

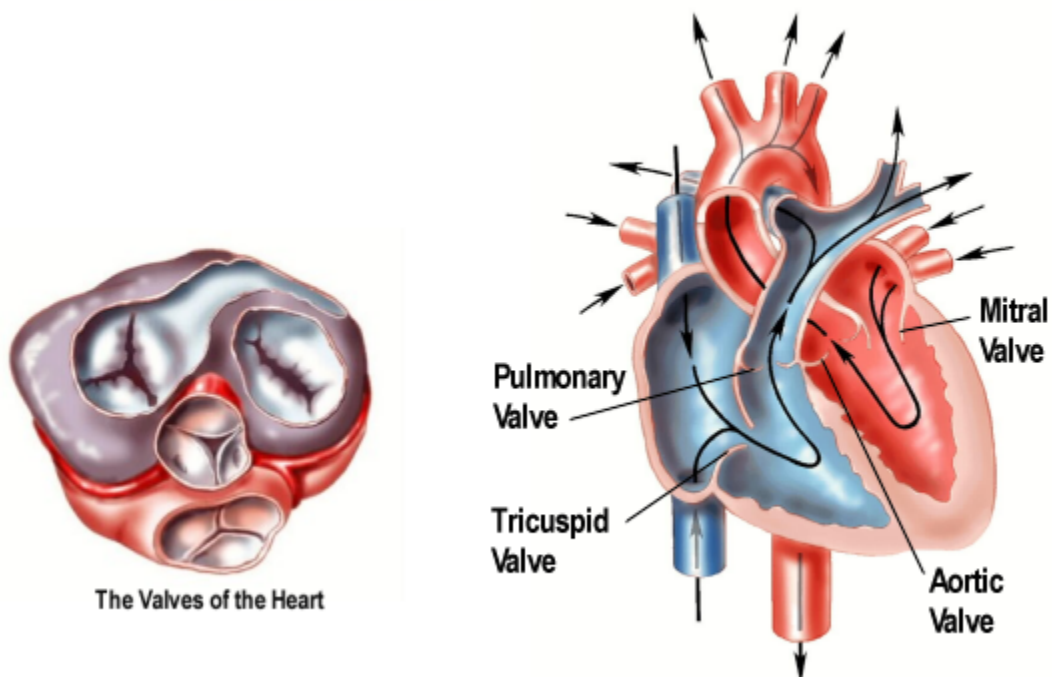
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**PULMONARY STENOSIS**

**What is Pulmonary Stenosis (PS) ?**

The pulmonary valve regulates blood flow from the right ventricle of the heart into the lungs, and prevents blood from flowing back into the right ventricle of the heart. This is important because your lungs supply oxygen to the blood and remove waste products. Pulmonary stenosis refers to an abnormal narrowing of the pulmonary valve or pulmonary artery, which can block the smooth flow of blood into the lungs.

In PS, blood flow to the lungs is reduced, and, consequently, the amount of blood getting oxygenated is less than normal. This can be a very mild condition or a severe condition, depending on the amount of narrowing and its effect on the blood supply to the lungs.



If left untreated, pulmonary stenosis can cause complications. The right ventricle is forced to work harder against the blocked pulmonary valve, which causes thickening of the muscular wall of the right ventricle (called hypertrophy). Eventually, the right ventricle's ability to pump diminishes, which can cause a quick onset of problems.

PS is usually not a medical emergency, but it is advisable to seek treatment early rather than later to avoid complications.

**What causes pulmonary stenosis?**

Pulmonary stenosis is most often a "congenital abnormality", which means that the abnormality was present at birth. The defect may occur alone, or with other heart defects. The condition can be mild or severe. It affects about 1 out of 8000 infants.

Pulmonary stenosis can also occur later in life as a result of conditions that cause damage or scarring of the heart valves. This includes rheumatic fever, endocarditis, and other disorders.

### **What are the symptoms of pulmonary stenosis?**

It is important to note that symptoms are not experienced until and unless the disorder is mild-to-moderately severe. Symptoms can be aggravated by exercise, and can include:

- shortness of breath
- fatigue
- bluish coloration to the skin (rare)
- chest pain
- fainting
- poor weight gain or failure to thrive in infants

### **How is pulmonary stenosis diagnosed?**

Your doctor may listen to the patient's heart with a stethoscope for a heart murmur.

Certain diagnostic tests and/or imaging procedures can help diagnose pulmonary stenosis. They include:

- a chest X-ray
- an ECG
- an echocardiogram
- cardiac catheterization
- Doppler ultrasound

The diagnosis usually is obvious on medical examination.

### **How is pulmonary stenosis treated?**

Treatment is aimed at restoring the smooth flow of blood into the lungs.

In some cases, treatment may not be required.

Surgical repair of the defect (heart valve surgery) is usually performed in preschool-aged children. Oxygen may be required prior to surgery if symptoms are severe. Medications used before surgery may include diuretics to remove the excess fluid, digoxin or antiarrhythmics to improve the heart function, and anticoagulants to prevent clots.

For many years, surgery was the only effective treatment for PS. Recently, catheter-based therapy has increased in popularity. This involves the placement of a catheter with a balloon on its end into the narrow pulmonary valve (similar to an "angioplasty" balloon catheter). The catheter is introduced through a small needle-stick in the groin or forearm and guided into the heart, and positioned in the pulmonary valve. The balloon is inflated, which expands the narrowed valve. Catheter-based therapy avoids the

drawbacks of surgery - pain, a scar on the chest, long in-hospital stay, and higher cost. However, in certain circumstances, catheter-based treatment is not an option.

Your doctor will discuss the treatment alternatives for you, and will consider your specific situation.

Most patients operated for pulmonary stenosis go on to lead normal lives. The risk of late complications is very low. In most children, as growth occurs, the pulmonary valve also becomes larger, and this itself reduces the stenosis to some extent. The potential problems are rhythm disturbances and "late" pulmonary valve leak due to injury at the time of operation.