

Angina

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To answer a free questionnaire that may help to identify the cause of your chest pain, go to <https://www.masterdocs.com/chestpain/start.php>.

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What Is Angina? (an-JI-nuh or AN-juh-nuh)

Angina is chest pain or discomfort that occurs when your heart muscle does not get enough blood. Angina may feel like pressure or a squeezing pain in your chest. The pain may also occur in your shoulders, arms, neck, jaw, or back. It may also feel like indigestion.

Angina is a symptom of coronary artery disease (CAD), the most common type of heart disease. CAD occurs when plaque builds up in the coronary arteries. This buildup of plaque is called atherosclerosis. As plaque builds up, the coronary arteries become narrow and stiff. Blood flow to the heart is reduced. This decreases the oxygen supply to the heart muscle.

Types of Angina

There are 3 types of angina-stable, unstable, and variant (Prinzmetal's). It is very important to know the differences among the types.

Stable angina. Stable angina is the most common type. It occurs when the heart is working harder than usual.

- There is a regular pattern to stable angina.
- After several episodes, you learn to recognize the pattern and can predict when it will occur.
- The pain usually goes away in a few minutes when you rest or take your angina medicine.
- Stable angina is not a heart attack but makes it more likely that you will have a heart attack in the future.

Unstable angina. Unstable angina is a very dangerous condition that requires emergency treatment. It is a sign that a heart attack could occur soon. Unlike stable angina, it does not follow a pattern. It can occur without physical exertion and is not relieved by rest or medicine.

Variant angina. Variant angina is rare. It usually occurs at rest. The pain can be severe and usually occurs between midnight and early morning. It is relieved by medication.

Not all chest pain or discomfort is angina. Chest pain or discomfort can be caused by a heart attack, lung problems (such as an infection or a blood clot), heartburn, or a panic attack. However, all chest pain should be checked by a doctor.

Other Names for Angina

- Angina pectoris
- Stable or common angina
- Unstable angina
- Variant angina
- Prinzmetal's angina
- Coronary artery spasms
- Acute coronary syndrome

What Causes Angina?

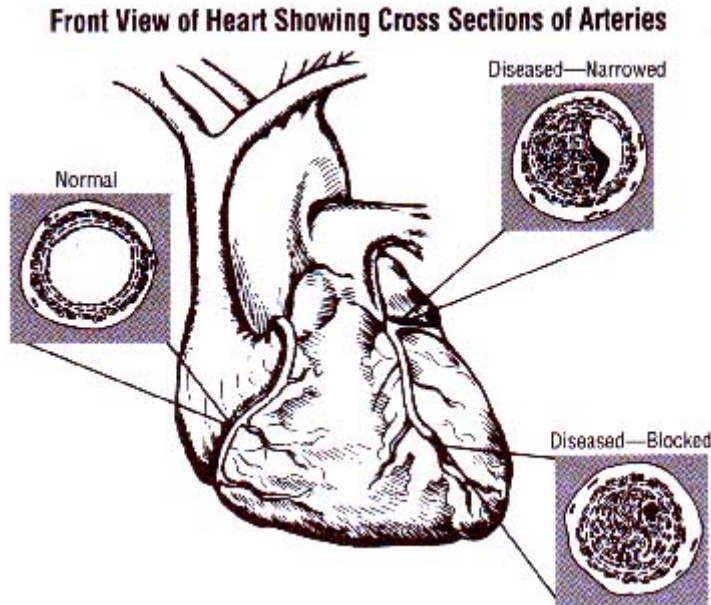
Angina is caused by reduced blood flow to an area of the heart. This is most often due to coronary artery disease (CAD). Sometimes, other types of heart disease or uncontrolled high blood pressure can cause angina.

In CAD, the arteries that carry oxygen-rich blood to the heart muscle are narrowed due to the buildup of fatty deposits called plaque. This is called atherosclerosis. Some plaque is hard and stable and leads to narrowed and hardened arteries. Other plaque is soft and is

more likely to break open and cause blood clots. The buildup of plaque on the inner walls of the arteries can cause angina in two ways:

By narrowing the artery to the point where the flow of blood is greatly reduced

By forming blood clots that partially or totally block the artery.



