

Getting to the HEART of the matter



he heart is an amazing organ. This fist-sized organ is responsible for pumping oxygenated and nutrient-rich blood throughout your body.

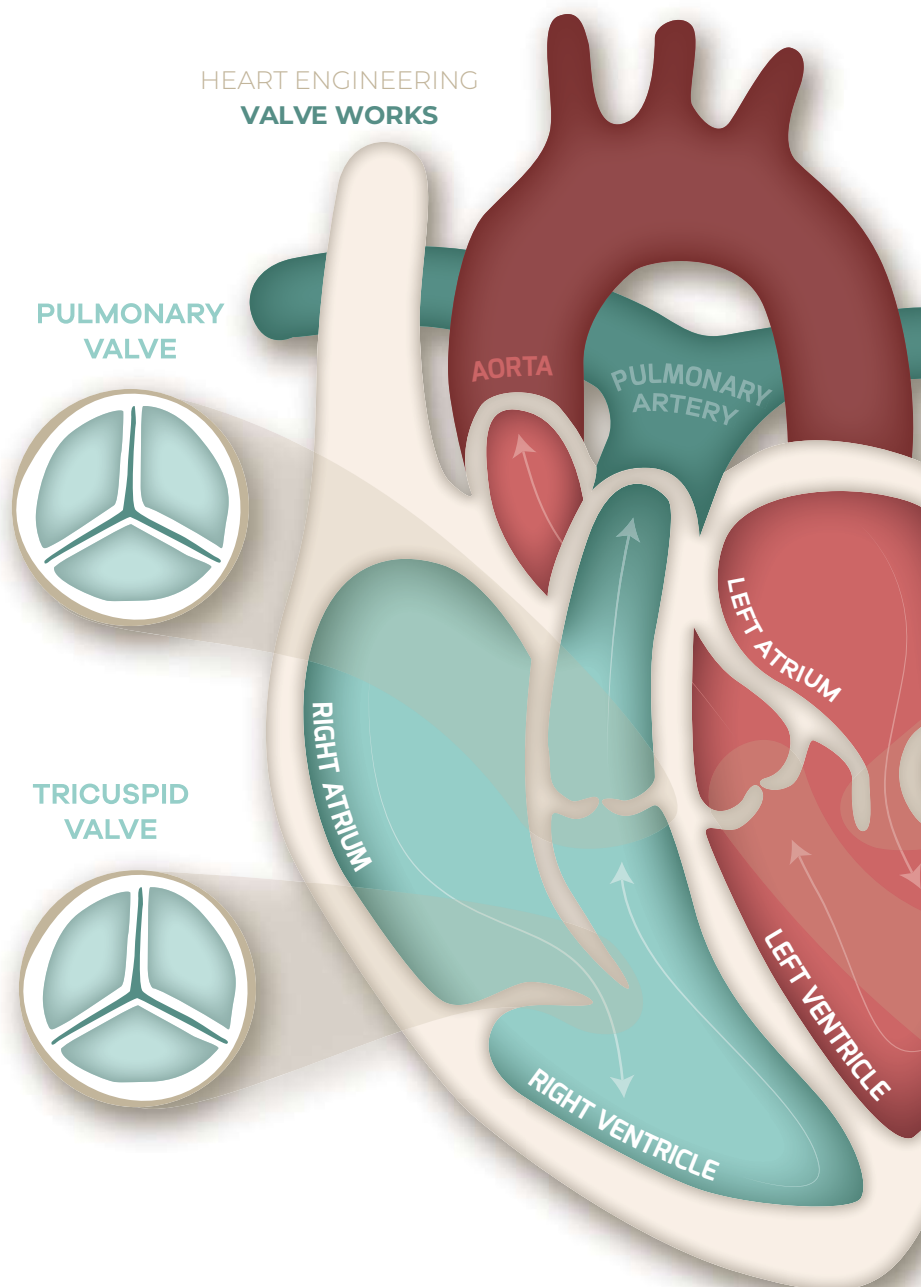
The inner works of a heart can be divided into two sides – the left and right side. Each side has two chambers, where the upper chambers are called the atria which receives blood from the veins while the bottom chambers called ventricles, pump blood into the arteries. The heart valves lie at the exit of each chamber to maintain one-way blood flow through your heart.

Valvular heart disease (VHD) occurs when the heart valves don't work the way they should.

In total harmony, the heart valves work together in sync to ensure blood flows in a forward direction. The mitral and tricuspid valves control the flow of blood between the atria and the ventricles. The pulmonary valve controls the flow of blood from the heart to the lungs while the aortic valve controls blood flow between the heart and aorta which then distributes to the rest of the body. Often, the mitral and aortic valves are affected by **valvular heart disease**.

In **valvular heart disease**, there are two valve types – stenosis and incompetent. A stenotic valve is when the valve does not fully open due to stiffness or fused leaflets. An incompetent valve also known as leaky, and just as the name suggests, does not close tightly thus leaking blood back into the adjacent chamber it just exited.

HEART ENGINEERING VALVE WORKS



INSIDE THE DISEASED VALVE



Normally open



Does not open properly

STENOSIS



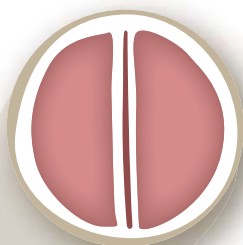
Normally close



Does not close properly

INCOMPETENT

MITRAL
VALVE



AORTIC
VALVE

Sometimes the cause of **VHD** is unknown. **Valvular heart disease** can be present at birth, or it may develop later in life. Your risk of developing heart valve disease can be influenced by several factors:

Advanced age. Valve leaflets thicken and become less pliable as we age.

WHAT CAUSES THE *lubb-dupp* SOUND OF A HEARTBEAT

Lubb is the sound made when the tricuspid & mitral valves close at the beginning of a **systole**.

Dubb is the sound made when the aortic & pulmonary valves close at the beginning of a **diastole**.

Family history. Bicuspid aortic valve disease is a congenital heart valve disease that could run in families where the aortic valve has two leaflets instead of three. In Marfan's syndrome, also a congenital disease that affects connective tissues, can affect the shape of the heart valve.

Hypertension. High blood pressure can overwork and enlarge your heart. Over time, the tissue surrounding the valves stretch, causing a leak.

Autoimmune diseases. Lupus and rheumatoid arthritis are inflammatory illnesses that can attack and damage the heart valve leaflets.

Chemotherapy and radiation. Drugs prescribed in cancer treatment can compromise heart valve function. Radiation therapy may also be associated with **valvular heart disease**.

Diet medications. Some diet drugs have been linked to promoting **valvular heart disease**.

Infections. Untreated strep throat can result in rheumatic fever which leads to heart valve inflammation. This fever

usually occurs in children, however symptoms of heart valve damage may not be seen until 20-40 years later.

Another bacterial infection, endocarditis, occurs when bacteria enter the bloodstream and attack the heart valves. People with **valvular heart disease** should practise extra precaution when you proceed with any dental procedures or surgery.

Other infections such as syphilis are also known to affect the heart valves.

Other causes of heart valve disease include heart attack, cardiomyopathy, coronary artery disease, metabolic disorders like Fabry's disease, aortic aneurysm, and carcinoid tumors.

HEART *murmurs*

are sounds of your blood flowing through your heart valves – like a swishing, whooshing sound in your heartbeat cycle. **Most heart murmurs are innocent and do not require any treatment.** However, there are exceptions as it could be indicative of a damaged or an overworked heart valve. Your doctor may advise you to undergo some diagnostic tests to confirm if you have **valvular heart disease**.