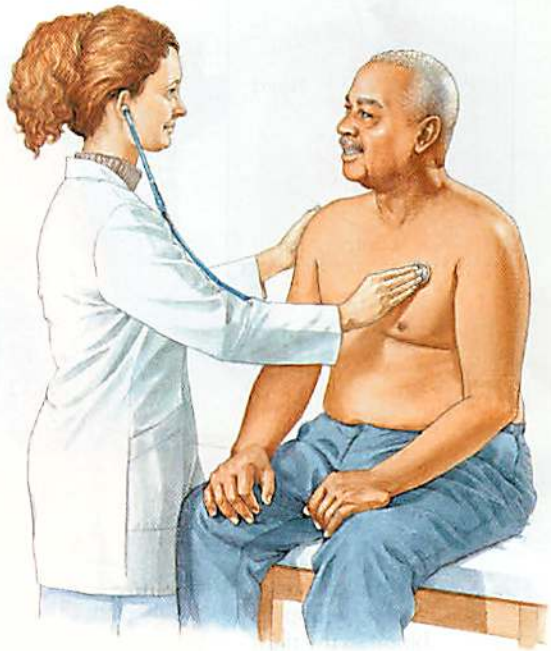
- **Stable angina** occurs at predictable times, such as when you're doing something active like climbing stairs. It may also be triggered by anger or stress. It doesn't occur during rest. In fact, rest relieves symptoms within a few minutes.
- **Unstable angina** is not predictable. It can occur during rest. An attack lasts longer than is typical with stable angina. Unstable angina is a sign that a heart attack is likely in the near future.

Unstable angina can wake you up from a sound sleep.

You and Your Healthcare Team

By working with your healthcare providers, you can learn how to relieve your angina symptoms. You can also reduce the risk of a heart attack. Your team may include:

- **Your primary care doctor,** who oversees your care.
- **A cardiologist,** who is a heart specialist you may see regularly for your angina. He or she also performs tests of heart function, and does procedures.
- **Other medical specialists,** such as a cardiac nurse, cardiac surgeon, or diabetes specialist.
- **Specialists,** such as a registered dietitian, exercise specialist, and other healthcare providers. You may work with these professionals in a cardiac rehab program.



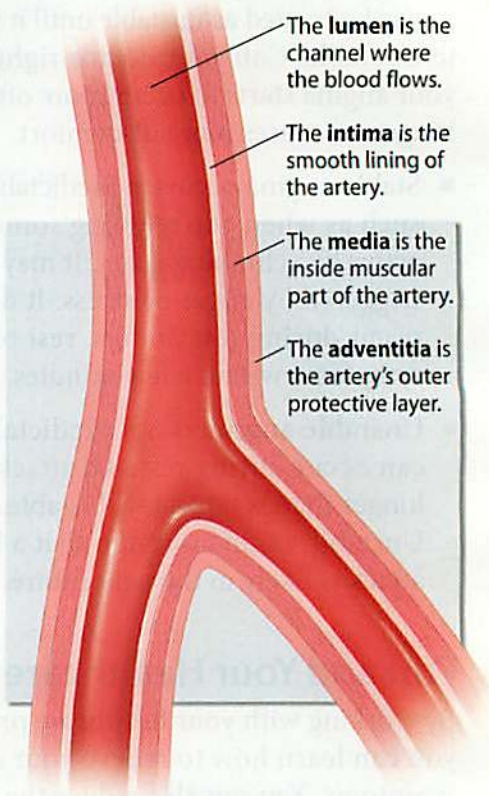
Communicating with the members of your healthcare team will help you get the best care.

