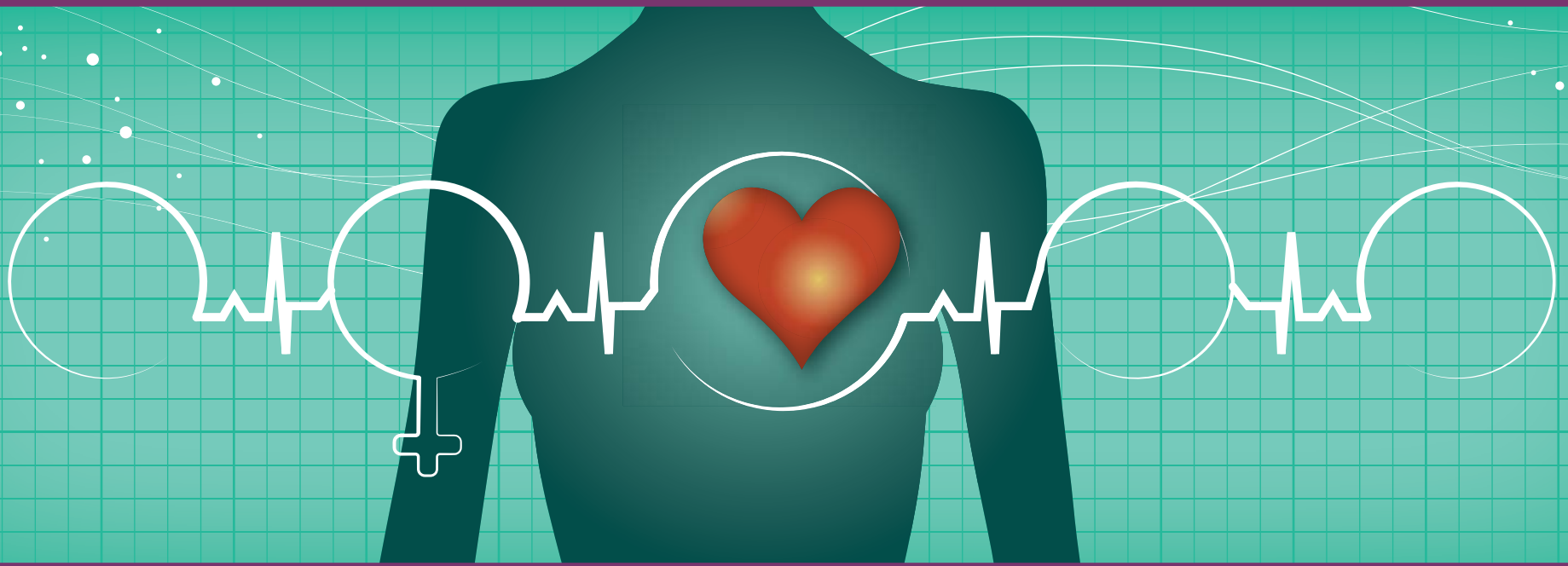


Valve Disease in Women

DETECTING & TREATING HEART VALVE PROBLEMS



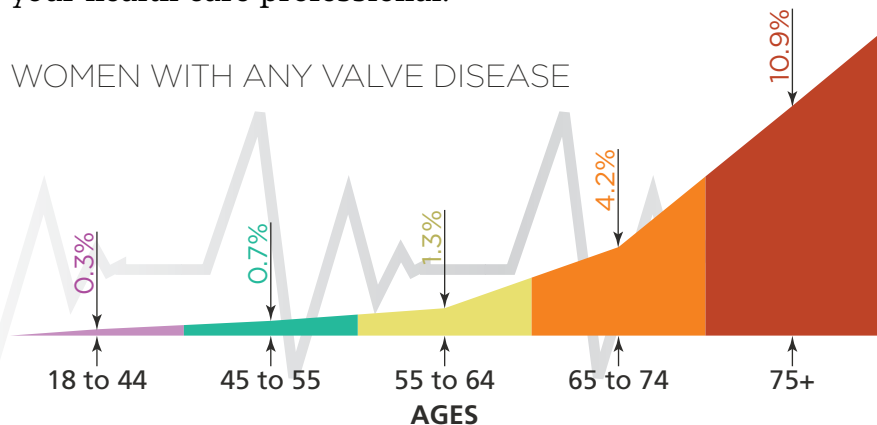
Detecting & Treating Heart Valve Problems

As many as 5 million Americans are diagnosed with valve disease each year. Around 1 in 50 women have some type of valve disease and this number increases with age. Between 65 and 75 years of age, 1 in 13 women have valve disease. By age 75 that number has grown to 1 in 10 women.

