

What is aortic valve replacement?

The heart has four valves that work together to keep blood flowing in the right direction. They are the tricuspid, pulmonary, mitral, and aortic valves. They are made of thin tissue and open and close easily to allow blood to flow into and out of the heart.

The aortic valve is located between the lower left side of the heart and the aorta (the blood vessel that carries blood to the rest of the body). If you have a problem with your aortic valve, it either may not open all the way or may be unable to close completely. When the aortic valve narrows (called aortic valve stenosis), the valve does not open all the way, so the heart has to work harder to pump blood to the body. When the aortic valve does not close completely between heartbeats, blood can move backward in the heart (called aortic valve regurgitation). Problems with the aortic valve cause your heart to work harder to pump blood with each beat, which may put too much strain on your heart.

If the problem is severe, you may need to have your aortic valve replaced. Your aortic valve may be replaced with tissue from a cow, pig, or donated human tissue (biological valve), or by man-made materials (mechanical valve). In some cases, the surgeon may use your pulmonary valve to replace your aortic valve, called a Ross or Switch procedure.

How is aortic valve replacement done?

Before the procedure:

- Your healthcare provider will ask you to sign a consent form for aortic valve replacement. The consent form will state the reason you are having the procedure, possible risks of the procedure, what happens during the procedure, and what you may expect afterward.
- There is risk with every treatment or procedure. Talk to your healthcare provider for complete information about whether any of these risks apply to you:
 - Anesthesia problems
 - Bleeding
 - Blood clots
 - Infection
 - Heart rhythm problem requiring a permanent pacemaker
 - Temporary confusion due to the heart-lung machine

- Heart attack
 - Stroke
 - Kidney failure
 - Death
- Tell your healthcare provider if you have any food, medicine, or other allergies such as latex.
 - Tell your provider if you have had kidney problems or an allergy to chemicals, such as contrast dye.
 - Tell your healthcare provider if you are taking any medicines, including nonprescription drugs, herbal remedies, or recreational or illegal drugs.
 - You will have a small tube (IV catheter) inserted into a vein in your hand or arm. This will allow medicine to be given directly into your blood and to give you fluids, if needed.

During the procedure:

- A cardiac (heart) monitor will be used to keep track of your heart rate and rhythm.
- Your blood oxygen level will be monitored by a sensor that is attached to your finger or earlobe.
- You may be given a sedative through your IV to help you to relax.
- You will be given medicine called anesthesia to keep you from feeling pain. General anesthesia relaxes your muscles and puts you into a deep sleep. It also keeps you from remembering the operation. While you are asleep you will have a tube in your throat to help you breathe and to make sure you are getting enough oxygen. The tube may be removed before you wake up after the surgery.
- You may have a small tube (catheter) placed into your bladder to drain and measure urine.
- Your surgeon will determine the best surgery for you. The type of surgery you have to replace your aortic valve may be one of the following:
 - Surgical aortic valve replacement:
 - Open heart surgery: Your surgeon will make a cut in your chest and separate your sternum, or breastbone. A heart-lung machine will take over the work of moving oxygen-rich blood to your body during the operation. Your surgeon will replace your damaged aortic valve with a new valve. The cut in your chest will be closed by wiring together your sternum or

breastbone and then closing the skin with stitches. Temporary tubes will be left in place to drain blood and fluid.

- Transcatheter aortic valve replacement (TAVR) (also called transcatheter aortic valve implantation or TAVI):
 - Transfemoral aortic valve implantation: Your surgeon will make a small cut or puncture hole in your groin. Your surgeon will insert a small tube (catheter) into a large blood vessel in your groin, called the femoral artery, and move it through the blood vessels to the heart. X-rays will be taken using contrast dye to make sure the catheter is in the proper place. Your surgeon will stretch the aortic valve using a small balloon on the end of the catheter. Your surgeon will then use the tube to put the replacement valve inside the old valve. The catheter will then be removed and the blood vessel and the skin over it will be closed with stitches.
- A temporary pacemaker may be put in place during surgery to control your heart rhythm. A pacemaker is a small device that uses wires to deliver an electrical signal to the heart, causing the heart to beat and pump blood out to the body. The pacemaker wires are put into one or more chambers of the heart through a large vein. The wires are then connected to the battery-operated pacemaker. The pacemaker is usually in place for a few days after surgery.

