

*Patient Information*

# Heart Valve Disease



## Heart Valve Disease

As many as 5 million Americans are diagnosed with valve disease each year. Valve diseases involve damage to one or more of the heart's valves and while some types are not serious, others can lead to major complications—including death.

Valve defects can be there at birth or develop from damage later in life.

Fortunately, valve disease can usually be successfully treated with valve surgery in patients of all ages. If you have been diagnosed with valve disease, have a heart murmur (which is typically caused by abnormal valves), or think you may be experiencing symptoms, read this brochure to learn about causes, symptoms, surgery, and more—and be sure to talk with your doctor.

### Information Covered in This Fact Sheet

***How It Works: The Amazing Heart***

***Valve Damage: Types of Disease***

***How You Get It: Causes & Risk Factors***

***How You Know if You Have It: Signs & Symptoms***

***Seeing a Doctor: Getting it Diagnosed***

***What if You Have It: Going Forward***

***Different Options: Getting Treatment***

***Having Surgery: Repair and Replacement***

***Now What?: Life After Surgery***

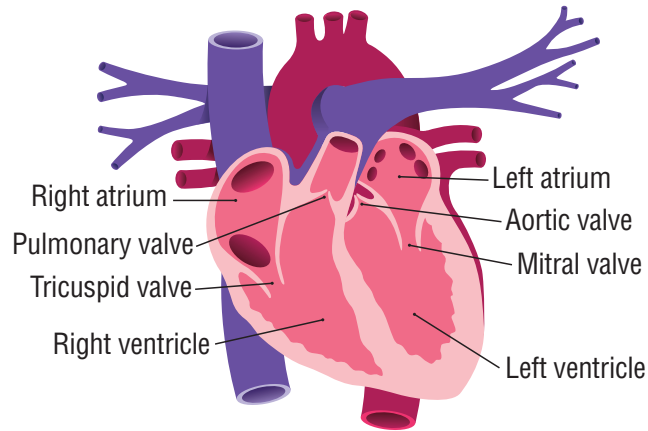
***Learning More: Additional Resources***

## The Amazing Heart



Your heart is a powerful organ that is responsible for pumping blood throughout your body. Its major parts include the four chambers: the right atrium, right ventricle, left atrium, and left ventricle. These chambers work together to pump blood to your lungs to receive oxygen, and then out to your body to deliver it.

Between each chamber is a valve—a thin leaflet of tissue that keeps blood moving in only one direction and with the right amount of force. These valves keep blood from leaking backwards when the heart squeezes by only opening one way, and then sealing tightly as soon as the blood passes through. There are four valves in the heart: the tricuspid valve, pulmonary valve, mitral valve, and aortic valve.



**Heart and Valves**

### **HEART FACT**

Each day your heart beats up to 100,000 times and pumps around 2,000 gallons of blood.

The oxygen your body needs is carried in the blood. Because your heart is responsible for pumping blood to your body, when it is diseased or damaged it can affect your health and even lead to death.

## Valve Damage

# Types of Disease



Most valve diseases involve a damaged valve that disrupts blood flow by not opening or closing properly:

**Regurgitation** is when a valve does not fully close and allows blood to leak backwards. It is also commonly called insufficiency, or a leaky valve.

**Stenosis** is when a valve does not fully open to allow enough blood to flow through. It is also commonly called a sticky, narrowed, or stiff valve.

Each of four valves can have regurgitation or stenosis (sometimes both), although the aortic and mitral valves are the most likely to be damaged. The most common types of valve disease are:

- Aortic Regurgitation or Insufficiency
- Aortic Stenosis
- Mitral Regurgitation or Insufficiency
- Mitral Stenosis

Prolapse is a type of regurgitation where the leaflets “flap” backwards and allow blood to leak. The most common prolapse is mitral valve prolapse (MVP)—an estimated 2% to 3% of the population have the disease—although most cases don’t need treatment.

Diseases of the tricuspid and pulmonary valves are rare and usually caused by birth defects.

## Causes & Risk Factors



Valve problems can be congenital (there at birth) or acquired from damage later in life. The causes of valve disease are not always known, but some of the most common are:

### ***Congenital Abnormalities***

Around 1-2% of people are born with an abnormal bicuspid aortic valve—with two leaflets instead of the normal three—making it more vulnerable to damage. Although not as common, others are born with narrow, deformed, or even missing valves.

