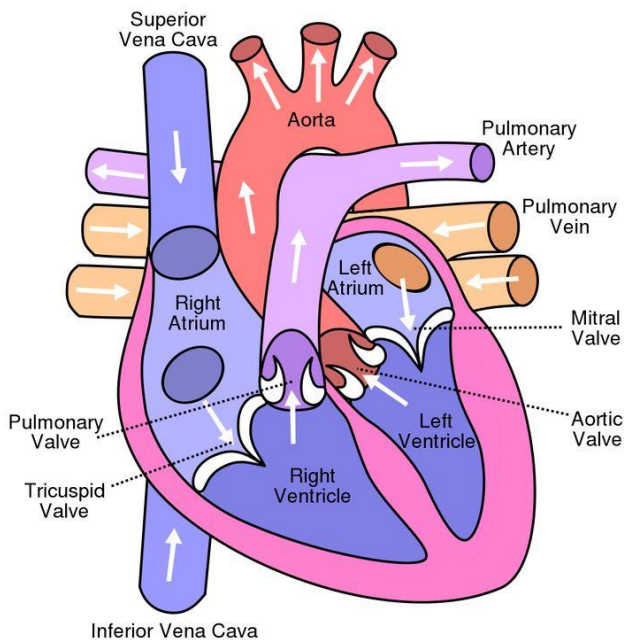


## THE HEART

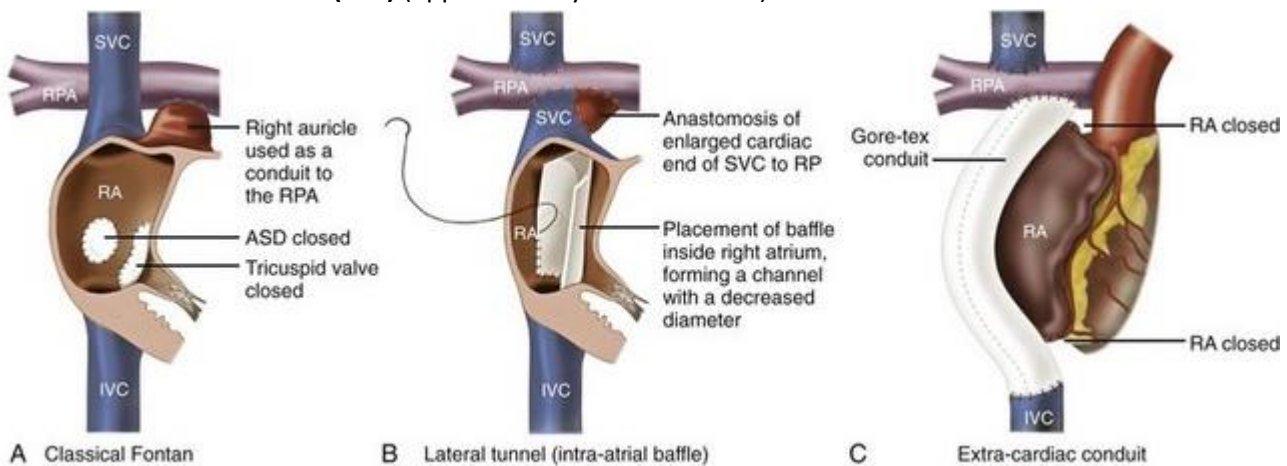


- The heart weighs between 250 – 350 gms
- An adult heart beats about 60-80 times per minute.
- The heart pumps about 5.7 litres of blood throughout the body.
- Congenital heart defects are conditions that affect the heart prior to birth. They are the **most common** type of birth defect.
- The heart is made up of four chambers, the left atrium, right atrium, left ventricle and right ventricle.
- Electricity going through your heart makes the muscle cells contract.

## THE THREE TYPES OF FONTAN PROCEDURES:

Which may be performed with or without **fenestration** include:

- Atrio-pulmonary (AP) connection** (Classical Fontan) (up to approximately 1989)
- Lateral tunnel (LT)** (or Total Cavopulmonary Connection - TCPC) (approximately 1989-1997)
- Extra-Cardiac Conduit (ECC)** (approximately 1997 onwards)



### **How does the Fontan procedure work?**

After the Fontan procedure, the blood without oxygen comes back from the body directly in the lungs, without being pushed by the heart. There are two main driving forces allowing this flow into the lungs:

- 1) **Increased pressure in the veins.** Instead of a pressure of 0-5 millimeter of mercury (the equivalent of the weight of a column of water of 1 square centimetre over a height of 5 centimeter, very little), the pressure in the veins after a Fontan procedure is around 15-20 millimeter of mercury.
- 2) **Breathing.** As you breathe in, the size of the inside of the chest is increased, and the air is sucked in the airways. At the same time, the blood is sucked into the lungs. When you breathe out, the opposite occurs. The size of what is inside of the chest is reduced and the air is pushed out of the lungs. At the same time, the blood is pushed out of the lungs. The breathing acts like a pump for the blood flowing passively in and out of the lungs.

That is why it is important for patients who had a Fontan operation to have good lungs. It has been shown that after Fontan, the blood circulates better in the body of those who keep exercising.



## GLOSSARY OF COMMONLY USED TERMS

**Anticoagulant:** Medicines that reduce the ability of the blood to clot (thin the blood) e.g., Warfarin & Aspirin.

**Artery:** A blood vessel that carries blood away from the heart.

**Arrhythmia:** A disturbance in the normal heart rhythm.

**Atresia:** Complete obstruction to a valve or blood vessel (e.g., Tricuspid Atresia)

**Atrial Septal Defect (ASD):** A defect (hole) in the atrial wall, that allows blood to bypass from one atrium to the other.

**Atrium:** One of the two blood collecting chambers at the top of the heart.

**Brady:** Prefix meaning 'slow' (e.g., Bradycardia = slow heart rate)

**Coarctation:** An area of narrowing in an artery (usually the Aorta)

**Conduit:** A tube (e.g., GoreTex) used to surgically connect one part of the circulation to another (e.g., to bypass an obstructed valve/blocked artery or in extra cardiac conduit Fontan)

**Diuretics:** Medicine which helps the body get rid of excess fluid which may build up in the lungs or elsewhere (e.g., Lasix, Aldactone)

**Fenestration:** A surgically created opening between the tunnel (conduit) and heart

**Hypoplastic:** Referring to a structure that is underdeveloped or smaller than normal. (e.g., Hypoplastic left ventricle)

**Hypotension:** Refers to *lower* (↓) than normal blood pressure.

**Hypertension:** Refers to *higher* (↑) than normal blood pressure.

**Inferior Vena Cava (IVC):** The largest vein in the body, which carries deoxygenated blood from the lower and middle parts of the body into the right atrium.

**Mitral Valve:** The valve at the junction between the left atrium and left ventricle.

**Pulmonary Artery:** The main artery carrying blood from the heart to the lungs.

**Pulmonary Valve:** Controls the flow of blood out of the right ventricle & prevents backflow.

**Superior Vena Cava (SVC):** A large vein that receives blood from the head, neck, upper extremities, and delivers it to the right atrium.

**Tachy:** Prefix meaning 'fast' (e.g., Tachycardia = faster than normal heart rate)

**Tricuspid valve:** The valve at the junction between the right atrium and right ventricle.

**Veins:** Blood vessels which carry blood back to the heart, after it has circulated around the body.

**Ventricle:** One of two muscular chambers at the bottom of the heart, which pump blood out to the body.

**Ventricular Septal Defect (VSD):** A defect (hole) between the 2 ventricle walls, which allows blood to shunt from one ventricle to another.