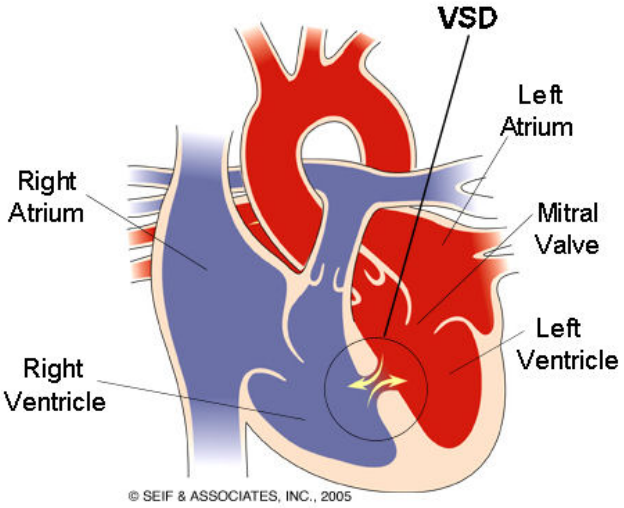
# Ventricular Septal Defect (VSD)

You or your child have a ventricular septal defect (VSD). A ventricular septal defect is a hole in the heart. This hole is located in the *septum* (wall) between the *ventricles* (the large muscular chambers) of your heart. This is something you are born with. It is often found during the first couple months of life during a routine exam. The size of the hole and where it i located in the heart will determine whether a person experiences symptoms of VSD. Most teens with VSD probably do not remember having it. It either goes away on its own or is discovered so early in childhood that there is no memory of any surgery or recovery.




Your heart is made up of four chambers: the right and left *atria* (the top chambers of the heart), and the right and *left ventricles* (bottom chambers). Your heart and all of your blood vessels are called the circulatory system.

Blood from the body is returned to the right atrium. This acts like a holding tank and pumps it into the right ventricle. The right ventricle then pumps blood through the lungs. In the lungs the blood picks up oxygen from the air in your lungs and leaves behind a waste (*carbon dioxide*). This blood from the lungs then empties into the left atrium. This is also like a holding tank. The blood is then pumped into the left ventricle. The large muscular left ventricle then pumps blood to the rest of the body.

## SYMPTOMS

Young people who have small VSD's that have not closed yet often do not notice problems. The only problem may be the murmur their caregiver hears when listening to the heart. Your child may need to see their caregiver on a regular basis for followup.

Moderate and large VSD's that have not been treated in childhood may notice some symptoms. These may include:

- Shortness of breath
- Poor appetite
- A feeling of tiredness or weakness that is greater during exercise
- Trouble gaining weight

Improvements in medicine allow most people to be treated long before the VSD ever causes physical symptoms.

## DIAGNOSIS

- A chest X-ray. This produces a picture of the heart and surrounding area.
- An electrocardiogram (EKG). This test records the electrical activity of the heart.
- An echocardiogram (echo). This uses sound waves to create a picture of the heart.
- A cardiac catheterization. This procedure provides information about the heart structures as well as blood pressure and oxygen levels within the heart chambers.

## TREATMENT

Once a person is diagnosed with a VSD, treatment will depend on:

- Age
- The size of the hole
- Where the hole is located

VSD's do not enlarge with time. They may close by themselves without treatment or stay the same. Following

are some treatments or suggestions:

- A child or teen with a small defect that causes no symptoms may simply need to visit a *pediatric cardiologist* (heart doctor specializing in children) regularly. This is to make sure that there are no problems.
- In young people, a small defect will often close on its own without surgery. Usually there are no activity limitations.
- For people with medium to large VSD's, surgery may be necessary to close the defect. In most cases, this surgery takes place in young children within the first two years of life.
- Sometimes surgery for a ventricular septal defect is done during adolescence. Until their VSD's are corrected, some people with larger VSD's may need to take medication to help the heart pump more efficiently or to help the body get rid of extra fluids. VSD surgery involves making a cut in the chest so a surgeon can stitch the hole closed or sew a patch of surgical material over the defect. The tissue of the heart eventually heals over the patch or stitches. By 6 months after the surgery, the hole will be completely covered with tissue.
- Instead of surgery, some people with VSD's may have a procedure known as cardiac catheterization. A thin, flexible tube called a catheter is inserted into a blood vessel. A surgeon then guides the tube into the heart and inserts a device that helps to close off the VSD permanently. After healing from surgery or having catheterization, teens with VSD's are considered cured. They should have no further symptoms or problems.
- People who have their VSD's corrected will need to take antibiotics for 6 months to protect against *bacterial endocarditis.* This is an infection of the inner surface of the heart. Six months to one year after surgery, most VSD patients are considered cured and no longer need to worry about bacterial endocarditis.

## HOME CARE INSTRUCTIONS

- People with VSD's need to take *antibiotics* (medications that kill germs) before having dental work or other surgical procedures. This is called prophylactic antibiotic treatment. These drugs help to prevent bacterial endocarditis. Let your dentist and your caregiver know that you or your child have a VSD so that they can take precautions.
- Avoid body piercings. This increases the possibility that bacteria can enter the body and infect the heart. Body piercing puts people with VSD's at risk of developing bacterial endocarditis. If you or your child are considering a piercing and you have a heart defect, talk to your caregiver.

## SEEK IMMEDIATE MEDICAL CARE IF THERE IS:

- Poor eating
- Shortness of breath
- You have an oral temperature above 102° F (38.9° C), not controlled by medicine.
- *Malaise* (feelings of depression or unease)
- Poor weight gain or sudden weight gain

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