Stable Angina

Physical exertion is the most common cause of pain and discomfort from stable angina. Severely narrowed arteries may allow enough blood to reach the heart when the demand for oxygen is low (such as when you are sitting). But with exertion like walking up a hill or climbing stairs, the heart works harder and needs more oxygen. Other causes include:

- Emotional stress
- Exposure to very hot or cold temperature
- Heavy meals
- Smoking.
- Unstable Angina

Unstable angina is caused by blood clots that partially or totally block an artery. If plaque in an artery ruptures or breaks open, blood clots may form. This creates a larger blockage. The clot may grow large enough to completely block the artery and cause a heart attack. Blood clots may form, partly dissolve, and later form again. Chest pain can occur each time a clot blocks an artery.

Variant Angina

Variant angina is caused by a spasm in a coronary artery. The spasm causes the walls of the artery to tighten. This narrows the artery, causing the blood flow to the heart to slow

or stop. Variant angina may occur in persons with and without CAD. Other causes of spasms in the arteries that supply the heart with blood are:

- Exposure to cold
- Emotional stress
- Medications (vasoconstricting) that constrict or narrow blood vessels
- Cigarette smoking
- Cocaine use.

Who Gets Angina?

Over 6 million people in the U. S. have angina.

People with coronary artery disease (CAD) or who have had a heart attack are more likely to have angina.

Unstable angina occurs more often in older adults.

Variant angina is rare. It accounts for only about 2 out of 100 cases of angina. People with variant angina are often younger than those with other forms of angina.

What Are the Common Signs and Symptoms of Angina?

The pain or discomfort of angina:

- Is often described as pressure, squeezing, burning, or tightness in the chest
- Usually starts in the chest behind the breastbone
- May also occur in the arms, shoulders, neck, jaw, throat, or back
- May feel like indigestion.
- Some people say that angina discomfort is hard to describe or that they can't tell exactly where the pain is coming from. Symptoms such as nausea, fatigue, shortness of breath, sweating, light-headedness, or weakness may also occur.

Symptoms vary based on the type of angina:

Stable Angina

The pain or discomfort:

- Occurs when the heart must work harder, usually during physical exertion
- Is expected, and episodes of pain tend to be alike
- Usually lasts a short time (5 minutes or less)
- Is relieved by rest or angina medicine
- May feel like gas or indigestion
- May feel like chest pain that spreads to the arms, back, or other areas.

Unstable Angina

The pain or discomfort:

- Often occurs at rest, while sleeping at night, or with little physical exertion

- Is unexpected
- Is more severe and lasts longer (as long as 30 minutes) than stable angina episodes
- Is usually not relieved with rest or angina medicine
- May get continuously worse
- May signal that a heart attack will happen soon.

Variant Angina

The pain or discomfort:

- Usually occurs at rest and during the night or early morning hours
- Tends to be severe
- Is relieved by angina medicine.
- Chest pain that lasts longer than a few minutes and is not relieved by rest or angina medicine may mean you are having-or are about to have-a heart attack. Get emergency help right away.

How is Angina Diagnosed?

To find out if you have angina, your doctor will:

- Do a physical exam
- Ask about your symptoms
- Ask about your risk factors and your family history of coronary artery disease (CAD) or other heart disease.

Sometimes, your doctor can diagnose angina by noting your symptoms and how they occur. Your doctor may order one or more tests to help make a diagnosis of angina. The tests your doctor may order include:

- EKG or ECG (electrocardiogram). This test measures the rate and regularity of your heartbeat. Some people with angina have a normal EKG.
- Exercise stress test. This test shows how well your heart pumps at higher workloads when it needs more oxygen. EKG and blood pressure readings are taken before, during, and after exercise to see how your heart responds to exercise. The first EKG and blood pressure reading are done to get a baseline. Readings are then taken while you walk on an exercise treadmill, pedal a stationary bicycle, or receive medicine to make your heart beat faster. The test continues until you reach a heart rate set by your doctor. The exercise part is stopped if chest pain or a very sharp rise in blood pressure occurs. Monitoring continues for 10 to 15 minutes after exercise or until your heart rate returns to baseline.
- Chest x-ray. A chest x-ray takes a picture of the organs and structures inside your chest. These include your heart, lungs, and blood vessels.
- Nuclear heart scan. This test shows blood flow to the heart and any damage to the heart muscle. A radioactive dye (technetium or thallium) is injected into your bloodstream. A special camera can then see the dye and find areas where there is

less blood flow. Nuclear heart scans are often taken while you are at rest and again after exercise. If you cannot exercise, a medication is given to increase the workload of the heart. The before-and-after exercise scans are compared.