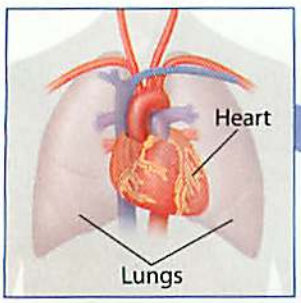
Angina and Your Heart

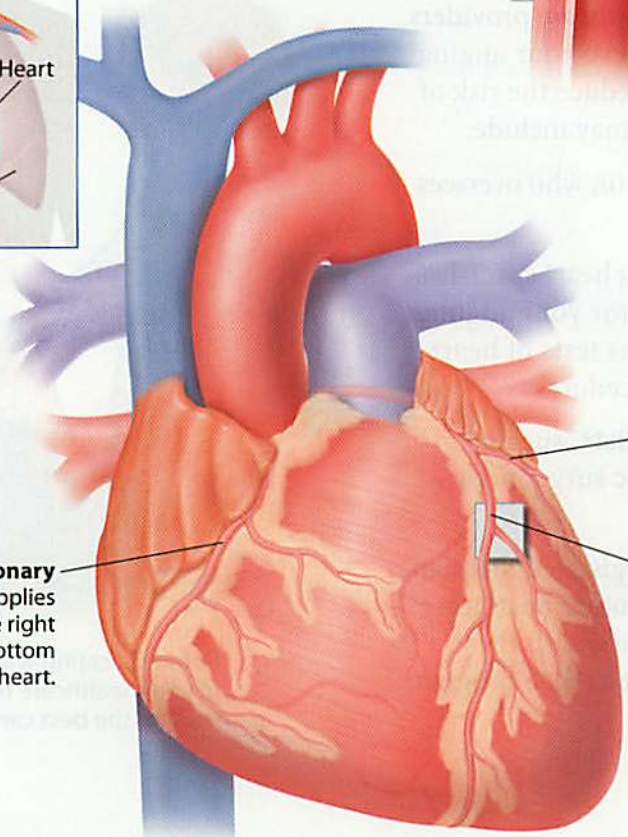
The heart is a muscle that pumps blood throughout the body. Like other muscles, the heart needs a steady supply of oxygen to function. Blood carries oxygen to the heart and the rest of the body through blood vessels called **arteries.** In the heart, the coronary arteries supply blood and oxygen to the heart muscle. If the muscle doesn't get enough oxygen, angina or a heart attack can result.

Healthy Coronary Arteries

Coronary arteries wrap around the surface of the heart. Their job is to supply the heart muscle with oxygen-rich blood. The amount of oxygen the heart needs depends on how hard it's working. For example, exercise makes the heart beat faster, increasing the muscle's need for oxygen. Healthy arteries can easily meet this need. They have smooth, flexible walls that accommodate changes in blood flow.

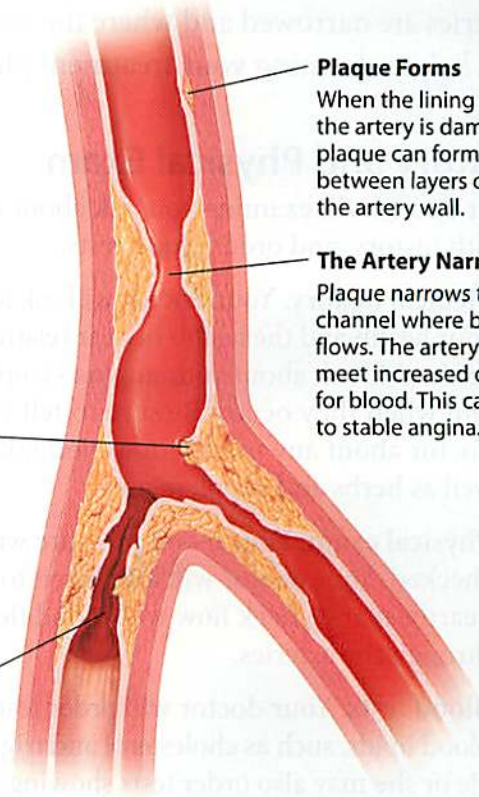






Coronary Artery Disease

Coronary artery disease starts when the inner lining of a coronary artery is damaged. This is often due to a risk factor, such as smoking or high blood cholesterol. **Plaque** (a fatty material composed of cholesterol and other particles) then builds up within the artery wall. This buildup (**atherosclerosis** or hardening of the arteries) narrows the space inside the artery. It also makes artery walls less able to expand. At times when the heart needs more oxygen, the artery can't let enough blood through to meet the need. This can lead to angina.

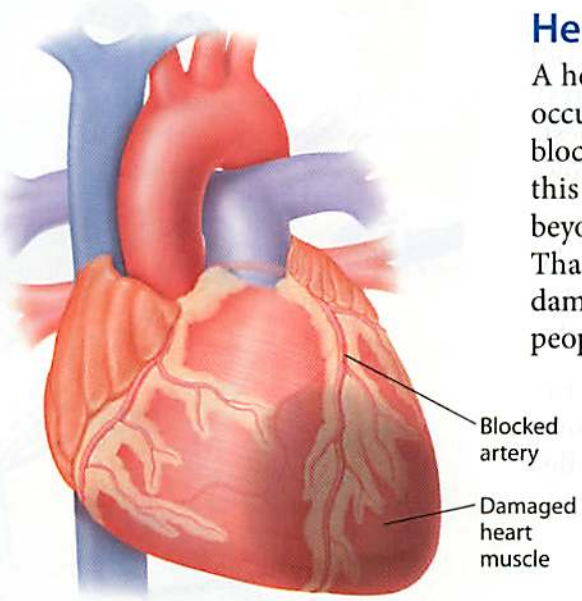


Plaque Forms
When the lining of the artery is damaged, plaque can form between layers of the artery wall.

