

DESCRIPTION OF THE HEART

The heart is a muscle about the size of your fist; it lies behind into the left of an individual's breast bone or sternum. The purpose of the heart is to pump blood into the blood vessels, arteries and vein and to all part of the body. The inside of the heart is divided into four chambers and the top two chambers are called the atria and are collection chamber for blood . The bottom two chambers are called the ventricle which receives the blood from the atria and pump it to the lungs and the body. The chambers are separated by valves which controls the direction of blood flow.

Four valves;

1. Mitral valve
2. The aortic valve
3. Tricuspid valve
4. Pulmonary valve

Circulation begins at the right side of the heart where blood from the body comes to the right atrium, this blood passes to the right ventricle where it is pumped to the lungs to receive oxygen, once it receives oxygen, it flows to the left atrium and then to the left ventricle where it is pumped to the aorta and the rest part of the body. On the right side of the heart, the tricuspid valve separates the right atrium and the right ventricle allowing blood to enter the ventricle but not flow backward to the atrium. Blood flows through the pulmonary valve to go to the lungs. On the left side of the heart the mitral valve separates the left atrium and the left ventricle, blood flows from the left ventricle to the aorta through the aortic valve and to the rest of the body. Arteries carry blood with oxygen and other nutrients throughout the body. Veins take blood back to the heart which pumps it to the lungs to be oxygenated. The heart artery, coronary arteries provides oxygen and nutrients to the heart muscles. The right coronary arteries provide blood to the bottom and back of the heart. The left coronary arteries split into two vessels, one branch provides blood to the front of the heart, the other branch delivers blood to the left side of the heart. An electric system transmits signal throughout the

heart to control its pumping, the electrical signal starts in the S.A node which is located in the upper portion of the right atrium and is known as the natural pacemaker of the heart, the electrical signal passes down to the lower chamber of the heart by the atrium ventricular or A.V node which controls the signals so the atrium contracts before the ventricles. In the ventricles pathways carries the signal throughout the muscles so they contract at the same time to pump blood to the lungs and to the body.

Five congenital anomalies

1. Hole in the Heart (Septal Defect)

This means you're born with a hole in the wall, or septum, that separates the left and right sides of your heart. The hole lets blood from the two sides mix.

2. Atrial Septal Defect (ASD)

An ASD is a hole in the wall between the upper chambers, or the right and left atria, of your heart. A hole here lets blood from the left atrium mix with blood in the right atrium. Some ASDs close on their own. Your doctor may need to repair a medium or large ASD with open-heart surgery or another procedure. He might seal the hole with a minimally invasive catheter procedure. He inserts a small tube, or catheter, in your blood vessel all the way to your heart. Then he can cover the hole with a variety of devices.

3. Ventricular Septal Defect (VSD)

A VSD is a hole in the part of your septum that separates your heart's lower chambers, or ventricles. If you have a VSD, blood gets pumped back to your lungs instead of to your body. A small VSD may also close on its own. But if yours is larger, you may need surgery to repair it.

Complete Atrioventricular Canal Defect (CAVC)

This is the most serious septal defect. It's when you have a hole in your heart that affects all four chambers. A CAVC prevents oxygen-rich blood from going to the right places in your body. Your doctor can repair it with patches. But some people need more than one surgery to treat it.

4. Ebstein Anomaly

Ebstein anomaly is a rare heart defect that affects the tricuspid valve (one of the heart's four valves). It happens because of a problem with how the valve forms before a baby's birth. Anomaly means "something different." In Ebstein anomaly, the "something different" is the position of the tricuspid valve and the way its parts move. Illustration:

Ebstein's Anomaly

The tricuspid valve sits between the upper right chamber (right atrium) and the lower right chamber (right ventricle) of the heart. Normally, when the heart

muscle relaxes, this valve is open, allowing blood to flow into the right ventricle. When the right ventricle squeezes to pump blood out of the heart, the tricuspid valve's three "leaflets" close to prevent backward leakage of blood from the right ventricle to the right atrium.

In Ebstein anomaly, the valve is sunken into the right ventricle, and one or two of its leaflets are stuck to the heart wall. The third leaflet is usually floppy. This prevents the valve from working well. Often, the valve can't close completely, so blood leaks back through the tricuspid valve into the right atrium. When a lot of blood leaks backwards, this enlarges the right atrium and makes the right ventricle smaller.

Less commonly, the tricuspid valve in Ebstein anomaly is tight, preventing normal forward flow from the right atrium to the right ventricle. In some cases,

the right ventricle is too small to pump enough blood to meet the body's needs. All of these problems may make it harder for the heart to pump blood efficiently.

Truncus Arteriosus

Truncus arteriosus (TRUNG-kus ar-teer-ee-OH-sus) is a heart defect that happens when a child is born with one large artery carrying blood to the lungs and body instead of two separate arteries.

What Causes Truncus Arteriosus?

The aorta and the pulmonary artery begin as a single vessel. During normal fetal heart development, this large vessel splits to form the two arteries. If that split does not happen, the baby is born with a single common blood vessel called the truncus arteriosus.healthy heart illustration

In some children, this happens because of a genetic defect, 22q11 deletion syndrome (also called DiGeorge syndrome). In other children, it's not yet known why it happens.

What Happens in Truncus Arteriosus?

Normally, two arteries carry blood out of the heart – the pulmonary artery (which carries oxygen-poor blood from the right ventricle to the lungs) and the aorta (which carries oxygen-rich blood from the left ventricle to the rest of the body).

But in truncus arteriosus, the arteries didn't become separate – instead, a baby's heart has one large artery. [truncus arteriosus illustration](#)

Almost all children with truncus arteriosus also have a ventricular septal defect (VSD) – a hole in the wall between the right ventricle and left ventricle. This hole lets oxygen-rich blood mix with oxygen-poor blood and go through the single artery to the body and the lungs. Because of this, the lungs can get too much blood flowing into them, which can lead to problems, such as damage to the lungs' blood vessels and the heart needing to pump extra hard.

The valve that sits between the heart and the large truncus artery is often abnormal as well. This valve may be leaky or tight, or even both at the same time.