After the procedure:

- You will be in the intensive care unit for close monitoring. Your breathing tube may stay in place after surgery until you are able to breathe well on your own. When you no longer need close monitoring, you will be moved to a regular hospital room.
- A cardiac (heart) monitor will be used to keep track of your heartbeat.
- You will be checked often by nursing staff.
- There will be a dressing on the surgery site. The dressing will be checked and changed by your provider or the nursing staff as needed.
- The catheter placed into your bladder during surgery will be removed when you can urinate on your own.

- Your provider may prescribe medicine to:
 - Treat pain
 - Help control your heart's rhythm
 - Treat or prevent an infection
 - Help prevent blood clots
 - Soften stool and reduce straining with a bowel movement
- Your provider may recommend other types of therapy to help relieve pain, other symptoms, or side effects of treatment.
- If a drain has been left in the wound, it will be checked and emptied regularly.

What can I do to help?

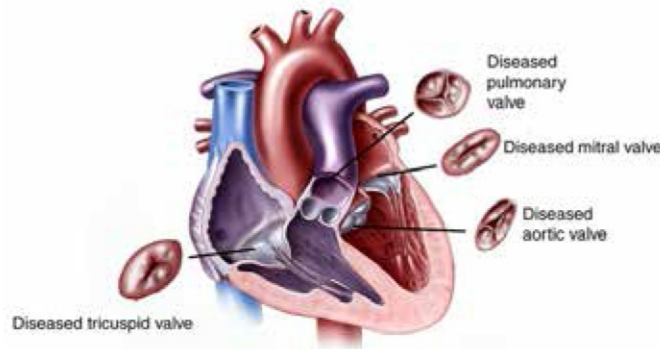
- You will need to tell your healthcare team if you have new or worsening:
 - Anxiety
 - Chest pain or pressure, squeezing, or fullness in the center of your chest that lasts more than few minutes, or goes away and comes back (may feel like indigestion or heartburn)
 - Pain or discomfort in one or both arms or shoulders, or in your back, neck, jaw, or stomach
 - Trouble breathing
 - Breaking out in a cold sweat for no known reason
 - Feeling like your heart is beating too fast, too slow, or skipping beats
 - Increased pain
 - Weakness, numbness, tingling or pain in your face, arm, or leg, especially on one side of your body
 - Redness, swelling, pain, warmth, or drainage from your surgical wound
 - Fever, chills, or muscle aches
- Ask questions about any medicine, treatment, or information that you do not understand.

How long will I be in the hospital?

How long you stay in the hospital depends on many things, such as your general health, why you are in the hospital, the treatment you need, and how well you recover. Talk with your provider about how long your stay may be.

This content is reviewed periodically and is subject to change as new health information becomes available. The information is intended to inform and educate and is not a replacement for medical evaluation, advice, diagnosis or treatment by a healthcare professional.

Heart Valve Replacement



Heart valves direct the flow of blood through the chambers of the heart and to the rest of the body. Valves that don't work right make your heart work harder.

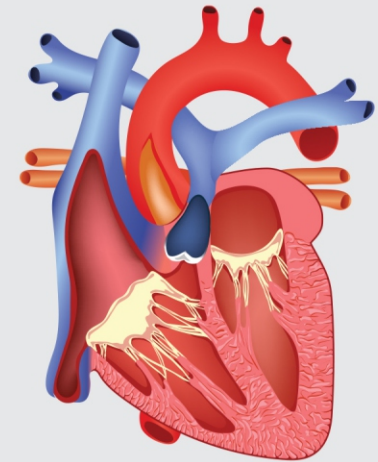


Mechanical valve made completely from man-made materials



Biological valve made from human or animal tissue

AORTIC VALVE REPLACEMENT



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