

TRANSCATHETER AORTIC VALVE IMPLANTATION - BACKGROUNDER

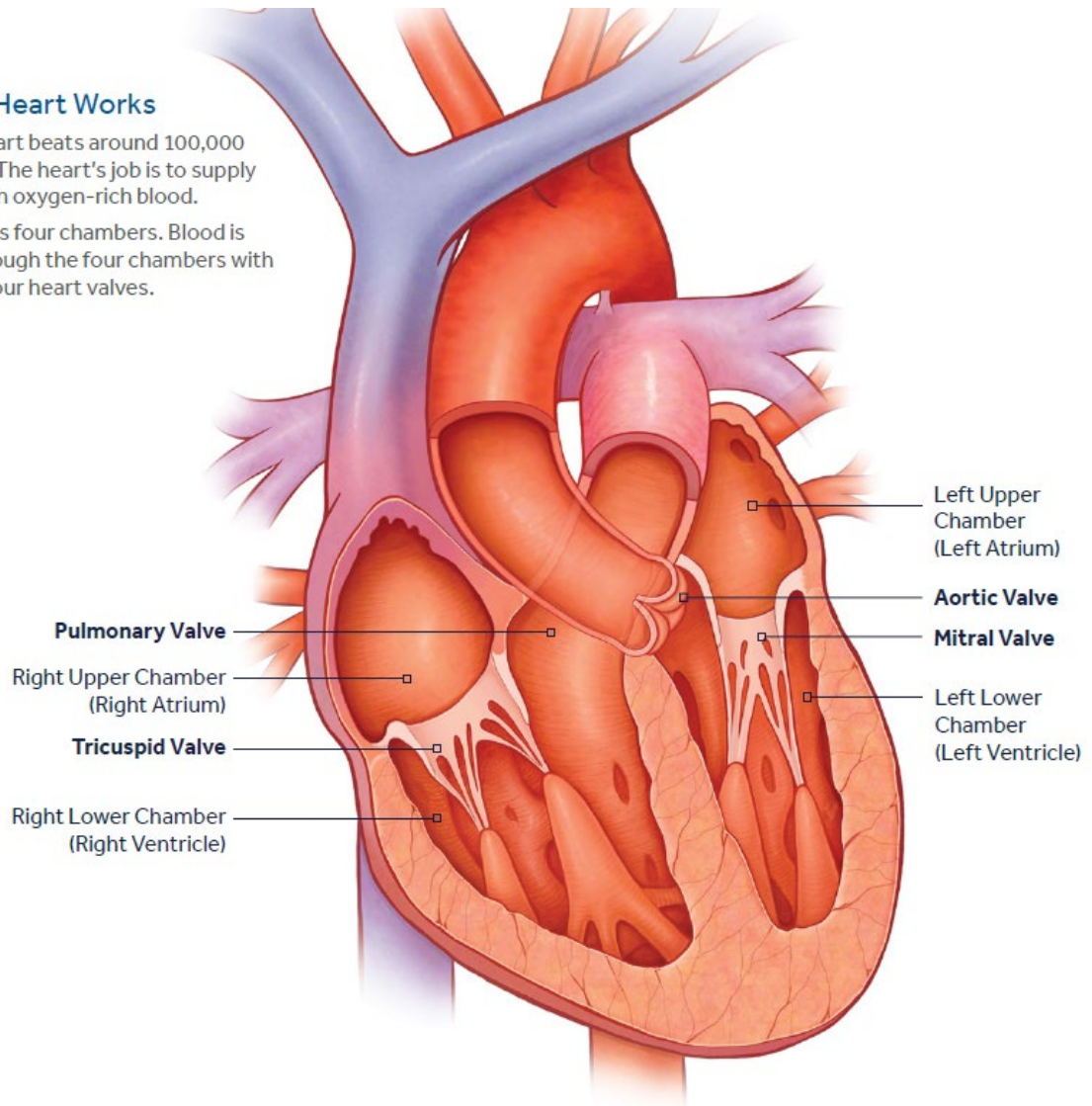
MEDIA CONTACT:

roxane.belanger@medtronic.com | www.medtronic.ca

How the Heart Works

A healthy heart beats around 100,000 times a day. The heart's job is to supply the body with oxygen-rich blood.

The heart has four chambers. Blood is pumped through the four chambers with the help of four heart valves.