The Artery Narrows
Plaque narrows the channel where blood flows. The artery can't meet increased demands for blood. This can lead to stable angina.

Plaque Ruptures
Plaque deposits sometimes rupture. A rupture can narrow the artery even more. It can also cause a blood clot to form. This is part of the body's normal healing process, but it can also be dangerous.

A Blood Clot Blocks the Artery
If a blood clot cuts off blood flow in the narrowed artery, unstable angina or a heart attack will result.



Heart Attack

A heart attack (myocardial infarction) occurs when a coronary artery is severely blocked by plaque or a blood clot. When this happens, some of the heart muscle beyond the blockage doesn't receive oxygen. That part of the heart muscle dies. This damage cannot be reversed. Though many people survive, a heart attack can be deadly.

Your Evaluation

To evaluate your angina, your doctor will ask about your symptoms and perform an exam. In most cases, diagnostic tests will also be done. These can show whether there is damage to the heart muscle and how your heart responds to stress. Tests can also show whether arteries are narrowed and where the narrowing is. This information can help in forming your treatment plan.

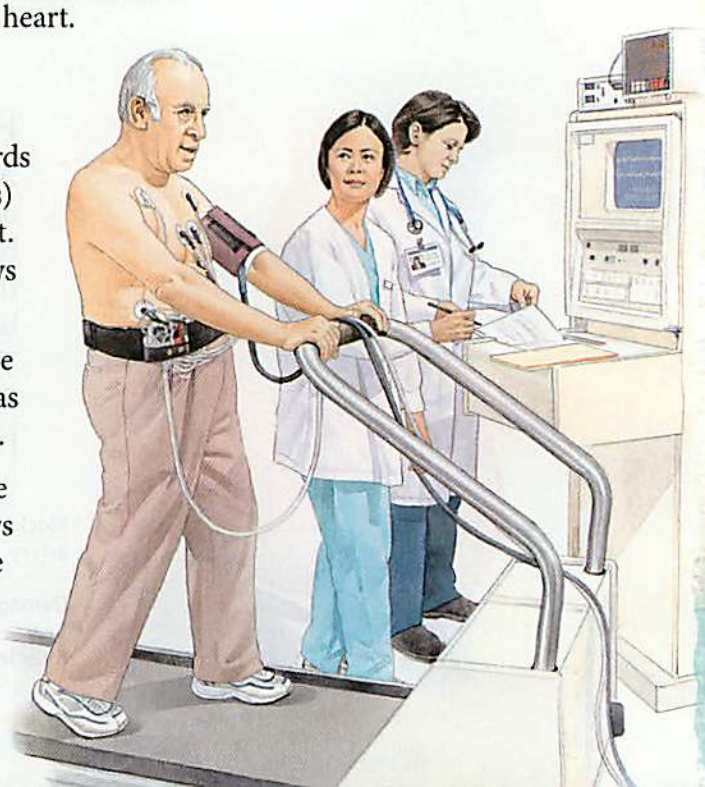
History and Physical Exam

Your doctor will examine you, ask about your health history, and order blood tests.

- **Medical history.** Your doctor will ask about your health and the health of near relatives. He or she will ask about your angina symptoms and when they occur. Be sure to tell your doctor about any medications you take, as well as herbs and supplements.
- **Physical exam.** Your blood pressure will be checked. Your doctor will also listen to your heartbeat and check how well blood flows through the arteries.
- **Blood tests.** Your doctor will order tests for blood lipids, such as cholesterol and triglycerides. He or she may also order tests showing diabetes control and other factors that affect the heart.

Electrocardiogram

An electrocardiogram (ECG or EKG) records the heart's electrical patterns. Leads (wires) are attached to your arms, legs, and chest. They are connected to a machine that shows the electrical patterns on a screen.

