



## Patent Ductus Arteriosus (PDA)

Note: before reading the specific defect information and the image(s) that are associated with them, it will be helpful to review [normal heart function](#).

### What is it?

The ductus arteriosus is a leftover fetal artery connecting the main body artery (aorta) and the main lung artery (pulmonary artery). If this artery stays open (patent) after birth, it's called a patent ductus arteriosus.

### What causes it?

The ductus arteriosus is a normal fetal artery connecting the main body artery (aorta) and the main lung artery (pulmonary artery). The ductus allows blood to detour away from the lungs before birth.

Every baby is born with a ductus arteriosus. After birth, the opening is no longer needed and it usually narrows and closes within the first few days.

Sometimes, the ductus doesn't close after birth. Failure of the ductus to close is common in premature infants but rare in full-term babies. In most children, the cause of PDA isn't known. Some children can have other heart defects along with the PDA.

### How does it affect the heart?

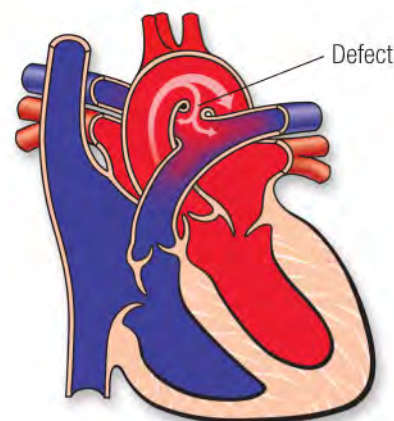
Normally the heart's left side only pumps blood to the body, and the right side only pumps blood to the lungs. In a child with PDA, extra blood gets pumped from the body artery (aorta) into the lung (pulmonary) arteries. If the PDA is large, the extra blood being pumped into the lung arteries makes the heart and lungs work harder and the lungs can become congested.

### How does PDA affect my child?

If the PDA is small, it won't cause symptoms because the heart and lungs don't have to work harder. The only abnormal finding may be a distinctive type of murmur (noise heard with a stethoscope).

If the PDA is large, the child may breathe faster and harder than normal. Infants may have trouble feeding and growing at a normal rate. Symptoms may not occur until several weeks after birth. High pressure may occur in the blood vessels in the lungs because more blood than normal is being pumped there. Over time this may cause permanent damage to the lung blood vessels.

Patent Ductus Arteriosus





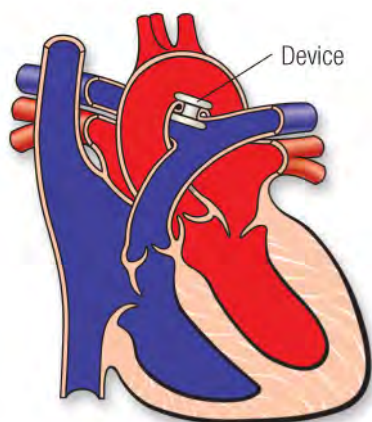
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### What can be done about the PDA?

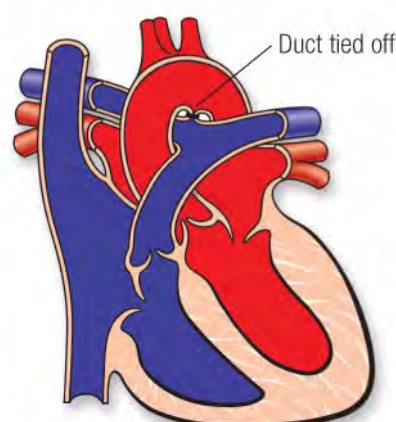
If the PDA (ductus) is small, it doesn't make the heart and lungs work harder. Surgery and other treatments may not be needed. Small PDAs often close on their own within the first few months of life.

Most children can have the PDA closed by inserting catheters (long thin tubes) into the blood vessels in the leg to reach the heart and the PDA, and a coil or other device can be inserted through the catheters into the PDA like a plug. The figure below in the left shows one example of how a catheterization is used to close the ductus. If surgery is needed, an incision is made in the left side of the chest, between the ribs. The ductus is closed by tying it with suture (thread-like material) or by permanently placing a small metal clip around the ductus to squeeze it closed. If there's no other heart defect, this restores the child's circulation to normal. In premature newborn babies, medicine can often help the ductus close. After the first few weeks of life, medicine won't work as well to close the ductus and surgery may be required.

Closure by Device



Closure by Tying Off



### What activities can my child do?

If the PDA is small, or if it has been closed with catheterization or surgery, your child may not need any special precautions regarding physical activity and may be able to participate in normal activities without increased risk.

As far as follow up in the future, depending on the type of PDA closure, your child's pediatric cardiologist may examine it periodically to look for uncommon problems. The long-term outlook is excellent, and usually no medicines and no additional surgery or catheterization are needed.