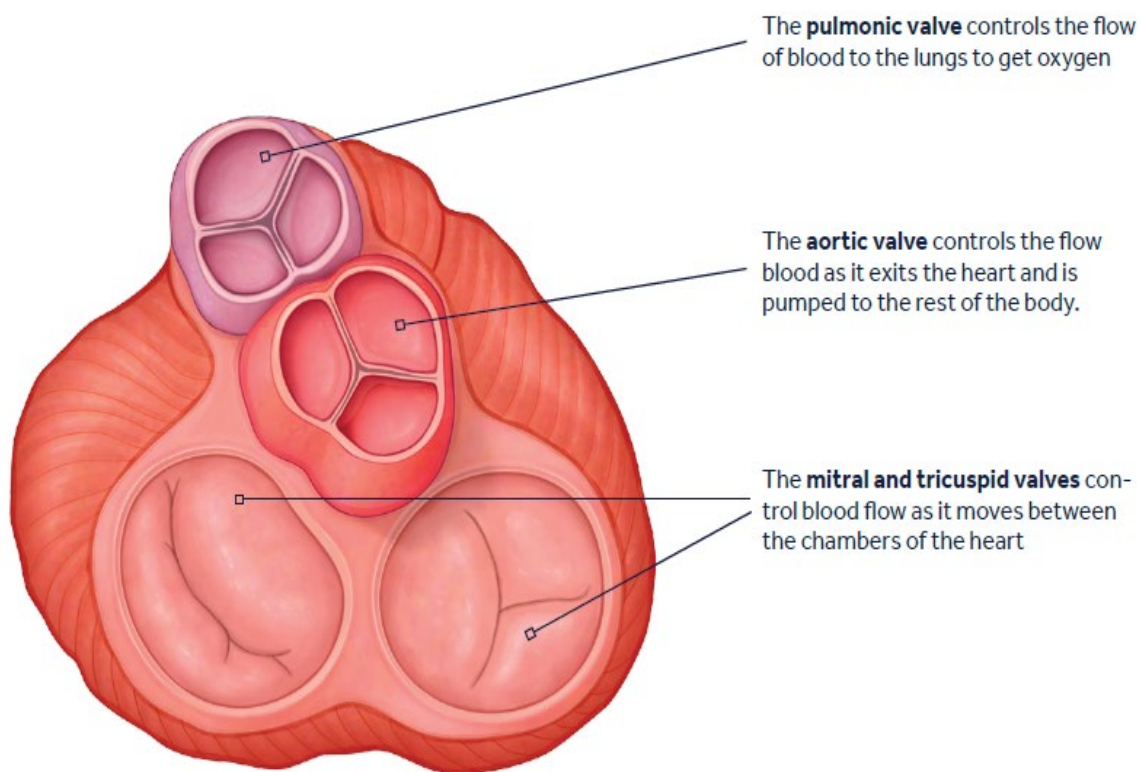


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What Heart Valves Do

Heart valves open when the heart pumps to allow blood to flow. They close quickly between heartbeats to make sure blood does not flow backward. Any trouble in this normal flow will make it hard for the heart to pump the blood where it needs to go.



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What Is Severe Aortic Stenosis

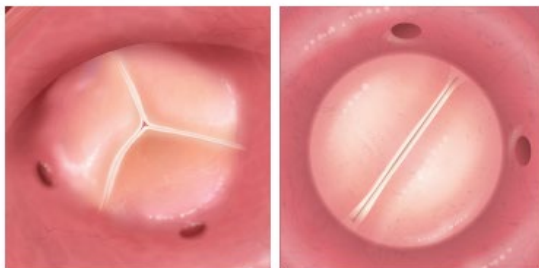
Severe aortic stenosis prevents the aortic valve leaflets from opening and closing properly. This makes the heart work harder to pump blood to the rest of the body. A diseased valve affects health and limits daily activities. Left untreated, severe AS can lead to heart failure or even sudden death.

Some causes of severe aortic stenosis include:

- Age
- Calcium buildup
- Radiation therapy

Symptoms of severe aortic stenosis develop insidiously and often go unrecognized by patients and their physicians. They include, but are not limited to:

- Chest pain
- Dizziness
- Fatigue
- Shortness of breath
- Irregular heartbeat
- Infection of the heart



Tricuspid valve

Bicuspid valve



Tricuspid valve

Bicuspid valve

In a healthy aortic valve, thin leaflets open and close properly. A normal aortic valve has three leaflets. Some people are born with a bicuspid valve, which has only two leaflets.

In a diseased (stenotic) valve, the leaflets become stiff and thickened, limiting the amount of blood pumped out to the body. The increasing pressure within the heart causes it to weaken.

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Surgical Aortic Valve Replacement (SAVR)

SAVR is an option for some people with severe AS. The native valve is removed and replaced with a new valve.

SAVR often includes the following:

- The chest is opened to access the heart.
- The heart is stopped.
- A machine pumps blood through the patient's body.
- The diseased valve is removed.
- The new valve is sewn into place.
- Patients may be in the hospital for more than a week.

Medtronic Transcatheter Aortic Valve Implantation (TAVI)

The Medtronic TAVI valve is another option for people with severe AS. It does not require open heart surgery. It is implanted using an artery that leads to the heart. The Medtronic TAVI valve is made from pig heart tissue. This tissue valve is held by a metal frame. It is designed to work like your own heart valve.