### ***Calcification***

Calcium is important for our bodies and while it doesn't cause damage, if damage occurs it can collect and cause hardening of the blood vessels and valves. The most common risk factor for calcium build-up is age.

### ***Cardiovascular Diseases & Conditions***

Problems with the heart or vascular system can also result in valve problems. For example, heart attacks can cause scarring of the heart muscle that distorts the mitral valve. An enlarged heart can stretch open a valve and cause regurgitation—this is most common in the mitral and tricuspid valves.

### ***Infection***

Untreated strep throat can lead to rheumatic fever which can damage valves. Although pretty rare in the United States, it is most common in African Americans. Other infections like “staph” can also cause valve damage. Infection of a valve is called endocarditis.

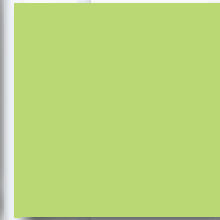
African Americans are more likely to need surgery for the mitral valve at a younger age than Caucasians. Scientists don't know why this is true but believe it's a combination of higher risk and lack of access to good primary care. Make sure you talk to your doctor if you think you may be at risk.

## How You Know if You Have it

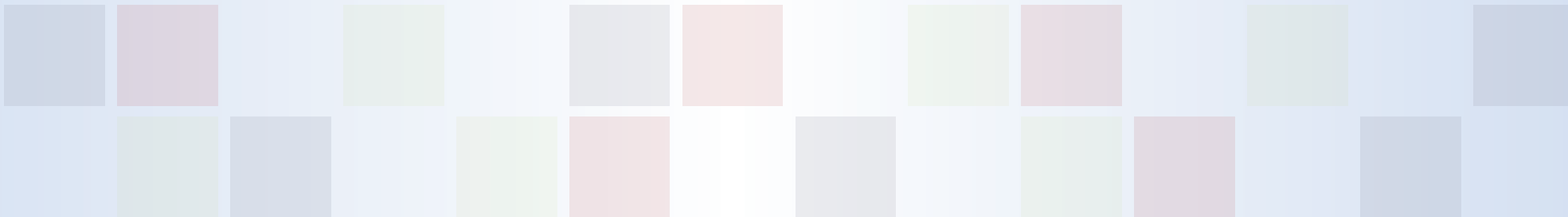
# Signs & Symptoms

When valve damage reduces blood flow, the heart has to work harder and the body gets less oxygen—leading to a number of symptoms. However, people with valve disease do not always have symptoms, even if their disease is severe. For these people, a heart murmur is the most important clue. Others may have symptoms with less severe disease. The only way to really know is to be diagnosed by a doctor, so see yours right away if you are told you have a murmur or you are experiencing any of these:

- Shortness of breath
- Weakness or dizziness
- Pain, tightness, or discomfort in the chest
- Fainting or feeling faint
- Fatigue
- Rapid or irregular heartbeat
- Lightheadedness
- Decrease in exercise capacity
- Swollen abdomen or ankles and feet



*Many of these symptoms will only happen during activity, but as the disease gets worse they may also happen while resting.*





## Seeing a Doctor Getting It Diagnosed



Doctors often first become “suspicious” of valve disease when their patient complains of symptoms like chest pain, reduced exercise capacity, fatigue, or shortness of breath. Even if there are no symptoms, a doctor may hear a heart murmur with a stethoscope. Not all doctors will look or listen specifically for valve disease, so be sure to speak up if you think you have symptoms!

Your doctor may do more tests or refer you to a cardiologist to determine if you do have valve disease, and if so, how serious it is. Don't be afraid to get a second opinion about your diagnosis and any treatment options.

The most commonly used tests for valve disease include:

- Listening to your heart for a murmur (damaged valves often make a distinct sound)
- Doing an electrocardiogram (EKG) to measure your heart's electrical patterns
- Doing an echocardiogram (ECG) to get sound wave images of your heart and valves
- Taking a chest x-ray to look for fluid in your lungs or enlargement of your heart
- Performing tests during exercise to see how the valve changes with exertion or to trigger symptoms
- Performing a cardiac catheterization to examine blood flow and test how well the heart and valves are functioning



## What if You Have It Going Forward



A damaged valve usually means that not enough blood flows to your body—depriving it of oxygen. Because the heart has to work harder to get blood to your body, it can become enlarged and damaged. Depending on the type of valve disease, the strain on your heart can cause heart attacks, arrhythmias, congestive heart failure, and other heart disease. In addition, the lack of oxygen can significantly impact your quality of life. Valve disease can also cause blood to pool in the heart's chambers, forming blood clots that can cause a stroke.