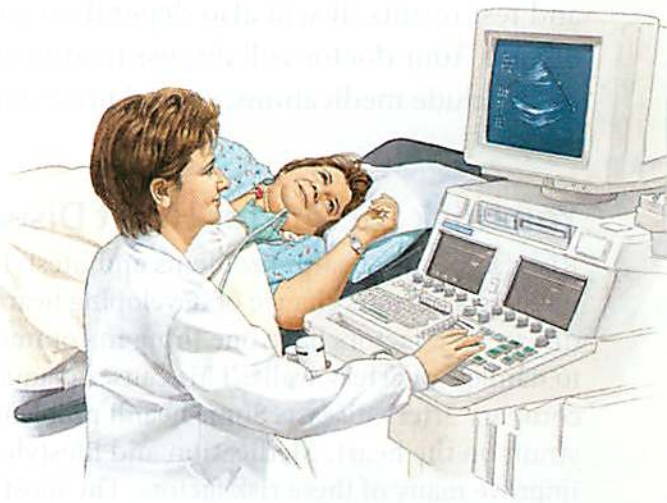


- A **resting ECG** is done while you sit or lie down. It can show whether your heart has already been damaged by a heart attack.
- A **stress ECG** is done while you exercise on a treadmill or stationary bike. It shows how your heart responds to exercise. Be aware that you may feel angina during this stress test.

Stress Imaging Tests

These tests show whether your heart pumps normally during stress. They also show whether arteries can meet the increased demand for blood. To prepare for the test, you may exercise on a treadmill to increase the heart rate. Or medication may be used to stress the heart.

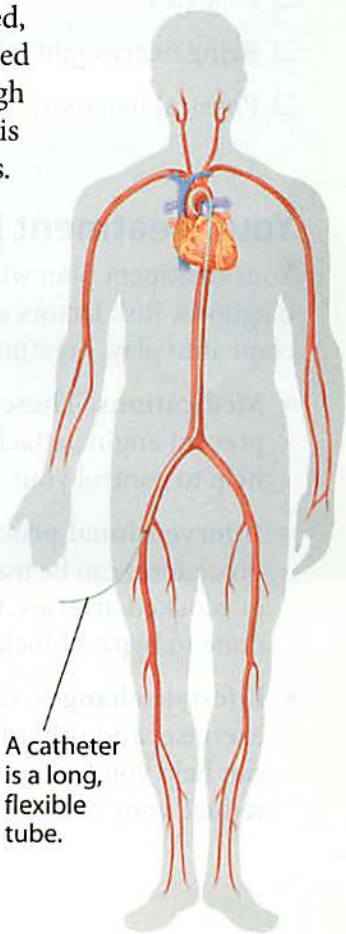
- An **echocardiogram** uses sound waves to show the structure and movement of the heart.
- With **nuclear imaging,** a small amount of weakly radioactive material is injected into a vein. This material is absorbed by the heart, enabling a scanning camera to take pictures of the heart.



An echocardiogram shows an image of the heart using ultrasound.

Cardiac Catheterization (Angiography)

This test can pinpoint where coronary arteries are narrowed, damaged, or blocked. For this procedure, a **catheter** (thin, flexible tube) is inserted into an artery in the groin or arm. The catheter is then threaded through the arteries to the heart. Once the catheter is in place, contrast fluid is injected through it. This fluid makes arteries stand out on x-ray images. An x-ray machine is then used to take pictures (**angiograms**) of the heart and coronary arteries. The catheter can also be used to measure blood pressure and oxygen inside the heart.



A catheter is a long, flexible tube.

Forming a Treatment Plan

Your treatment plan will depend on your medical history, exam, and test results. It will also depend on your risk factors for heart disease. Your doctor will discuss treatment options with you. These may include medications, special procedures, and lifestyle changes.

Your Risk Factors for Heart Disease

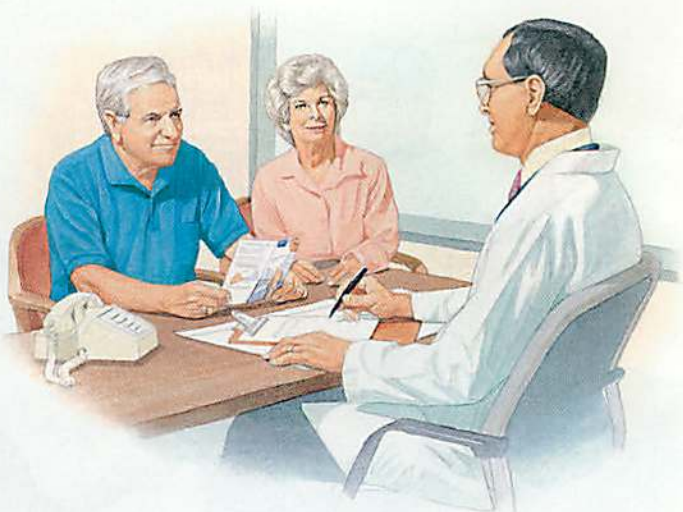
Risk factors are health problems and lifestyle factors that increase a person's chance of developing heart disease. Heart disease risk factors have one thing in common—they lead to damage of artery walls. This causes plaque buildup and coronary artery disease. Some health problems also put extra strain on the heart. Medication and lifestyle changes can improve many of these risk factors. The most common are:

