Understanding

Aortic Stenosis

For more information, visit CardioSmart.org/HeartValveDisease
Your heart has four valves or doorways. These valves help to keep the blood moving in one direction through the heart.

The aortic valve is the valve through which all blood passes as it is pumped from your heart to your body.

Aortic stenosis happens when the aortic valve narrows (stenosis) or is blocked and therefore doesn’t open fully. As a result the amount of blood that can flow through the valve, into the aorta and out to the body is restricted.

Over time, the heart muscle can become weakened, and the body isn’t getting everything it needs to function well.
What causes it?

Most often, aortic stenosis occurs with older age due to scarring or a build up of calcium on the valve. This can make the valve very stiff. The leaflets of the valve can also become deformed or fuse together.

For people younger than 70 years of age, aortic stenosis is often due to a heart defect that was present at birth. For example, a person may have been born with two not the usual three leaflets or flaps (see congenital heart defects).

Other possible causes include:

- Inflammation or damage from rheumatic fever, a condition that can result from untreated strep throat
- Other infections

Who is more likely to develop aortic stenosis?

- Older adults
- People with congenital heart problems that affect the valve’s structure

It’s also more likely to develop in people with chronic kidney disease, diabetes or who have high blood cholesterol or blood pressure.

What are the signs and symptoms?

Aortic stenosis can range from being mild to severe. Some patients may not have any symptoms.

Once symptoms develop, it’s critical to get treatment. That’s because aortic stenosis can put you at high risk of cardiac arrest — when your heart suddenly stops beating.

Common symptoms include:

- Chest pain or tightness (angina) that often gets worse with exercise and resolves with rest
- Feeling short of breath or overly tired
- Fainting spells (syncope) or lightheadedness, even without warning (usually when your blood pressure drops)
- Heart palpitations — skipping or fluttering heartbeats
- Noticeable change in what you are able to do without also feeling short of breath or very tired
Why is aortic stenosis a concern?

Aortic stenosis can be life threatening. It puts you at greater risk of cardiac arrest — a condition in which your heart suddenly stops beating.

When blood flow is restricted, it places added strain on the heart. This can cause the heart muscle to become thicker and eventually to weaken. Because the heart must work harder to pump blood through the narrow opening, the walls become thicker, taking up more space and leaving even less room for sufficient blood. If this goes on too long, the heart may start dilating and enlarge in response to these high pressures pushing against a tight, narrow valve.

Aortic stenosis can lead to:

- Chest pain
- Dangerous fainting
- Atrial fibrillation
- Blood clots that could move to the brain, causing a stroke
- Heart failure
- Cardiac arrest
- Death

If you have severe aortic stenosis, you may not be able to participate in competitive sports or other vigorous exercise. Be sure to talk with your doctor about what activities are best for you.

How is it diagnosed?

Your doctor may notice that you have a heart murmur or other abnormal pattern when listening to the heart with a stethoscope.

Other tests may be used to confirm aortic stenosis. These tests help your doctor see how small the opening is and to look at your heart valves and how they are working.

- **Echocardiogram** — an ultrasound of the heart — to see how small the opening is and check on the left ventricle function; an echocardiogram may also be done to periodically monitor heart and valve function
- **Exercise stress test** may be used in people with severe aortic stenosis who do not yet have obvious symptoms to see if they are able to exercise normally
- **Cardiac catheterization** may also be ordered if a blockage in the heart’s arteries is suspected or to confirm echocardiogram findings
- **Cardiac CT and MRI** may also be used to help diagnose aortic stenosis
How is it treated?

**Treatments for aortic stenosis are intended to:**

- Relieve your symptoms
- Improve your quality of life and your ability to do usual activities
- Prolong your life
- Avoid trips to the hospital

Treatment will depend on how severe your condition and symptoms are, but may include medications or surgery. It’s important to see a multidisciplinary heart team to help decide the best treatment plan for you.

For patients with symptoms, surgery to replace the valve is usually in order. The valve is either replaced through:

- Open surgery (surgical aortic valve replacement)
- A newer, less invasive procedure called Transcatheter Aortic Valve Replacement (TAVR); this involves inserting a new valve using a catheter that is most frequently inserted into an artery in your leg.

Talk with your heart team about each approach, your preferences and which is best for you.

If you don’t have symptoms, your doctor may suggest monitoring your heart every so often to see how the valve is working and/or to determine when surgery is needed. This is usually done with an echocardiogram.
Questions to ask
It is important to talk with your health care team about how you are feeling. Be prepared to share information about:

- Whether you have fainted or felt faint
- If exercise or other activities make your symptoms worse
- If you or family members have other heart conditions

Questions you might ask include:

- How badly or severely is my aortic valve blocked?
- What treatment do I need?
- At what point should I consider replacing my valve?
- What are the risks and benefits of TAVR compared with surgery?
- Are there activities that I should avoid?
- Should I see a heart valve specialist or team?
- How often do I need to see a cardiologist?
- What follow-up tests and visits do I need? How often?
- Are there other steps I need to take to best manage this and other risk factors?
Resources

CardioSmart has a wealth of information about valve diseases, as well as various tests and treatments. Visit www.CardioSmart.org for more information. You can also find resources at:

National Heart, Lung, and Blood Institute
www.nhlbi.nih.gov

For more information, visit CardioSmart.org/HeartValveDisease

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