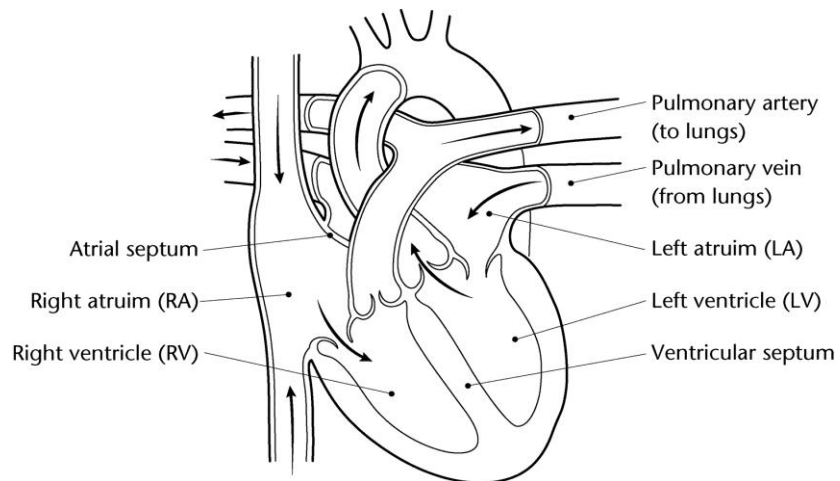


## Patent Ductus Arteriosus (PDA)

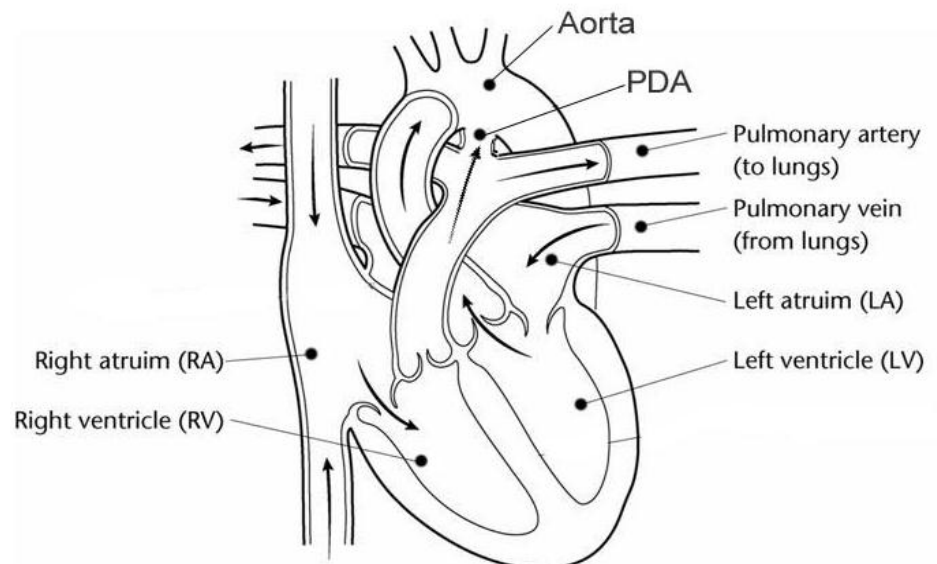
The ductus arteriosus is a blood vessel that is formed during fetal growth to provide blood flow between two of the major arteries in the baby's body while in the womb. Within minutes or up to a few days after birth, the ductus arteriosus closes. This change is normal in newborns.

**Picture 1** A normal heart after the ductus arteriosus blood vessel has closed.



In some babies, however, the ductus arteriosus remains open (patent) which is why it is called a patent ductus arteriosus (said like: pay tent DUCK tuss ar teer ee OH siss). This lets blood flow directly from the aorta into the pulmonary artery. This can make the heart work harder than it should if it is allowed to remain open.

**Picture 2** A heart with the patent ductus arteriosus still open.



## When Does PDA Happen?

PDA can happen to any healthy baby, but PDA may be more common in:

- Premature infants (babies born too early).
- Female children (PDA is twice as common in girls than boys).
- Infants with other genetic conditions such as Down syndrome.
- Infants whose mothers had German measles (rubella) during pregnancy.

## Signs and Symptoms

A heart murmur (an extra or unusual sound heard during the heartbeat) may be the only sign that a baby has a PDA. Other signs or symptoms the heart is working too hard are:

- Fast breathing, working hard to breathe, or shortness of breath.
- Low oxygen levels in premature infants. This may require oxygen or ventilator support.
- Not feeding well
- Poor weight gain
- Getting tired easily
- Sweating during a feeding

## Diagnosis

For full-term infants, the baby's doctor first looks for a PDA after hearing a heart murmur at a check-up visit. The doctor will usually ask a children's heart doctor (pediatric cardiologist) to give the child an exam. Premature babies may not have the same signs of a PDA as full-term babies. Doctors may look for a PDA in babies who have trouble breathing soon after birth.