- ❑ High blood cholesterol
- ❑ High blood pressure (hypertension)
- ❑ Tobacco use
- ❑ Diabetes
- ❑ Being overweight or obese
- ❑ Physical inactivity
- ❑ Family history of heart disease. This is one risk factor you can't control. Other factors such as your age, sex, or ethnicity may also play a role. To offset the risk of things you cannot change, address the factors you can control. You can also show your children and grandchildren how to better protect their hearts for the future.

Your Treatment Plan

Your treatment plan will depend on your exact diagnosis. Risk factors and medical history also come into play. Treatment may include:

- **Medications.** These can relieve or prevent angina attacks. They can also help to control your risk factors.
- **Interventional procedures.** Certain procedures can be used to open narrowed or blocked arteries. Or surgery can be done to bypass blockages.
- **Lifestyle changes.** Changes in diet, exercise, and other lifestyle factors can help you feel better. They can also reduce your risk of a heart attack.



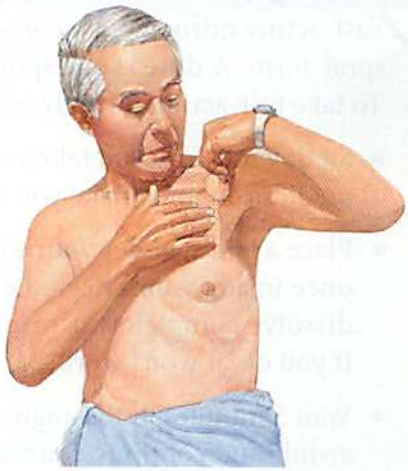
Medications Can Help

You may already know that **nitroglycerin** can be used to prevent or relieve angina attacks. Other medications can also help by reducing the heart's workload or by preventing blood clots from forming. Using medications to control related conditions, such as high blood pressure, can be helpful as well.

Anti-Anginal Medications

Medications often prescribed to relieve angina include:

- **Nitroglycerin.** This **dilates** (expands) the blood vessels and reduces the heart's workload. Long-acting nitroglycerin (nitrates) can be taken by means of tablet, patch, or ointment. Nitroglycerin can also be used to relieve an angina attack (see page 10).
- **Beta blockers.** These reduce the heart rate and the force of the heartbeat. They also lower blood pressure.
- **Calcium channel blockers.** These dilate blood vessels and slow the heart rate.



Medications for Related Problems

Depending on your health and risk factors, you may take medications to:

- **Prevent blood clots.** Certain medications, such as low-dose aspirin, help prevent blood clots from forming. This reduces the risk that an artery will become blocked.
- **Lower blood pressure.** Diuretics, vasodilators, and other medications can help lower blood pressure. This takes stress off artery walls.
- **Improve cholesterol.** Medications can decrease LDL ("bad") cholesterol. Some also increase HDL ("good") cholesterol.
- **Control diabetes.** Depending on the need, pills or insulin injections can help keep blood sugar in control. This reduces the risk of complications, including heart disease.

Taking Medications

Take your medication as prescribed. Doing so can help you feel better and stay healthier. To get the most benefit:

- Accept that you will be taking medication each day from now on.
- Set up a routine for taking medication. For example, take it with the same meal each day, or before you go to bed.
- Use reminders, such as a note posted where you're sure to see it. Try setting an alarm on your clock or computer.
- Refill each prescription a few days before you run out of medication.
- Before traveling, be sure that you have enough medication to last until you return home.
- Talk to your doctor or pharmacist if you have trouble with side effects.

