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Mitral Valve Prolapse

Also known as Barlow's Syndrome



What Is

Mitral valve prolapse (MVP) is a condition in which the heart's mitral valve doesn't work well. The flaps of the valve are "floppy" and may not close tightly. These flaps normally help seal or open the valve.

Much of the time, MVP doesn't cause any problems. Rarely, blood can leak the wrong way through the floppy valve. This can lead to [palpitations](#), shortness of breath, chest pain, and other symptoms. (Palpitations are feelings that your heart is skipping a beat, fluttering, or beating too hard or too fast.)

Normal Mitral Valve

The mitral valve controls blood flow between the upper and lower chambers of the left side of the heart. The upper chamber is called the left atrium. The lower chamber is called the left ventricle.

The mitral valve allows blood to flow from the left atrium into the left ventricle, but not back the other way. The heart also has a right atrium and ventricle, separated by the tricuspid valve.

With each heartbeat, the atria contract and push blood into the ventricles. The flaps of the mitral and tricuspid valves open to let blood through. Then, the ventricles contract to pump the blood out of the heart.

When the ventricles contract, the flaps of the mitral and tricuspid valves close. They form a tight seal that prevents blood from flowing back into the

atria.

For more information, go to the Health Topics [How the Heart Works](#) article. This article contains animations that show how your heart pumps blood and how your heart's electrical system works.

Mitral Valve Prolapse

In MVP, when the left ventricle contracts, one or both flaps of the mitral valve flop or bulge back (prolapse) into the left atrium. This can prevent the valve from forming a tight seal. As a result, blood may leak from the ventricle back into the atrium. The backflow of blood is called regurgitation.

MVP doesn't always cause backflow. In fact, most people who have MVP don't have backflow and never have any related symptoms or problems. When backflow occurs, it can get worse over time and it can change the heart's size and raise pressure in the left atrium and lungs. Backflow also raises the risk of heart valve infections.

Medicines can treat troublesome MVP symptoms and help prevent complications. Some people will need surgery to repair or replace their mitral valves.

Mitral Valve Prolapse

Figure A
shows a
normal
mitral
valve.

The valve
separates
the left
atrium
from the
left
ventricle.

Figure B
shows a
heart
with
mitral
valve
prolapse.

Figure C
shows a
closeup
view of
mitral
valve
prolapse.

Figure D
shows a
mitral
valve
that
allows
blood to
flow back
into the
left
atrium.

Other Names

- Balloon mitral valve
- Barlow's syndrome
- Billowing mitral valve
- Click-murmur syndrome
- Floppy valve syndrome
- Myxomatous mitral valve
- Prolapsing mitral valve syndrome

Causes

The exact cause of mitral valve prolapse (MVP) isn't known. Most people who have the condition are born with it. MVP tends to run in families. Also, it's more common in people who are born with connective tissue disorders, such as [Marfan syndrome](#).

In people who have MVP, the mitral valve may be abnormal in the following ways:

- The valve flaps may be too large and thick.
- The valve flaps may be "floppy." The tissue of the flaps and their supporting "strings" are too stretchy, and parts of the valve flop or bulge back into the atrium.
- The opening of the valve may stretch.

These problems can keep the valve from making a tight seal. Some people's valves are abnormal in more than one way.

Risk Factors

Mitral valve prolapse (MVP) affects people of all ages and both sexes; however, aging raises the risk of developing the disease.

Certain conditions have been associated with MVP, including:

- A history of rheumatic fever
- Connective tissue disorders, such as Marfan syndrome or Ehlers-Danlos syndrome
- Graves' disease
- Scoliosis and other skeletal problems
- Some types of muscular dystrophy

Screening and Prevention

You can't prevent mitral valve prolapse (MVP). Most people who have the condition are born with it.

Complications from MVP, such as [arrhythmias](#) (irregular heartbeats) and [infective endocarditis](#) (IE), are rare. IE is an infection of the inner lining of your heart chambers and valves.

People at high risk for IE may be given antibiotics before some types of surgery and dental work. Antibiotics can help prevent IE. Your doctor will tell you whether you need this type of treatment.

People at high risk for IE may include those who've had valve repair or replacement or who have some types of underlying heart disease.

Signs, Symptoms, and Complications

Most people who have mitral valve prolapse (MVP) aren't affected by the condition. They don't have any symptoms or major mitral valve backflow.

When MVP does cause signs and symptoms, they may include:

- [Palpitations](#) (feelings that your heart is skipping a beat, fluttering, or beating too hard or too fast)
- Shortness of breath

- [Cough](#)
- Fatigue (tiredness), dizziness, or anxiety
- Migraine headaches
- Chest discomfort

MVP symptoms can vary from one person to another. They tend to be mild but can worsen over time, mainly when complications occur.