Two harmless and painless tests are used to diagnose a PDA:

- **Echocardiogram.** This test uses sound waves to make a moving picture of your baby's heart and major blood vessels and how blood flows through them. The test lets the doctor see any problems with the way the heart is formed and the way it is working. This test will diagnose the problem and follow it over time. It shows how large the PDA is and how well the heart is working with it.
- **EKG** (electrocardiogram). This test records the electrical activity in the heart. It can show how large the heart chambers are and any other small changes that might be signs of PDA.

## Treatment

Sometimes, the PDA shrinks and goes away completely without treatment. Other times, treatment may be needed to close the opening. Treatment may be different depending on your child's problems and age. Your child's doctor will talk with you about treatment choices and help you to make the decision. There are 3 choices for treatment that the doctor may talk about:

- Medicine
- A catheter-based procedure
- Surgery

If your baby is born with certain types of heart problems that need the PDA to stay open, **medicine may be used to keep the PDA open** until surgery can be done to correct the heart defect.

## Medicines

- **Indomethacin** (in doh METH ah sin) is a medicine that helps to close a PDA in premature infants because it causes the PDA to tighten up (constrict) which closes the opening. It does not usually work in full-term infants.
- **Ibuprofen** (EYE boo pro fen) is a medicine like indomethacin. It is often used to close a PDA in premature infants.
- If a PDA is small, the doctor may not treat it right away.
- **Antibiotics** will be given in some cases to prevent infection of the heart until the PDA is closed. This type of infection is called *endocarditis*.

## Catheter-Based Procedure

- The procedure is called cardiac catheterization (KATH i ter i ZA shun).
- This procedure is the most common way to close the ductus arteriosus and can be done for older babies and patients. Your baby will be given medicine to go to sleep and will not feel any pain or discomfort.
- The doctor will put a long, thin tube, called a catheter, in a large blood vessel in the upper thigh (groin). The doctor will use cameras to move the catheter from the groin to the ductus arteriosus. Your baby's chest will not need to be opened during the procedure.
- A small, metal coil or other blocking device is passed up through the catheter and placed in the ductus arteriosus. This device will block blood flow through the vessel.
- Problems with this procedure do not happen often. If they do happen, they do not last long and may include bleeding, infection and movement of the device.

## Surgery

- Surgery may not be done until after 6 months of age in infants who do not have health problems from the PDA.
- Your child will be given medicine to go to sleep. He or she will feel no pain during the surgery.
- The surgeon will make a small cut between your child's ribs to reach the PDA. The PDA is closed with stitches or clips.
- Problems with this procedure do not happen often. If they do happen, they do not last long and may include hoarseness, infection, bleeding, or fluid around the lungs. The baby may need a machine to help with breathing for a short period of time, but this is rare.
- Surgery for PDA may be done if the catheter procedure does not work or is not possible. It may also be done if the baby already has surgery planned for other heart problems.

## After Surgery

- Your child will be in the hospital for a few days. Most children go home 2 days after surgery.
- Medicines will be given for pain or anxiety. If you think your child is having pain or discomfort at home, talk to the doctor or nurse about different things to do for pain.
- The doctors and nurses at the hospital will teach you how to care for your child at home. You will also learn how to give your child medicine if needed.
- Normal, everyday activity is allowed. **However, your child may not play contact sports until the doctor says it is okay.**
- Follow-up appointments with your child's doctors are scheduled.
- Long-term problems from this surgery do not happen often. The doctor will talk to you about these possible problems.

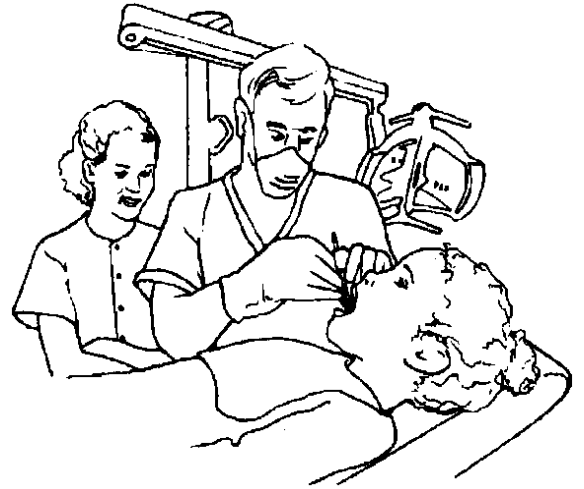
## Living with PDA

- If your child was born full-term with no other heart problems, it is likely he or she will have a healthy, normal life after treatment for a PDA.
- If your child was born prematurely, life after a PDA treatment depends on other things. This includes how early the child was born, if the child has other problems, and the level of care needed.

*Continued on page 5...*

## Living with PDA, continued

- All children with an open PDA have a higher risk of infection of the heart, called bacterial endocarditis. Your child will need antibiotics before any dental work and certain procedures to prevent this infection. It is important to take good care of your child's teeth to prevent tooth decay and infection.
- After the PDA is closed, your child will not need antibiotics before dental work or surgical procedures. If the PDA is closed with surgery or by catheter, and stays completely closed, antibiotics will only be needed for 6 months after the surgery.
- If you have questions, ask your doctor or nurse, or call \_\_\_\_\_.



Regular dental care is important to reduce the chance of infection.