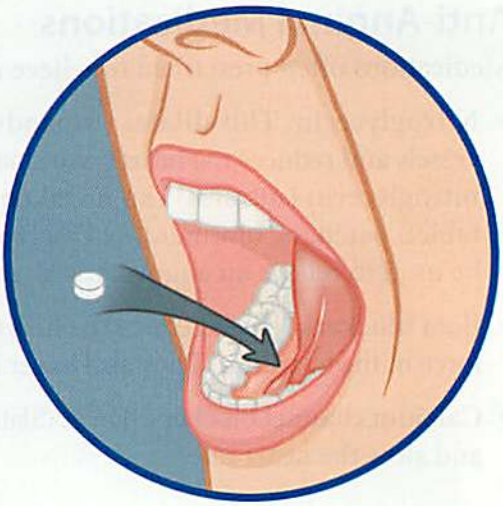
How to Stop an Angina Attack

Fast-acting nitroglycerin usually can stop an angina attack. Carry this medication with you at all times. If nitroglycerin does not relieve your symptoms, seek medical help right away.

Nitroglycerin Therapy

Fast-acting nitroglycerin comes in tablet or spray form. A dose is one spray or one tablet. To take fast-acting nitroglycerin:

- Sit down before you take your dose. The medication may make you feel dizzy.
- Place a tablet under your tongue or spray once inside your cheek. Let the tablet dissolve completely. Don't swallow it. If you do, it won't work.
- Wait 5 minutes. If the angina goes away, rest awhile and continue your normal routine.
- If your angina lasts longer than 5 minutes, or gets worse, CALL 911 immediately. Do not delay. You may be having a heart attack.



Storing Your Nitroglycerin

To make sure that your medication works when you need it:

- Carry a few doses with you at all times. Store the rest in a dry, dark place.
- Check the expiration dates on your medication containers from time to time. Refill your prescriptions and discard any expired medications.
- Discard nitroglycerin 6 months after opening, whether or not it has reached its expiration date.

Is This a Heart Attack?

Symptoms of a heart attack include:

- Angina symptoms that last for more than a few minutes, or that go away and come back.
- Angina symptoms that don't go away with rest or medication.
- Shortness of breath.
- Cold sweat, nausea, lightheadedness.

CALL 911. Don't delay getting help if you think that you may be having a heart attack.

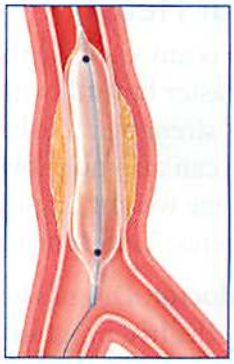
Procedures to Improve Blood Flow

Medication and lifestyle changes may not be enough to relieve your angina. If so, your doctor may suggest an interventional procedure. The goal is to open or bypass a blockage. This increases the blood supply to the heart. Before deciding on such a procedure, discuss the risks and benefits with your doctor.

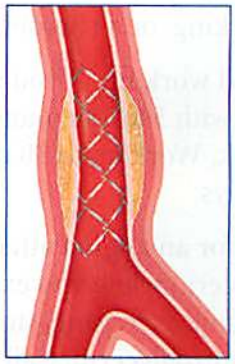
Nonsurgical Procedures

These procedures are done using cardiac catheterization (see page 7). A catheter is first inserted into the groin or arm and guided into one of the coronary arteries. Then one or more of the following procedures is done:

- **Angioplasty.** The catheter is used to insert a special balloon into the artery. The balloon is then inflated and deflated several times to open up the artery. This is often followed by placement of a stent.
- **Stenting.** A wire mesh tube (stent) is inserted into the artery to hold it open. This device is left in the artery permanently. The stent may release medication that helps keep scar tissue from forming as the artery heals. This may prevent formation of a new blockage in the same place (restenosis).
- **Atherectomy.** Special cutting and grinding tools are inserted into the artery through the catheter. These tools are used to remove plaque from artery walls.



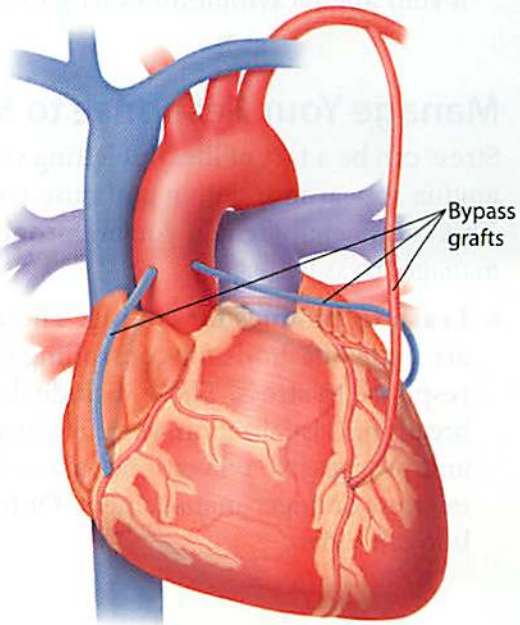
Angioplasty increases blood flow by widening the lumen through the blockage.