Mitral Valve Prolapse Complications

MVP complications are rare. When present, they're most often caused by the backflow of blood through the mitral valve.

Mitral valve backflow is most common among men and people who have [high blood pressure](#). People who have severe backflow may need [valve surgery](#) to prevent complications.

Mitral valve backflow causes blood to flow from the left ventricle back into the left atrium. Blood can even back up from the atrium into the lungs, causing shortness of breath.

The backflow of blood strains the muscles of both the atrium and the ventricle. Over time, the strain can lead to [arrhythmias](#). Backflow also increases the risk of [infective endocarditis](#) (IE). IE is an infection of the inner lining of your heart chambers and valves.

Arrhythmias

Arrhythmias are problems with the rate or rhythm of the heartbeat. The most common types of arrhythmias are harmless. Other arrhythmias can be serious or even life threatening, such as ventricular arrhythmias.

If the heart rate is too slow, too fast, or irregular, the heart may not be able to pump enough blood to the body. Lack of blood flow can damage the brain, heart, and other organs.

One troublesome arrhythmia that MVP can cause is [atrial fibrillation](#) (AF). In AF, the walls of the atria quiver instead of beating normally. As a result, the atria aren't able to pump blood into the ventricles the way they should.

AF is bothersome but rarely life threatening, unless the atria contract very

fast or blood clots form in the atria. Blood clots can occur because some blood "pools" in the atria instead of flowing into the ventricles. If a blood clot breaks off and travels through the bloodstream, it can reach the brain and cause a [stroke](#).

Infection of the Mitral Valve

A deformed mitral valve flap can attract bacteria in the bloodstream. The bacteria attach to the valve and can cause a serious infection called infective endocarditis (IE). Signs and symptoms of a bacterial infection include fever, chills, body aches, and headaches.

IE doesn't happen often, but when it does, it's serious. MVP is the most common heart condition that puts people at risk for this infection.

If you have MVP, you can take steps to prevent IE. Floss and brush your teeth regularly. Gum infections and tooth decay can cause IE.

Diagnosis

Mitral valve prolapse (MVP) most often is detected during a routine physical exam. During the exam, your doctor will listen to your heart with a stethoscope.

Stretched valve flaps can make a clicking sound as they shut. If the mitral valve is leaking blood back into the left atrium, your doctor may hear a [heart murmur](#) or whooshing sound.

However, these abnormal heart sounds may come and go. Your doctor may not hear them at the time of an exam, even if you have MVP. Thus, you also may have tests and procedures to diagnose MVP.

Diagnostic Tests and Procedures

Echocardiography

[Echocardiography](#) (echo) is the most useful test for diagnosing MVP. This painless test uses sound waves to create a moving picture of your heart.

Echo shows the size and shape of your heart and how well your heart chambers and valves are working. The test also can show areas of heart muscle that aren't contracting normally because of poor blood flow or injury to the heart muscle.

Echo can show prolapse of the mitral valve flaps and backflow of blood through the leaky valve.

There are several types of echo, including stress echo. Stress echo is done before and after a [stress test](#). During a stress test, you exercise or take medicine (given by your doctor) to make your heart work hard and beat fast.

You may have stress echo to find out whether you have decreased blood flow to your heart (a sign of [coronary heart disease](#)).

Echo also can be done by placing a tiny probe in your esophagus to get a closer look at the mitral valve. The esophagus is the passage leading from your mouth to your stomach.

The probe uses sound waves to create pictures of your heart. This form of echo is called transesophageal (tranz-ih-sof-uh-JEE-ul) echocardiography, or [TEE](#).

Doppler Ultrasound

A Doppler [ultrasound](#) is part of an echo test. A Doppler ultrasound shows the speed and direction of blood flow through the mitral valve.

Other Tests

Other tests that can help diagnose MVP include:

- A [chest x ray](#). This test is used to look for fluid in your lungs or to show whether your heart is enlarged.
- An [EKG](#) (electrocardiogram). An EKG is a simple test that records your heart's electrical activity. An EKG can show how fast your heart is beating and whether its rhythm is steady or irregular. This test also records the strength and timing of electrical signals as they pass through your heart.

Treatment

Most people who have mitral valve prolapse (MVP) don't need treatment because they don't have symptoms and complications.

Even people who do have symptoms may not need treatment. The presence of symptoms doesn't always mean that the backflow of blood through the valve is significant.

People who have MVP and troublesome mitral valve backflow may be treated with medicines, surgery, or both.

The goals of treating MVP include:

- Correcting the underlying mitral valve problem, if necessary
- Preventing [infective endocarditis](#), [arrhythmias](#), and other complications
- Relieving symptoms

Medicines

Medicines called beta blockers may be used to treat [palpitations](#) and chest discomfort in people who have little or no mitral valve backflow.