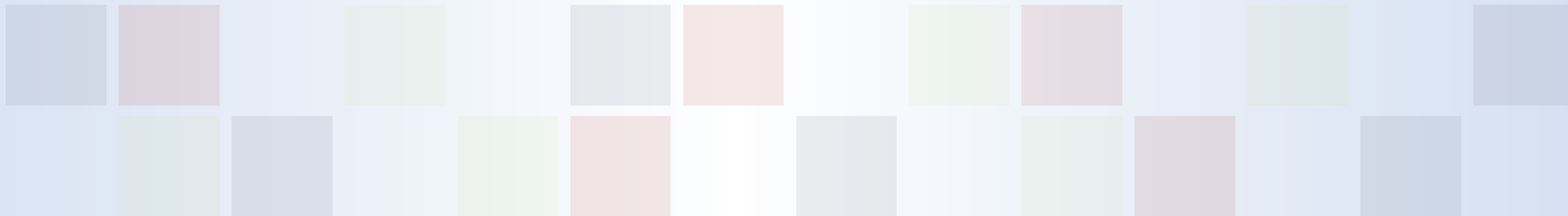


Often valve disorders simply need to be monitored. However, it's crucial that valve disease be followed appropriately because permanent changes and damage to the heart can occur without symptoms. Tests should be performed regularly.

Symptoms usually mean an advanced problem where treatment is needed.

With aortic stenosis, the average life expectancy once symptoms start is less than three years. Symptoms with mitral valve disease can signal heart failure. The good

news is that surgery—the most effective treatment for most valve diseases—has a very high success rate and in most cases, improves quality of life and adds many more healthy years.





## ***Monitoring***

If a patient has significant valve disease, echocardiography is usually performed every 6 – 12 months. If changes in the valve are not severe and the patient does not have symptoms, then immediate treatment is typically not needed. Once the disease progresses or symptoms develop, surgery is performed to avoid damage to the heart. Remember that if left untreated, most types of valve disease can lead to decreased quality of life, heart attack, heart failure, stroke, and even death. This makes monitoring especially important.

## ***Medicine***


There are some drugs that can make the symptoms of valve disease less severe, but they provide only temporary relief. There are NO drugs that keep the disease from getting worse, that undo damage that has already been done, or that cure valve disease. Doctors may prescribe medications that help reduce the heart's workload, regulate heart rhythms, prevent blood clots, and prevent infections.

## ***Non-Surgical Repair and Replacement***

Some patients may be candidates for non-surgical treatments like opening a stenotic valve with a balloon catheter—the preferred treatment for mitral stenosis and pulmonic stenosis. For high risk surgical patients in many countries—although not yet in the U.S.—replacement using an artificial valve mounted on a catheter is also possible.

## ***Surgery***

Depending on the type of disease, the valve may need to be repaired or replaced. In most cases, surgery is the only way to effectively treat the disease.





You may find that your diseased valve needs to be surgically repaired or replaced:

### **Repair**

Whenever possible, valve repair is preferred over replacement because it avoids introducing a foreign body (a new valve) into the heart and doesn't change the heart's anatomy. When the problem is a leaking (regurgitant) mitral valve, it can almost always be repaired—but must be timed properly and be done by a skilled surgeon.

### **Replacement**

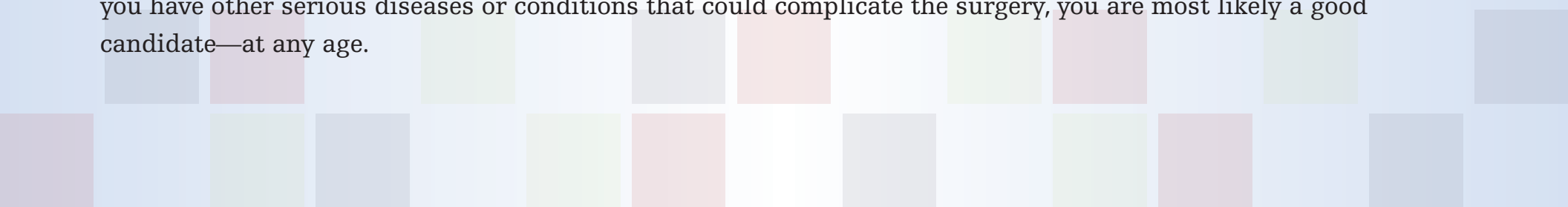
If the valve is narrowed (stenotic), it will usually need to be replaced because the normally thin and flexible leaflets become hard and immobile. Fortunately, replacement heart valves work very well and provide excellent long-term performance.