All types of valve disease involve damage to one of the heart's four valves. While some types are not serious, others can lead to major complications including disability, loss of independence, and 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 repair or replacement 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 more about causes, symptoms, surgery, and more—and be sure to talk with your health care professional.

WOMEN WITH ANY VALVE DISEASE



5 MILLION AMERICANS
are diagnosed with valve disease each year

1 in 50 women have some type of valve disease



Ages 65-75; 1 in 13 women have valve disease



Ages 75+; 1 in 10 women have valve disease

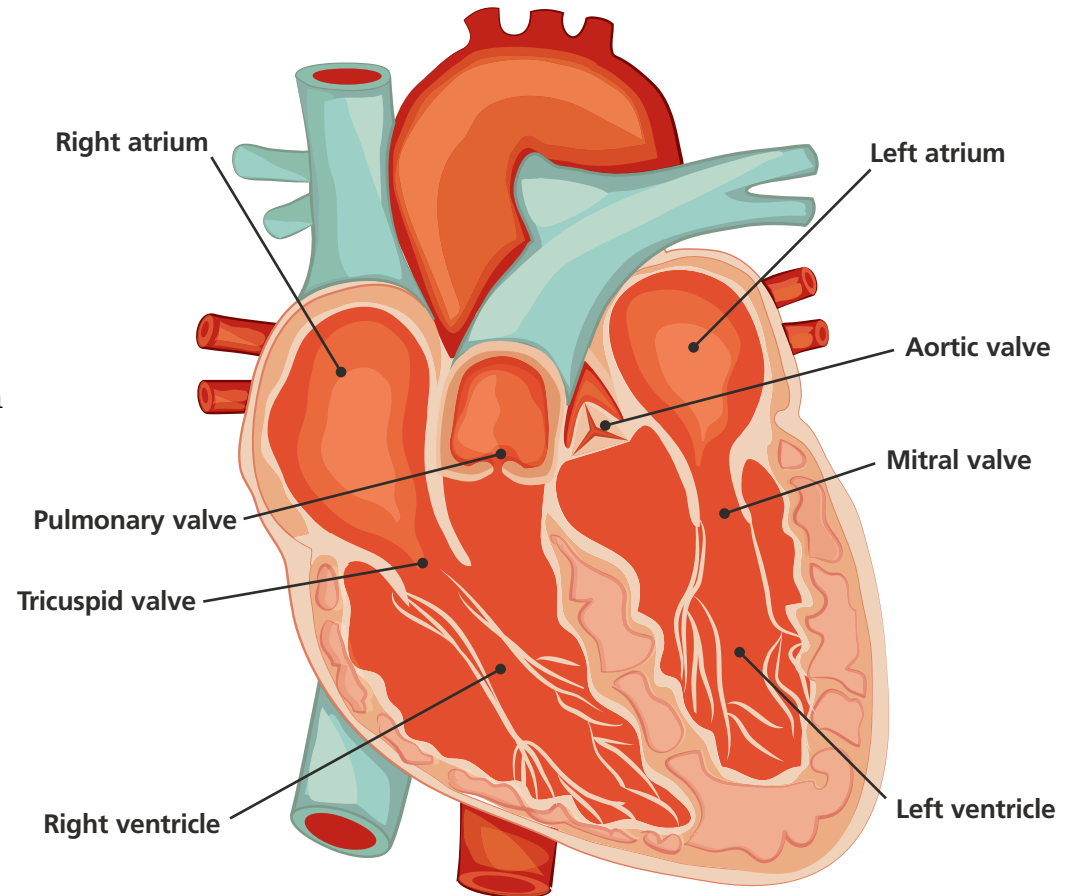


How It Works: The Amazing Heart

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 the 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**.

Because your heart is responsible for pumping blood to your body, when it is diseased or damaged it not only impacts your heart's ability to function but can also affect your overall health, and lead to death.



EVERY DAY YOUR HEART...

BEATS UP TO

100,000 TIMES

PUMPS AROUND

2,000 GALLONS

HELPS YOUR BLOOD TRAVEL AROUND

12,000 MILES

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 the four valves can have regurgitation or stenosis (sometimes both), although the aortic and mitral valves are the most likely to be damaged. Diseases of the tricuspid and pulmonary valves are rare and usually caused by birth defects.

The most common types of valve disease are:

- **Aortic Stenosis**
Affects 1 in 4 women over the age of 65
- **Aortic Regurgitation or Insufficiency**
Occurs in around 8% of women
- **Mitral Regurgitation or Insufficiency**
May affect 2-3% of women
- **Mitral Stenosis**
Three times more common in women than men



Prolapse is a type of regurgitation where the leaflets “flap” backwards and allow blood to leak and is a common cause of mitral regurgitation in developed countries.

