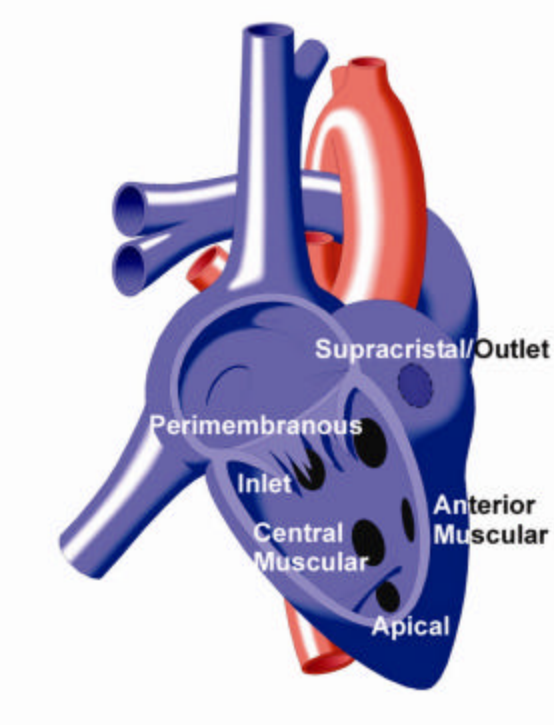
Ventricular Septal Defect

A Ventricular Septal Defect (VSD) is a hole in the ventricular septum - the muscular wall that separates the right and left ventricles, or main pumping chambers, of the heart.

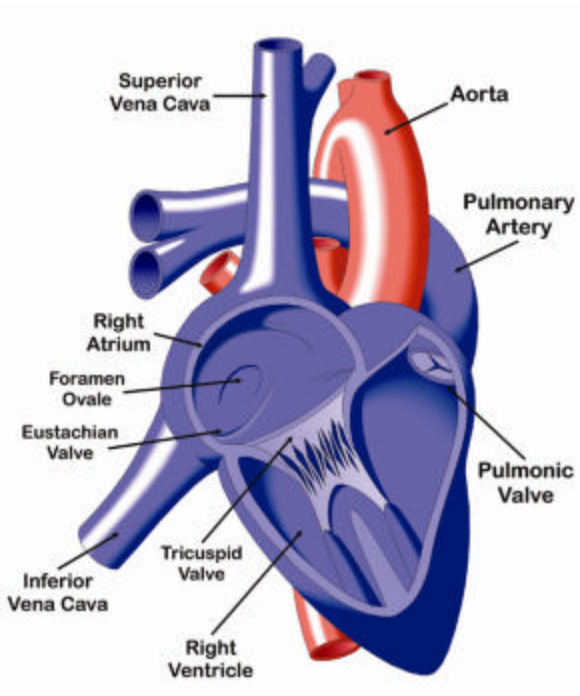
This opening allows the movement, or "shunting," of blood between the ventricles. Most commonly, oxygenated blood from the left ventricle enters the right ventricle because there is greater pressure in the left ventricle and the resistance in the lungs is significantly lower than in the body tissues. This is known as a "left to right shunt."

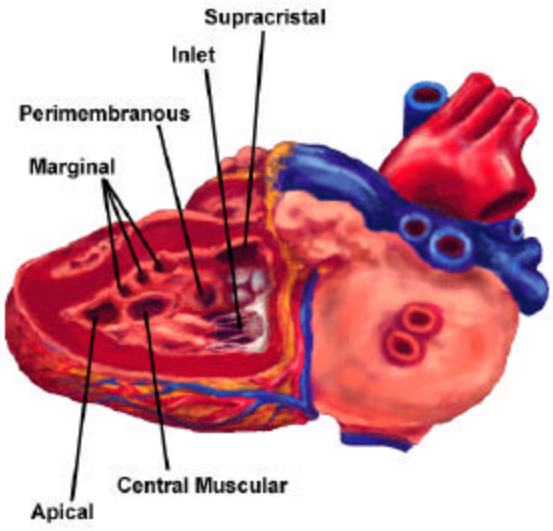
Ventricular septal defects are the most common forms of congenital heart disease, accounting for 21% of all cases. They may be single or multiple and may occur in different parts of the ventricular septum.

Small holes usually close spontaneously in the first year or two of life. Large holes almost always require surgical closure in the first year of life. VSDs may be present with other heart defects (For example, Tetralogy of Fallot.)



In a left to right shunt, blood that just returned from the lungs crosses the VSD and goes back to the lungs again. This causes increased pulmonary (lung) blood flow. A heart murmur occurs because there is a pressure difference between the two ventricles and there is turbulent blood flow crossing the hole. The smaller the hole, the louder the murmur.





Top and Above:
Types of ventricular septal defect.

Left: Normal Heart

Ventricular Septal Defect (VSD) affects boys and girls with equal frequency. Children with VSD are affected differently depending on the size, location, and number of holes in the ventricular septum. Small holes generally cause little or no difficulty and often close naturally as the child grows.

Larger holes may interfere with a child's feeding and growth and may cause rapid breathing, irritability, excessive sweating, and poor weight gain. The vessels which carry blood from the heart to the lungs and back again may become congested, or overloaded, with blood, resulting in congestive heart failure (CHF). This usually occurs when the child is 6 to 8 weeks old.

With large VSDs, the lungs are receiving increased blood under higher than normal pressure. This can result in pulmonary hypertension (high blood pressure in the pulmonary artery). If this pressure becomes too high, the heart may be unable to function properly.