- Echocardiogram. This test uses sound waves to create a picture of the heart. The picture is more detailed than an x-ray image. The test shows how well your heart chambers fill with blood and pump it to the rest of the body. An echocardiogram also can help identify areas of poor blood flow to the heart, areas of heart muscle that are not contracting normally, and previous injury to the heart muscle caused by poor blood flow. An echocardiogram can also be used with a stress test.
- Cardiac catheterization. A thin flexible tube (catheter) is passed through an artery in the groin or arm to reach the coronary arteries. Your doctor can determine pressure and blood flow in the heart's chambers, collect blood samples from the heart, and examine the arteries of the heart by x-ray.
- Coronary angiography. This test is done during cardiac catheterization. A dye that can be seen by x-ray is injected through the catheter into the coronary arteries. Your doctor can see the flow of blood through the heart and see where there are blockages.

Your doctor may also order blood tests, such as:

- A fasting lipoprotein profile to check your cholesterol levels.
- Fasting glucose test to check your blood sugar level.
- C-reactive protein (CRP) test. This blood test measures CRP, a protein in the blood that shows the presence of inflammation. Inflammation is the body's response to injury. High levels of CRP may be a risk factor for CAD.
- A test to check for low hemoglobin in your blood. Hemoglobin is the part of red blood cells that carries oxygen to all parts of your body.

How is Angina Treated?

Treatment for angina includes:

- lifestyle changes
- medication
- surgery
- rehabilitation.

The main goals of treatment are to:

- Reduce the frequency and severity of symptoms
- Prevent or lower the risk of heart attack and death.
- Lifestyle changes and medication may be the only treatments needed if your symptoms are mild and are not getting worse. Unstable angina is an emergency condition that requires treatment in the hospital.

Lifestyle Changes

The first thing that you need to do is change your living habits to avoid bringing on an episode of angina. If angina comes on:

- With exertion, slow down or take rest breaks.
- After a heavy meal, avoid large meals and rich foods that leave you feeling stuffed.
- With stress, try to avoid situations that make you upset or stressed. Learn techniques to handle stress that can't be avoided.

Other changes that you need to make include:

- Eat a healthy diet to prevent or reduce high blood pressure and high blood cholesterol, and obesity
- If you smoke, quit.
- Exercise as directed by your doctor.
- Lose weight if you are overweight.
- If you have diabetes, follow your doctor's orders and take all medications as directed.

Medications

Nitrates are the most commonly used medicines to treat angina. Fast-acting preparations are taken when angina occurs or is expected to occur. Nitrates relax and widen blood vessels, allowing more blood to flow to the heart while reducing its workload.

You can use nitrates in different forms to:

- Relieve an episode that is occurring by using the medicine when the pain begins
- Prevent episodes from occurring by using the medicine just before pain or discomfort is expected to occur
- Reduce the number of episodes that occur by using the medicine regularly on a long-term basis.
- Nitroglycerin is the most commonly used nitrate for angina. Nitroglycerin that dissolves under your tongue or between your cheeks and gum is used to relieve an angina episode. Nitroglycerin in the form of pills and skin patches is used to prevent attacks of angina. (Nitroglycerin in these forms acts too slowly to relieve pain during an angina attack.)

Other medicines used to treat angina include:

- Beta blockers, which slow heart rate and lower blood pressure. They can delay or prevent the onset of angina.
- Calcium channel blockers, which relax blood vessels so that more blood flows to the heart, reducing pain from angina. Calcium channel blockers also lower blood pressure.
- ACE inhibitors lower blood pressure and reduce the strain on the heart. They also reduce the risk of a future heart attack and heart failure.