Causes & Risk Factors: How You Get It

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, some people are born with narrow, deformed, or even missing valves.

Calcification

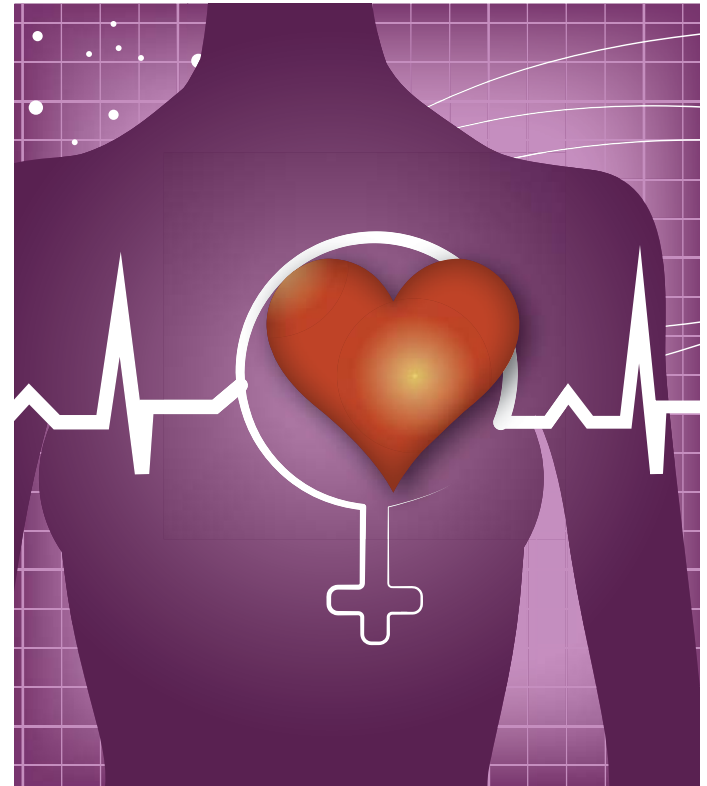
Calcium is important for our bodies and while it doesn't cause the damage to valves, if a valve is damaged in other ways the calcium can collect and cause hardening of the blood vessels and valves. The most common risk factor for calcium build-up is age.

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 and women. Other infections like “staph” can also cause valve damage. Infection of a valve is called endocarditis.



Symptoms: How to Know if You Have It

With most types of valve disease, men and women are equally likely to have it. However, women are less likely to be diagnosed. Early detection of valve disease is critical and could save your life so talk to your health care professional right away if you think you are experiencing symptoms.

When valve damage reduces blood flow, the heart has to work harder to get blood and oxygen to the body. This can lead to a number of symptoms. Talk to your health care professional if you are experiencing any of these:

- Shortness of breath
- Severe fatigue
- Nausea
- Pressure or weight in chest, especially after have been active or exposed to cold air
- Sudden weight loss
- Feeling dizzy or too weak to perform normal activities
- Feeling that your heart is beating irregularly or skipping beats
- Swelling in the ankles, feet, or belly
- Sudden weight gain
- Infections of a valve would cause fever, chills, night sweats, paleness, weakness

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



Keep in mind that people with valve disease don't always have symptoms, even if their disease is severe. For these people a heart murmur is the most important clue. The only way to really know if you have valve disease is to be diagnosed by a professional.