A **stent** is a wire mesh tube that holds the artery open.

Bypass Surgery

When a blockage is too large or severe to open, bypass surgery may be advised. A bypass creates a new route past the blockage in the artery. This allows adequate blood supply to reach areas of the heart that haven't been getting enough blood. For this surgery, a blood vessel from the leg, arm, or chest is used to make each bypass.



Changes for Life

Lifestyle changes can reduce your risk of heart attack and make angina attacks less frequent and severe. This can help you feel healthier, more energetic, and more in control. Talk with your doctor about entering a cardiac rehab program. Doing so can help you learn more and provide you with support.

Exercise Your Heart

Aerobic exercise is any exercise that makes your heart beat faster but still within a safe range. This helps strengthen the heart muscle. Aerobic exercise can also help lower cholesterol levels, manage weight, improve mood, and control diabetes. To get started:

- **Talk to your doctor.** Discuss how to set up a safe and effective program for you.
- **Choose activities you enjoy.** Try walking, swimming, biking, or an aerobics class.
- **Start slow and work up.** If you're new to exercise, start with 5 to 10 minutes at a time, 3 times a week. Work up to 30 minutes or more most days.
- **Be prepared for an angina attack.** Carry your nitroglycerin when you exercise. If you feel angina while exercising, stop right away and take the nitroglycerin. Call your doctor if your angina symptoms don't go away.

Manage Your Response to Stress

Stress can be a fact of life. But letting stress get to you can make angina appear more often and raise your risk of heart attack. This is especially true if you are prone to bursts of anger. To manage stress better:

- **Learn techniques for coping.** There are many methods for controlling the response to stress. These include deep breathing, visualization, yoga, meditation, and progressive relaxation. Take a class in stress or anger management. Or try a book or video.
- **Avoid situations that trigger stress.** Think about your daily habits. What stressful situations do you often face? What can you do about them? Now may be the right time to make some major changes at work or at home.

Eat for Heart Health

A heart-healthy diet can improve your cholesterol and blood pressure. It can also help you lose weight and manage diabetes. You don't have to give up favorite foods. But you may need to eat smaller portions of some foods, or save them for special occasions. At the same time, you may need to develop a taste for new foods and styles of cooking. Look for heart-healthy recipes to help you:

- **Eat less fat.** A high-fat diet can lead to higher blood cholesterol levels.
- **Choose the right kinds of fat.** Some fats are more likely to raise blood cholesterol than others. Choose healthier sources of fat. These include nuts, seeds, vegetable oils, and fish. Reduce unhealthy sources of fat, such as meat, cheese, processed foods, and deep-fried foods.
- **Add more vegetables, fruits, whole grains, and beans.** These contain fiber, which helps improve cholesterol levels.
- **Reduce salt.** Too much salt (sodium) can raise blood pressure. Packaged and processed foods are often high in sodium.
- **Eat smaller amounts.** Controlling portion sizes can help you reach or maintain a healthy weight.

If You Use Tobacco, Quit!

Quitting smoking or other forms of tobacco use can help keep coronary artery disease from getting worse. To get started:

- **Get medical help.** Ask your doctor for advice on stop-smoking programs and smoking cessation aids.
- **Get support.** Join a support group. Ask for help from your family and friends.
- **Remove the temptation.** Avoid places and situations where you're likely to want to use tobacco.
- **Don't give up.** Often it takes several tries to succeed in quitting.

Your Goals at a Glance

This chart lists some general standards for controlling heart disease risk factors. Write your own goals in the second column. In the third column, write down one or two things you can do to help achieve each goal. Keep in mind: Meeting these goals will help you feel healthier, stay more active, and live longer.