Medicines that may also be used by people with angina include:

- Medicines to lower cholesterol levels
- Medicines to lower high blood pressure
- Oral antiplatelet (an-ty-PLAYT-lit) medicines (such as aspirin and clopidigrel) taken daily to stop platelets from clumping together to form blood clots. Platelets are small blood cell fragments that circulate through your blood vessels and help stop bleeding by sticking together to seal small cuts or breaks in tiny blood vessels. Antiplatelet medicines may not be appropriate for some people because they increase the risk of bleeding. Discuss the benefits and risks with your doctor before starting therapy with aspirin or the other antiplatelet medicines.
- Glycoprotein IIb-IIIa inhibitors are potent antiplatelet medicines that prevent clots from forming in your arteries. They are given intravenously in hospitalized patients in the treatment of angina or during and after angioplasty.
- Anticoagulants (an-ty-ko-AG-u-lants) to prevent clots from forming in your arteries and blocking blood flow.

Special (Invasive) Procedures

When medicines and other treatments do not control angina, special procedures may be needed. Two commonly used procedures are:

- Angioplasty to open blocked or narrowed coronary arteries. It can improve blood flow to your heart, relieve chest pain, and possibly prevent a heart attack. Sometimes a stent is placed in the artery to keep it propped open after the procedure.
- Coronary artery bypass surgery, which uses arteries or veins from other areas in your body to bypass your blocked coronary arteries. Bypass surgery improves blood flow to your heart, relieves chest pain, and can prevent a heart attack.

Cardiac Rehabilitation (Rehab)

Your doctor may prescribe cardiac rehab for angina or after bypass surgery, angioplasty, or a heart attack.

The cardiac rehab team may include:

- Doctors
- Your family doctor
- A heart specialist
- A surgeon
- Nurses
- Exercise specialists
- Physical therapists and occupational therapists
- Dietitians
- Psychologists or other behavior therapists.

Rehab has two parts:

- Exercise training to help you learn how to exercise safely, strengthen your muscles, and improve your stamina. Your exercise plan will be based on your individual ability, needs, and interests.
- Education, counseling, and training to help you understand your heart condition and find ways to reduce your risk of future heart problems. The cardiac rehab team will help you learn how to cope with the stress of adjusting to a new lifestyle and to deal with your fears about the future.

How Can I Prevent Angina?

You can prevent or lower your risk for heart disease and angina by making lifestyle changes and getting treatment for related conditions.

- **Make Lifestyle Changes:** You can lower your risk of heart disease and angina by making healthy lifestyle choices:
 - Eat a healthy diet to prevent or reduce high blood pressure and high blood cholesterol, and maintain a healthy weight.
 - If you smoke, quit.
 - Exercise as directed by your doctor.
 - Lose weight if you are overweight or obese.
- **Treat Related Conditions:** In addition to making lifestyle changes, you can help prevent heart disease and angina by treating related conditions, such as:
 - High blood cholesterol. If you have high cholesterol, follow your doctor's advice about lowering it. Take medications to lower your cholesterol as directed.
 - High blood pressure. If you have high blood pressure, follow your doctor's advice about keeping your blood pressure under control. Take blood pressure medications as directed.
 - High blood sugar (diabetes). If you have diabetes, follow your doctor's advice about keeping your blood sugar levels under control. Take medications as directed.
 - Obesity. If you are overweight or obese, talk to your doctor about how to lose weight safely.

Living with Angina

Angina is not a heart attack, but it does mean that you are at greater risk of having a heart attack than someone who does not have angina. The risk is even higher if you have unstable angina.

For these reasons, it is important that you know:

- The usual pattern of your angina if you have it on a regular basis
- About your medication
- How to control your angina
- The limits on your physical activity
- How and when to seek medical attention.

Know the Pattern of Your Angina

Stable angina usually occurs in a pattern. You should know:

- What causes the pain to occur
- What it feels like
- How long it usually lasts
- Whether it is relieved by rest or medicine.

After several episodes, you will learn to recognize when you are having angina. It is important for you to notice if the pattern starts to change. The changes in the pattern to look for are if episodes:

- Occur more often
- Last longer
- Are more severe
- Occur without exertion
- Do not go away with rest or medication.

These changes in the pattern may be a sign that your symptoms are getting worse or becoming unstable. You should seek medical attention. Unstable angina suggests that you are at high risk for a heart attack very soon.

Know Your Medications

You should know what medications you are taking, the purpose of each, how and when to take them, and possible side effects.

It is very important that you know exactly when and how to take fast-acting nitroglycerin or other nitrates to relieve chest pain. They should be taken:

- Immediately when pain begins or before stressful activity
- Three times spaced 5 minutes apart if pain does not go away.
- Always sit down before taking nitroglycerin.