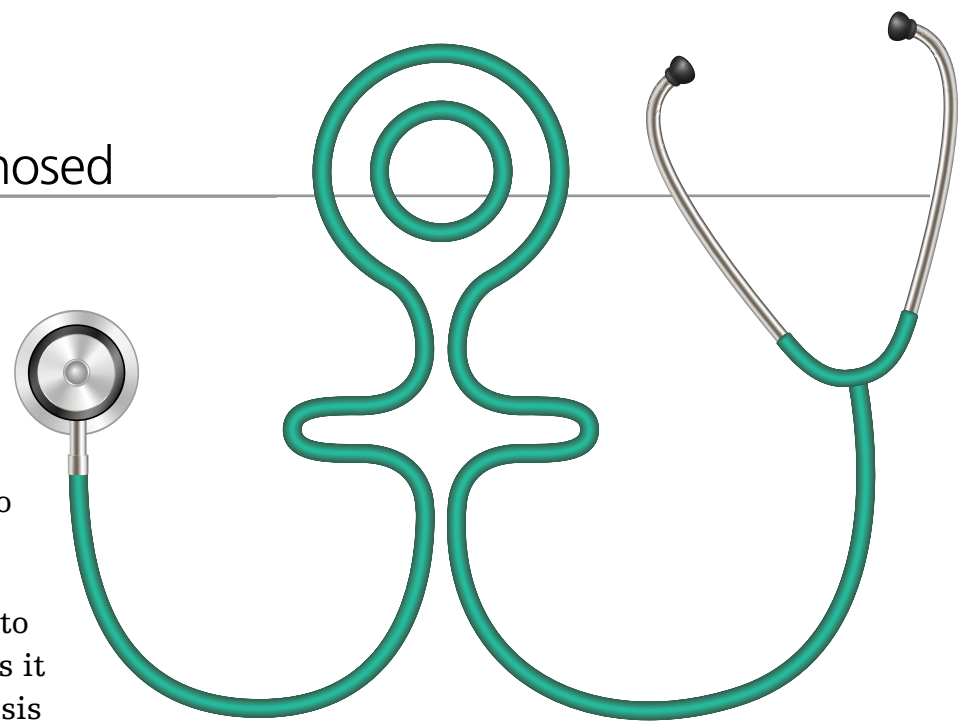
Seeing a Professional: Getting it Diagnosed

Health care professionals 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; this is the most widely used and important test in diagnosing valve disease. Almost all patients in a whom a heart murmur has been detected should undergo echocardiography
- Taking a chest x-ray to look for fluid in your lungs or enlargement of your heart
- Performing tests during exercise to trigger symptoms or to see how the valve changes with exertion
- Performing a cardiac catheterization to examine blood flow and test how well the heart and valves are functioning



If you think you may have valve disease, see your health care professional as soon as possible. Do not be afraid to get a second opinion if you feel as though your symptoms are being dismissed. Research has shown that women experiencing heart disease symptoms are often misdiagnosed as having anxiety, and don't get the treatment they need.

Going Forward: What if You Have It

A damaged valve may mean that not enough blood flows to the body—depriving it of oxygen. Because the heart has to work harder to get blood to the body, it can become enlarged and damaged. Depending on the type of valve disease, the strain on the heart can cause arrhythmias, congestive heart failure, and other heart disease. In addition, the lack of oxygen can significantly impact 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.

Symptoms usually mean the problem is advanced and that treatment is needed. With aortic stenosis, the average life expectancy once symptoms start is less than three years. And symptoms that develop with mitral valve disease can signal heart failure.

The good news is that repair and replacement—the most effective treatments for most valve diseases—have very high success rates and in most cases, improve quality of life and add many more healthy years.



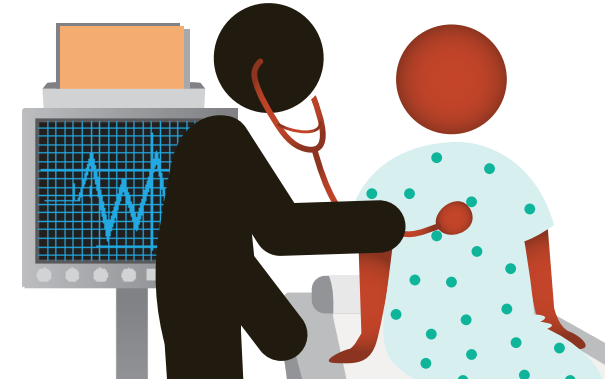
Valve disease affects every woman differently depending on her age, physical condition, emotional wellbeing, and severity of disease. In general, women with valve disease have a worse prognosis than men. This is often because women are more likely to ignore their symptoms and delay seeing their health care professional. When it comes to valve repair and replacement, women often fair worse than men because their disease has progressed further when they get treatment.

Trust your body! If you think something may be wrong or you are experiencing any symptoms, be sure to see your health care professional right away.

Getting Treatment: Different Options

Monitoring

If changes in the valve are not severe and the patient does not have symptoms, then immediate treatment is typically not needed. If a patient has significant valve disease, echocardiography is usually performed every 6—12 months. Once the disease progresses or symptoms develop, repair or replacement 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 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.

Repair & Replacement

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

Repair

Whenever possible, valve repair is preferred over replacement because it avoids introducing a foreign body (a new valve) into the heart, doesn't change the heart's anatomy, has a lower risk of infection, and doesn't require patients to take anti-clotting or anti-rejection medications long-term. In addition, the need for reoperation is low after valve repair—even after 10 to 15 years.