	Standard	My Goal	Action
Cholesterol	*LDL: less than 100 mg/dL* *HDL: greater than 40 mg/dL* *Triglycerides: less than 150 mg/dL*	*LDL:* _____ *HDL:* _____ *Triglycerides:* _____	_____
Blood Pressure	*Less than 140/90 mmHg (Less than 120/80 is ideal.)*	_____	_____
Diet and Exercise	*At least 30 minutes of moderately intense activity most days of the week.* *Reduce intake of saturated fats, trans fats, and sodium.* *Increase intake of fiber.*	_____	_____
Other	*If you use tobacco, quit.* *If overweight, reduce weight by 10% within a year.* *If you have diabetes, keep HbA1c below 6.5%.*	_____	_____

Taking the First Steps

Making lifestyle changes can seem overwhelming. So don't attempt to do everything at once. Try these tips for making changes:

- **Make a plan.** Take a look at the changes you want to make and decide what to do first. What is most important? What can you do about it? Set goals that you can meet. Challenge yourself, but be realistic.
- **Start slow.** Trying to do too much at once makes it easy to fail. Going slowly can help you stick with the program.
- **Ask for support.** Explain to family and friends why you're making these changes. Then talk about how they can help.
- **Celebrate your achievements.** Each day, try to do something you enjoy. It's okay to boast about your progress!

Living Well

Learning that you have a life-threatening condition can be scary. And coping with change can be hard. But dealing with these feelings is crucial to your well-being. So take action to overcome negative thoughts and feelings. You can find support to help you learn ways to live well with heart disease.

Working to Feel Better

When you're having health problems, it's natural to feel angry, depressed, fearful, or frustrated. Don't give in to these feelings. Take care of your emotions, just as you take care of your body. Remember to:

- Take time for yourself. Do things you enjoy. See a movie or listen to music. Go to a park or visit a garden.
- Spend time with friends.
- Stick to your treatment program. Keeping your angina under control will help you feel better.
- Tell your doctor if you have symptoms of depression. These include feeling hopeless, and having trouble eating, sleeping, or functioning. Depression can be treated.

Where to Turn for Support

Support groups can connect you with people who have firsthand experience in what you're going through. To find support, contact the groups listed on the back of this booklet. Or call a local hospital, community center, or senior center. You may want to try:

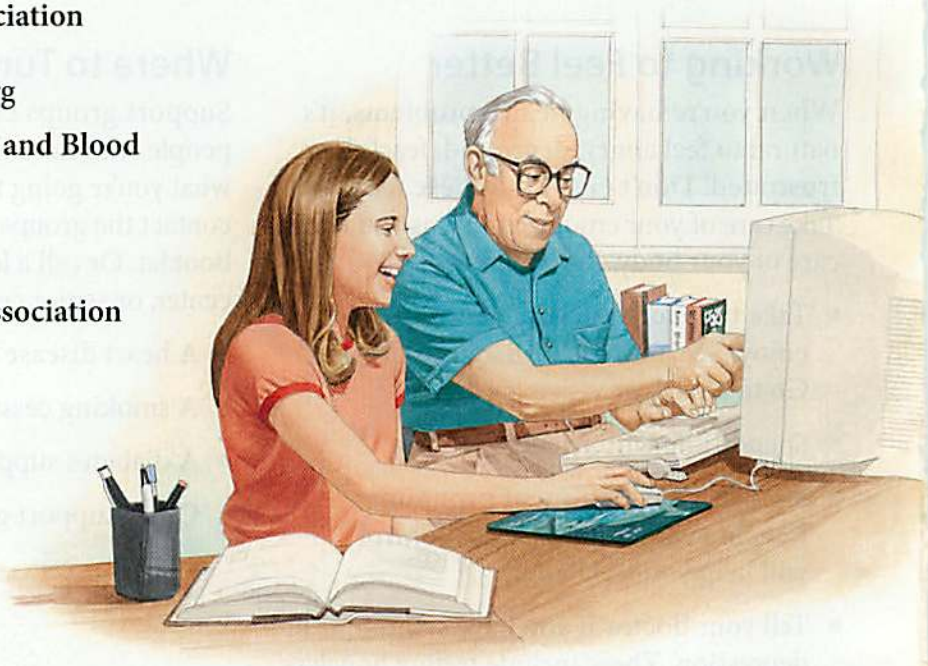
- A heart disease support group.
- A smoking cessation support group.
- A diabetes support group.
- Other support groups to suit your needs.

Learning More

Many resources exist for people with heart disease. Take charge of your health by learning more about angina and how to manage it. To find out more, contact the organizations listed below.

Resources

- **American Heart Association**
  800-242-8721
  www.americanheart.org
- **National Heart, Lung, and Blood Institute**
  301-592-8573
  www.nhlbi.nih.gov
- **American Diabetes Association**
  800-342-2383
  www.diabetes.org



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