Long-acting nitrate preparations should be used regularly as prescribed by your doctor.

Men with impotence (erectile dysfunction) who take sildenafil (Viagra®) should talk with their doctor. Taking sildenafil and nitroglycerin or other nitrates within 24 hours of each other can cause serious problems.

Ask your doctor about your other medicines.

Know How to Control Your Angina

After several episodes, you will know the level of activity, stress, and other things that can bring on your angina. By knowing what brings on your angina, you can take steps to prevent or lessen the severity of episodes.

Physical exertion. Know what level of activity brings on your angina and try to stop and rest before chest pains start. For example, if walking up a flight of stairs leads to chest pains, then stop halfway and rest before continuing. When chest pain occurs during exertion, stop and rest or take your angina medicine. The pain should go away in a few minutes. If the pain does not go away or lasts longer than usual, call 9-1-1 and get emergency care.

Emotional stress. Anger, arguing, and worrying are examples of emotional stress that can bring on an angina episode. Try to avoid or limit exposure to situations that cause these emotions. Exercise and relaxation can help relieve stress. Alcohol and drug use play a part in causing stress and do not relieve it. If stress is a problem for you, talk with your doctor about getting counseling to help you deal with stress.

Eating large meals. If this leads to chest pain, eat smaller meals. Also, avoid eating rich foods.

Know the Limits on Your Physical Activity

Most people with stable angina can continue their normal activities. This includes work, hobbies, and sexual relations. However, if you engage in very strenuous activity or have a stressful job, you may need to discuss this with your doctor.

Know How and When to Seek Medical Attention

If you have angina, you are at high risk of having a heart attack. Therefore, it is very important that you and your family know how and when to seek medical attention. Talk to your doctor about making an emergency action plan. The plan should include:

- The signs and symptoms of a heart attack
- Instructions for the prompt use of aspirin and nitroglycerin
- How to access emergency medical services in your community
- The location of the nearest hospital that offers 24-hour emergency heart care.
- Be sure to discuss your emergency plan with your family members. Take action quickly if your chest pain is more severe, lasts longer, or is not relieved by rest or medication.

Sometimes, it may be difficult to tell the difference between unstable angina and a heart attack. Most heart attack victims wait 2 hours or more after their symptoms begin before they seek medical help. This delay can result in death or lasting heart damage.

Summary

Angina is chest pain or discomfort that occurs when your heart muscle does not get enough blood. Angina may feel like pressure or a squeezing pain in your chest. The pain may also occur in your shoulders, arms, neck, jaw, or back.

Most people with angina have coronary artery disease, with narrowed arteries due to atherosclerosis. When arteries are narrowed, blood flow to the heart is reduced.

More than 6 million people in the U.S. have angina.

The most common types of angina are stable angina and unstable angina. A less-common type of angina is called variant angina.

Stable angina is chest pain or discomfort that occurs when the heart is working harder than usual. Stable angina pain goes away when you rest or take your angina medicine. Angina medicine, such as nitroglycerin, helps widen and relax the arteries so that more blood can flow to the heart.

Unstable angina is a very dangerous condition that requires emergency treatment. Unstable angina is a sign that a heart attack could occur soon. Unstable angina can occur without physical exertion. It is not relieved by rest or medicine.

Variant angina is caused by a spasm in a coronary artery. The spasm causes the walls of the artery to tighten. This narrowing of the artery slows or stops blood flow to the heart.

Doctors diagnose angina based on your health history, family history, physical exam, and the results of various tests.

Angina is usually treated with medicines such as nitrates (nitroglycerin). People with angina may need to take other medications to lower their blood pressure or cholesterol. They also may take medicine to prevent blood clots.

To both prevent and treat angina, it is important to make changes to improve your health: get regular exercise, maintain a healthy weight, don't smoke, and eat a healthy diet low in saturated fat and cholesterol. A cardiac rehab program can be helpful for many people with angina.

When medicines and lifestyle changes do not control angina, special procedures may be needed. Angioplasty and coronary artery bypass surgery are two common procedures used to treat angina.

If you have angina, it is important to know the pattern of your angina, about your medication, how to control your angina, and the limits on your physical activity. You should know how and when to seek medical help.

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