The option for repair does depend on the type and severity of valve disease. A regurgitant ("leaky") mitral valve can almost always be repaired while a stenotic ("sticky") valve usually needs to be replaced.

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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 as frequently as tissue valves but require patients to take blood thinning drugs to prevent blood clots which may result in stroke. 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.

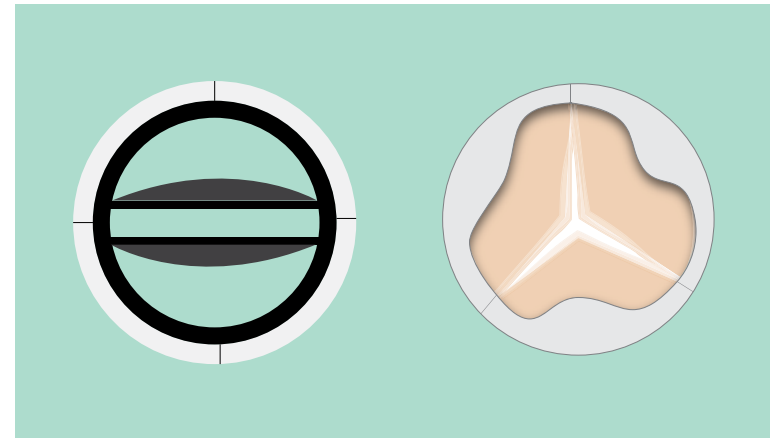
Many valve procedures can now be performed through minimally invasive procedures for those who are at high risk for surgical complications. These procedures require a smaller incision which often reduces the length of hospital stay, infection risk, and blood loss. Surgical valve replacement is still the preferred treatment for most types of valve disease and minimally invasive procedures do have other risks, but minimally invasive procedures are a good alternative for those who have diseases and conditions that make them poor candidates for surgery.

More than 60% of heart valve replacement procedures are performed in women. While the surgery/procedure is generally the same in women as in men, valve size should be determined based on body size.

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 above. The success rate is also very high and in most cases relieves symptoms, restores quality of life, and lengthens lives.

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



Life After Repair or Replacement: Now What?

Recovery

After surgery, most valve patients stay in the hospital for 7 to 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.

After minimally invasive procedures, most valve patients stay in the hospital for 3 to 5 days. The average recovery time is shorter than with surgery—between 1 and 4 weeks.

With all types of repair and replacement, taking the following steps can help assist with your recovery:

- Allow for adequate rest and recuperation
- Identify someone who can help with household tasks like laundry, cooking heart healthy meals, and grocery shopping
- Arrange for transportation to appointments, rehabilitation, and the pharmacy
- If you are a caregiver for a family member or loved one, find or hire someone to assist with your caregiver responsibilities

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. Remember that there are a lot of services 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.



Additional Resources

Learn More About Valve Disease

- The American Heart Association's *Heart Valves are for Life* at www.heart.org shares the basics on valve disease causes, risks, signs and symptoms, diagnosis, treatment options, and follow-up care.
- The Cleveland Clinic shares important information about valve disease at <http://my.clevelandclinic.org>.

Learn More about Women and Heart Disease

- Women Heart provides important information for women living with heart disease at www.womenheart.org where you can read stories of survival, find a support group, learn about prevention and early detection, and find resources for family caregivers.
- The American Heart Association's *Go Red for Women* campaign at www.goredforwomen.org helps women understand their risk, learn how to live healthy, and share their story.
- *The Heart Truth* from the National Heart, Lung, and Blood Institute at www.nhlbi.nih.gov is a partnership raising awareness about heart disease in women and motivating women to take action to prevent heart disease and control its risk factors.

Find a Cardiologist & Surgeon

- The *Surgeon Finder* at www.HeartValveSurgery.com connects patients with over 1,500 patient-recommended surgeons from more than 30 countries. Many of the leading surgeons in the directory have advanced features including videos, pictures, biographical information, patient success stories maps, contact information, and more.
- The *Valve Clinics* tool at www.HeartValveSurgery.com can help you find hospitals that specialize in heart valve surgery.

Get Financial & Other Support

- The *Heart Valve Financial Aid Fund* at <http://heartvalve.pafcareline.org> provides small grants to valve disease patients to help offset expenses related to care.
- The *Heart Valve Care Line* at <http://heartvalve.pafcareline.org> offers a free patient hotline (866-318-7892) providing one-on-one professional assistance and eliminating healthcare access barriers.

Connect with Other Valve Disease Patients

- The *Patient Community* at www.HeartValveSurgery.com shares the stories of thousands of patients and caregivers, connects them with support groups, and creates a community of people who are all dealing with valve disease.




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