The Medtronic TAVI valve is recapturable, allowing a physician to accurately position a new heart valve.

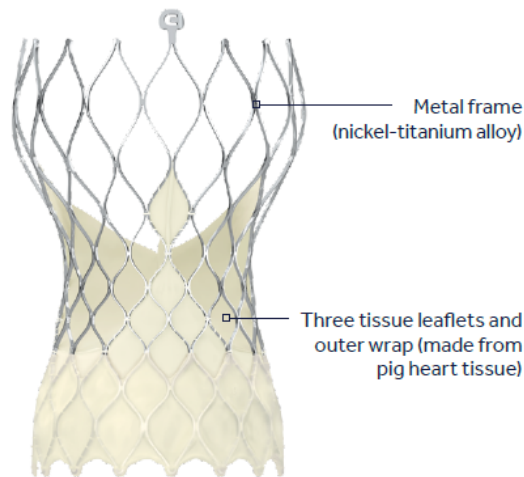


Image is bigger than actual valve.

Medtronic

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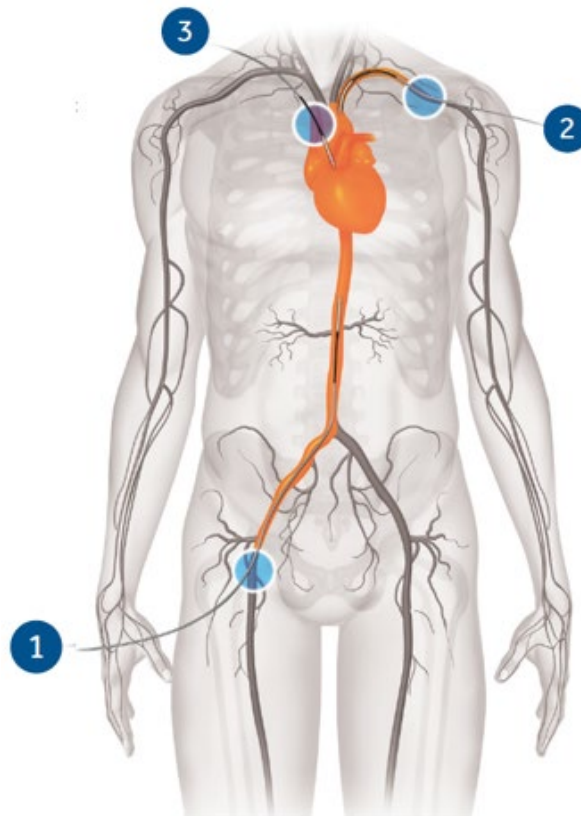
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How Does the Medtronic TAVI Valve Get to the Heart?

The arteries in the body are like a system of roads. They branch out from the heart. There are different "routes" that doctors can use to get to the heart.

These include:

- An artery in the leg (1)
- An artery in the neck (2)
- A space between the ribs (3)
- Or another entry point determined by a physician.



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A Typical Medtronic TAVI Valve Procedure

1. Because each patient is different, doctors will determine if a patient should be fully asleep during the 1-2 hour procedure.
2. The doctor will make a cut and guide a long tube (sheath) into the patient's artery.
3. The Medtronic TAVI valve is guided in position within the diseased heart valve or failing surgical valve. (Figures 1 and 2)
4. The new Medtronic TAVI valve will begin opening and closing. (Figure 3)
The doctor will conduct a test to confirm it is working properly.
5. The thin, flexible tube will be removed, the cut will be closed, and the operation will be complete.

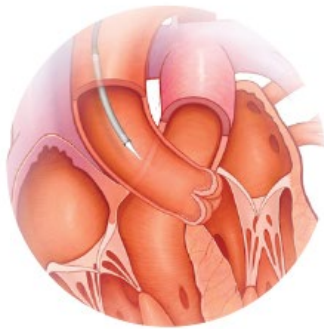


Figure 1
Catheter with
Compressed Valve

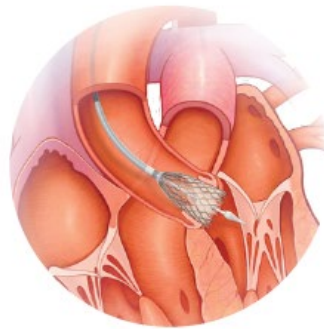


Figure 2
Valve Starting to Expand

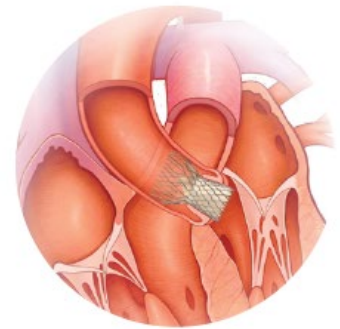


Figure 3
Valve Fully Expanded