Defective valves can be replaced with mechanical or bioprosthetic (tissue from animals or humans) valves—both have risks and benefits. For example, mechanical valves do not wear out but require patients to take blood-thinning drugs to prevent blood clots. Tissue valves have less risk of blood clots but don't last as long. The best choice for each patient depends on their medical history and personal preferences.

### **Risks and Outcomes**

For most patients, the risk of complications and death from surgery is very low—the survival rate for valve surgery is around 97% and higher. The success rate is very high and in most cases relieves symptoms and lengthens lives.

The risk of complications does rise slightly with age, but **age alone is not a reason to avoid the surgery**. Unless you have other serious diseases or conditions that could complicate the surgery, you are most likely a good candidate—at any age.



## *Now What?* Life After Surgery

### **Recovery**

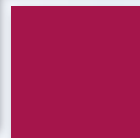
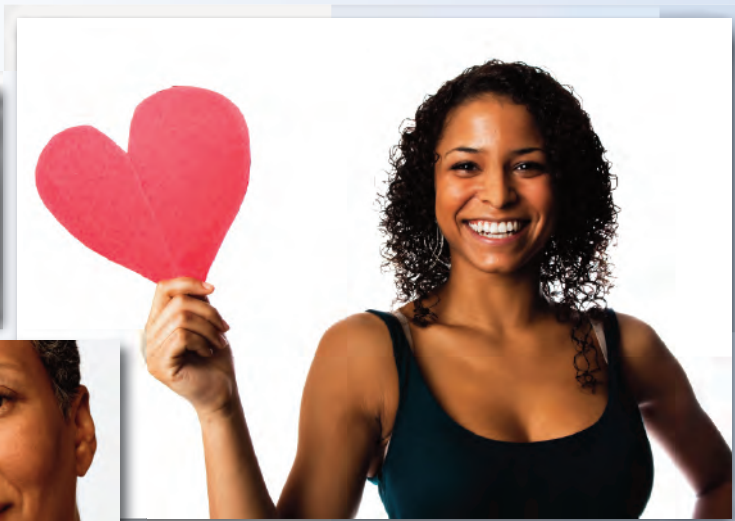
After surgery, most valve patients stay in the intensive care unit for 1 – 2 days and the hospital for 5 – 10 days. Cardiac rehabilitation (an exercise program) is recommended to get you and your heart back into shape. Depending on the type of surgery you have and your health before the surgery, complete recovery can take a few weeks to several months.

It is not uncommon to face some complications after surgery. Patients sometimes experience temporary changes in heart rhythm or have fluid retention. Others may need time to regain their appetite or may feel fatigued or depressed for a while. However, more serious complications are not common and there's lots of help available for any complications you may experience.

### **The Future**

Down the road, some patients may need to have surgery again to replace a tissue valve or to repair additional damage. Others may need to take medication to prevent complications.

For the most part, patients report feeling like they “are back to normal” after surgery and go on to live full and active lives.



## Learning More Additional Resources

### Valve Disease Basics

#### How the Heart Works Animation Video

*Learn more about how the valves function*

#### Adam's Heart Valve Surgery Blog

*Read about patient experiences, commonly asked questions, and heart valve surgery basics on this helpful blog from a former valve disease patient*

### Preparing for Surgery

#### Heart Valve Surgeon Database

*Find a heart surgeon based on patient experiences—over 500 currently listed*

#### Heart Valve Replacement Video, Part I

#### Heart Valve Replacement Video, Part II

*A prominent heart surgeon explains replacement surgery*

#### An Animation on Replacement Surgery

*More information on valve disease and traditional heart valve surgery*

### Getting Support & More Information

#### MendedHearts.org

*An organization affiliated with the American Heart Association and dedicated to educating people on preventing and coping with heart disease*

#### ValveReplacement.org

*A support community for those whose lives have been affected by valve replacement*

#### HeartHub

*The American Heart Association's portal for information, tools, and resources on cardiovascular disease and stroke*

#### Healthy Lifestyle

*Find tips on leading a heart healthy lifestyle*

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