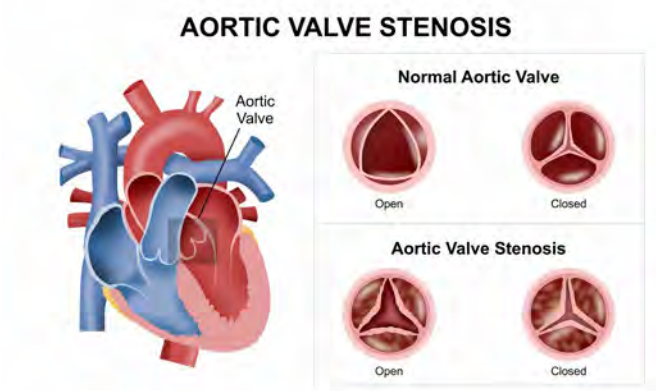
American Heart Association®

Target: Aortic Stenosis™

Understanding Aortic Stenosis

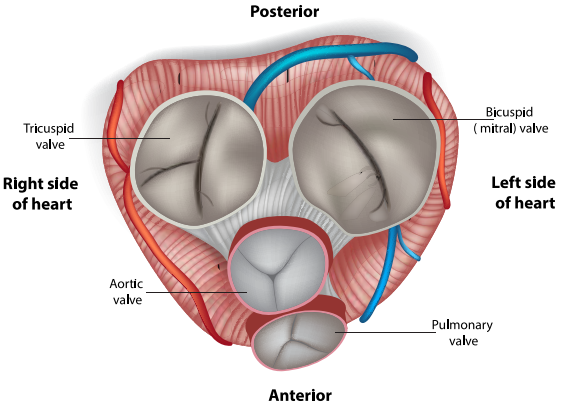
Aortic Valve Stenosis

Aortic valve stenosis, or **aortic stenosis**, is one of the most common and serious heart valve conditions. It is sometimes referred to as a failing heart valve.



What does the aortic valve do?

The **aorta** is the main artery that carries blood from the heart to the rest of the body. The **aortic valve** opens to allow blood to leave the heart and closes to prevent backflow of blood from the aorta into a lower heart chamber called the left ventricle.



What is stenosis?

Stenosis describes narrowing of an opening in the body. In the aortic valve, this narrowing restricts blood flow from the left ventricle. It also might affect pressure in an upper chamber, the left atrium.

Symptoms ... Sometimes

Often, people with aortic stenosis don't notice symptoms — in some cases even when the condition is advanced. Sometimes symptoms begin quickly and unpredictably, and it can be unclear how serious they will be.

Signs of aortic stenosis in adults can include:

- Chest pain
- Fast or fluttering heartbeat
- Shortness of breath
- Dizziness, a light-headed feeling, fainting
- Trouble walking short distances
- Reduced activity or reduced ability to do normal activities

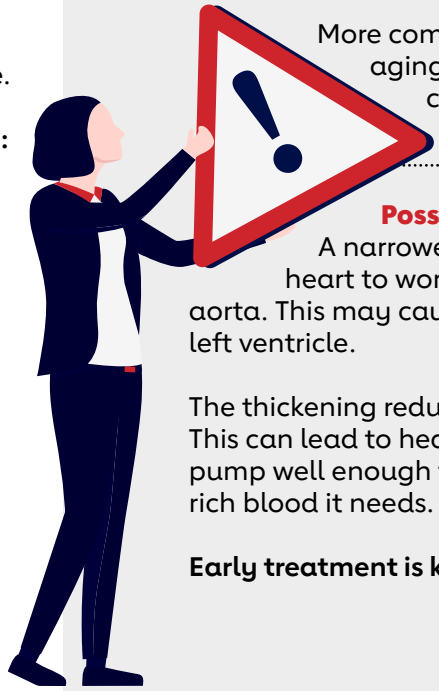
MORE THAN **13%** of Americans **AGES 75 AND OLDER** have **aortic stenosis.**

In Young and Old

Aortic stenosis can occur at an early age due to a heart defect at birth called a **bicuspid aortic valve**. Or sometimes, the valve opening doesn't grow as the heart does.

The condition also can arise in people who had rheumatic fever in childhood. Rheumatic fever can inflame and scar the heart valves.

More commonly, aortic stenosis occurs with aging, as calcium buildup or scarring causes the valve to narrow.



Possible Danger Ahead

A narrowed aortic valve can force the heart to work harder to pump blood into the aorta. This may cause thickening of the muscle in the left ventricle.

The thickening reduces the capacity of the ventricle. This can lead to heart failure, meaning the heart can't pump well enough to give the body all the oxygen-rich blood it needs.

Early treatment is key to preventing heart failure.

Progression of Aortic Stenosis

Management and treatment of aortic stenosis is based on its cause and how advanced it is.

Aortic stenosis is classified into four major stages:

- **Stage A:** At risk of developing the condition
- **Stage B:** Obstruction of aortic valve blood flow is present and progressing
- **Stage C:** Severe obstruction is present but without symptoms
- **Stage D:** Severe obstruction is present with symptoms

Testing

A test called an **echocardiogram, or echo** — a noninvasive ultrasound procedure for the heart— is essential in diagnosing the condition, monitoring its severity, and determining best treatments. How often it's repeated depends on factors including the severity of the aortic stenosis. For instance, echo might be repeated every three to five years for mild progressive aortic stenosis and every one to two years for moderate disease. Sometimes other tests are needed, too.

Medications

Health care professionals might prescribe medications to manage symptoms or related conditions, such as high blood pressure or high cholesterol, to improve the health of people with aortic stenosis.

Ongoing Monitoring

For milder cases of aortic stenosis, health care professionals might decide that direct treatment isn't needed yet. Instead, they may recommend regular follow-up to track how the condition progresses.

Aortic Valve Replacement

In more advanced cases, replacing the damaged valve may be recommended. Many factors influence when it's best to undergo aortic valve replacement. These factors include severity of stenosis, presence of symptoms and how well the heart's left ventricle is functioning. Doctors also consider a patient's age and fitness for surgery. People with severe aortic stenosis should be evaluated by a multidisciplinary heart team — a team that includes a variety of heart specialists — when valve replacement is considered.

Procedures

Aortic valves can be replaced through **surgical aortic valve replacement (SAVR)**, an open-heart operation, or **transcatheter aortic valve implantation (TAVI)** – also known as **TAVR (Transcatheter Aortic Valve Replacement)**, a less invasive procedure. In TAVI/TAVR, a catheter is used to deliver a replacement aortic valve, which is placed within the old, diseased valve.

Types of Replacement Valves

The heart's aortic valve typically is replaced with a **mechanical valve** made of long-lasting materials, or a **bioprosthetic valve**, which incorporates human or animal tissue. Factors such as the patient's age and ability to take blood-thinning medicines influence which type of valve is used.

In select young to middle-age adults, the damaged aortic valve might be replaced with another, similar valve from the patient's own heart — the pulmonary valve — in a procedure called a pulmonary autograft, or Ross procedure. Then the original pulmonary valve is replaced with donor tissue.
After heart valve replacement, many people can resume an active lifestyle.

Visit **heart.org/AorticStenosis** for more information