

## Atrioventricular Canal Defect

### What is it?

Many terms are used to describe this complex defect. They include atrioventricular (AV) canal, complete AV canal, complete common AV canal and endocardial cushion defect.

Atrioventricular (AV) canal defect is a large hole in the center of the heart. It's located where the wall (septum) between the upper chambers (atria) joins the wall between the lower chambers (ventricles). This septal defect involves both upper and lower chambers. Also, the tricuspid and mitral valves that normally separate the heart's upper and lower chambers aren't formed as individual valves. Instead, a single large valve forms that crosses the defect in the wall between the two sides of the heart.

### What causes it?

In most children, the cause isn't known. It's a very common type of heart defect in children with a chromosome problem, Trisomy 21 (Down syndrome). Some children can have other heart defects along with AV canal.

### How does it affect the heart?

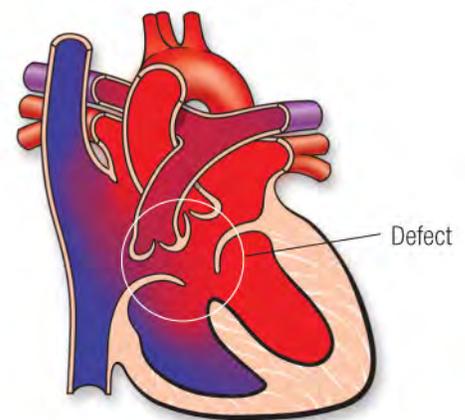
Normally, the left side of the heart only pumps blood to the body, and the heart's right side only pumps blood to the lungs. In a child with AV canal defect, blood can travel across the holes from the left heart chambers to the right heart chambers and out into the lung arteries. The extra blood being pumped into the lung arteries makes the heart and lungs work harder and the lungs can become congested.

### How does the AV canal defect affect my child?

A child with AV canal defect 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 causes permanent damage to the lung blood vessels.

In some infants, the common valve between the upper and lower chambers doesn't close properly. This lets blood leak backward from the heart's lower chambers to the upper ones. This leak, called regurgitation or insufficiency, can make the heart work harder, too.

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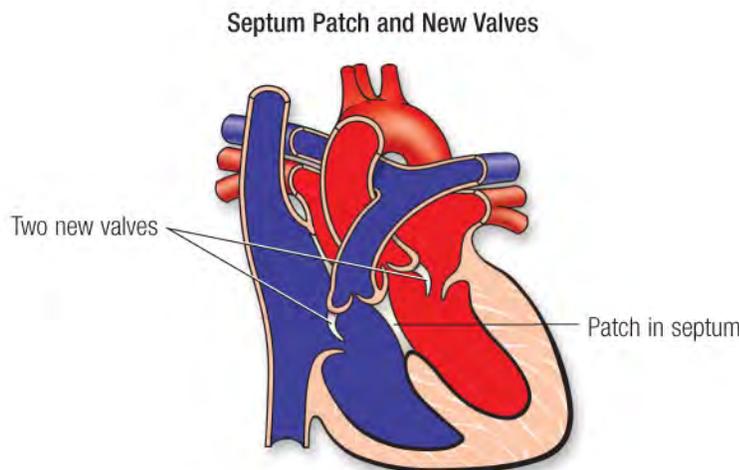
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### What can be done about the defect?

An AV canal can be fixed. Open-heart surgery is needed to repair the defect. Unlike some other types of septal defects, the AV canal defect can't close on its own. Medicines may be used temporarily to help with symptoms, but they don't cure the defect or prevent permanent damage to the lung arteries.

In an infant with severe symptoms or high blood pressure in the lungs, surgery must usually be done in infancy. During the operation, the surgeon closes the large hole with one or two patches. Later the patch will become a permanent part of the heart as the heart's lining grows over it. The surgeon also divides the single valve between the heart's upper and lower chambers and makes two separate valves. These will be made as close to normal valves as possible.

If an infant is very ill, or has a defect that may be too complex to repair in infancy, a temporary operation to relieve symptoms and high pressure in the lungs may be needed. This procedure (pulmonary artery banding) narrows the pulmonary artery to reduce the blood flow to the lungs. When the child is older, an operation is done to remove the band and fix the AV canal defect with open-heart surgery.



### What activities can my child do?

If the AV canal defect has been closed with surgery, your child may not need any special precautions regarding physical activities and may be able to participate in normal activities without increased risk. Being physically active is healthy for the cardiovascular system, but some children may need to limit their activity. Discuss this with your child's pediatric cardiologist.

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### **What will my child need in the future?**

After surgery your child must be examined regularly by a pediatric cardiologist. More medical or surgical treatment is sometimes needed.

Surgical repair of an AV canal usually restores the blood circulation to normal. However, the reconstructed valve may not work normally. The valve structures can leak or narrow. But, for many children, the long-term outlook is good, and usually no medicines or additional surgery are needed.

### **What about preventing endocarditis?**

Children with AV canal defect may risk endocarditis both before and after repair. Ask about your child's risk of endocarditis and about your child's need to take antibiotics before certain dental procedures.