If you have significant backflow and symptoms, your doctor may prescribe:

- Blood-thinning medicines to reduce the risk of blood clots forming if you have [atrial fibrillation](#).
- Digoxin to strengthen your heartbeat.
- Diuretics (fluid pills) to remove excess sodium and fluid in your body and lungs.
- Medicines such as flecainide and procainamide to regulate your heart rhythms.
- Vasodilators to widen your blood vessels and reduce your heart's workload. Examples of vasodilators are isosorbide dinitrate and hydralazine.

Take all medicines regularly, as your doctor prescribes. Don't change the amount of your medicine or skip a dose unless your doctor tells you to.

Surgery

Surgery is done only if the mitral valve is very abnormal and blood is flowing back into the atrium. The main goal of surgery is to improve symptoms and reduce the risk of [heart failure](#).

The timing of the surgery is important. If it's done too early and your leaking valve is working fairly well, you may be put at needless risk from surgery. If it's done too late, you may have heart damage that can't be fixed.

Surgical Approaches

Traditionally, heart surgeons repair or replace a mitral valve by making an incision (cut) in the breastbone and exposing the heart.

A small but growing number of surgeons are using another approach that involves one or more small cuts through the side of the chest wall. This results in less cutting, reduced blood loss, and a shorter hospital stay. However, not all hospitals offer this method.

VALVE REPAIR AND VALVE REPLACEMENT

In mitral valve surgery, the valve is repaired or replaced. Valve repair is preferred when possible. Repair is less likely than replacement to weaken the heart. Repair also lowers the risk of infection and decreases the need for lifelong use of blood-thinning medicines.

If repair isn't an option, the valve can be replaced. Mechanical and biological valves are used as replacement valves.

Mechanical valves are man-made and can last a lifetime. People who have mechanical valves must take blood-thinning medicines for the rest of their lives.

Biological valves are taken from cows or pigs or made from human tissue. Many people who have biological valves don't need to take blood-thinning medicines for the rest of their lives. The major drawback of biological valves is that they weaken over time and often last only about 10 years.

After surgery, you'll likely stay in the hospital's intensive care unit for 2 to 3 days. Overall, most people who have mitral valve surgery spend about 1 to 2

weeks in the hospital. Complete recovery takes a few weeks to several months, depending on your health before surgery.

If you've had valve repair or replacement, you may need antibiotics before dental work and surgery. These procedures can allow bacteria to enter your bloodstream. Antibiotics can help prevent infective endocarditis, a serious heart valve infection. Discuss with your doctor whether you need to take antibiotics before such procedures.

TRANSCATHETER VALVE THERAPY

Interventional cardiologists may be able to repair leaky mitral valves by implanting a device using a catheter (tube) inserted through a large blood vessel. This approach is less invasive and can prevent a person from having [open-heart surgery](#). At present, the device is only approved for people with severe mitral regurgitation who cannot undergo surgery.

Living With

Most people who have mitral valve prolapse (MVP) have no symptoms or related problems, do not need treatment, and are able to lead normal, active lives. If symptoms and complications do occur, most often you can control them with medicines. However, some people may need transcatheter valve therapy or [heart valve surgery](#) to relieve their symptoms and prevent complications. Rarely, mitral valve prolapse can cause [arrhythmias](#) and other problems.

Ongoing Care

If you have MVP, ongoing care is important. Ask your doctor how often you should schedule follow-up visits. See your doctor if your symptoms worsen. You should talk to your doctor about:

- [Medicines](#)
- [Heart-healthy lifestyle changes](#)

Medicines

Take all of your medicines as your doctor prescribes, including blood-thinning and high blood pressure medicines. Also, avoid taking birth control pills because they can raise your risk for blood clots.

Heart-Healthy Lifestyle Changes

Make heart-healthy lifestyle changes such as:

- [Heart-healthy eating](#)
- [Aiming for a healthy weight](#)
- [Managing stress](#)
- [Physical activity](#)
- [Quitting smoking](#)

Participate in NHLBI Clinical Trials

The National Heart, Lung, and Blood Institute (NHLBI) leads or sponsors many studies aimed at preventing, diagnosing, and treating heart, lung, blood, and sleep disorders.

Learn more about [participating in a clinical trial](#).

View all trials from [ClinicalTrials.gov](https://clinicaltrials.gov) .

Visit [Children and Clinical Studies](#) to hear experts, parents, and children talk about their experiences with clinical research.

More Information

Related Health Topics

[Arrhythmia](#)

[Atrial Fibrillation](#)

[Heart-Healthy Living](#)[Heart Surgery](#)[Heart Valve Disease](#)[How the Heart Works](#)[Marfan Syndrome](#)[Heart Palpitations](#)

Other Resources

Non-NHLBI Resources

- [Mitral Valve Prolapse](#) (MedlinePlus)

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