

Atrial Septal Defects

One of every 150 infants (more than 32 000) is born with a structural heart defect each year in the United States. A hole or opening through the wall of tissue separating the **atria** (the heart's upper chambers) is called an **atrial septal defect (ASD)** and accounts for 10% of all congenital heart defects. There are 3 types of atrial septal defects; the most common type is called a **patent (open) foramen ovale (PFO)**—a small opening between the 2 atria that assists blood circulation in the fetus and is present at birth. Shortly after birth, the foramen ovale usually closes gradually. In infants with a persistent hole, there is an increased workload of the right side of the heart with excessive blood flow to the lungs. Symptoms associated with this condition (shortness of breath, fainting, and **cyanosis**—bluish coloring of the skin due to low oxygen levels in the blood) may be absent or so mild that they go unnoticed; 2% to 3% of healthy adults have a small PFO. The December 27, 2006, issue of *JAMA* includes an article on increased risks of respiratory problems and heart failure associated with a patent foramen ovale in mountain climbers.

DIAGNOSIS

Hearing a heart **murmur** (abnormal blood flow) or a split heart sound during a physical examination may be a sign that an ASD may be present. Additional tests are often needed to help make the diagnosis.

- Chest x-ray—with an ASD, the heart may be enlarged.
- Echocardiogram—a procedure using sound waves to evaluate the structure and function of the heart. It can show the pattern of blood flow through a septal defect and determine the size of the opening.
- Electrocardiogram—a test that records the electrical activity of the heart. Sometimes with an ASD, this test may show an abnormal rhythm or problems with electrical conduction.
- Cardiac catheterization—a probe is passed inside the blood vessels up to the heart. It can be used to identify abnormal blood flow and to perform a closure of the defect.

TREATMENT OPTIONS

Treatment of an ASD depends on the size, location, and degree of symptoms. To avoid future heart problems, it is often recommended that atrial septal defects be repaired during childhood or early adulthood. Treatment can include a variety of options from catheter-based procedures to open-heart surgery.

HEALTH PROBLEMS RELATED TO ATRIAL SEPTAL DEFECTS

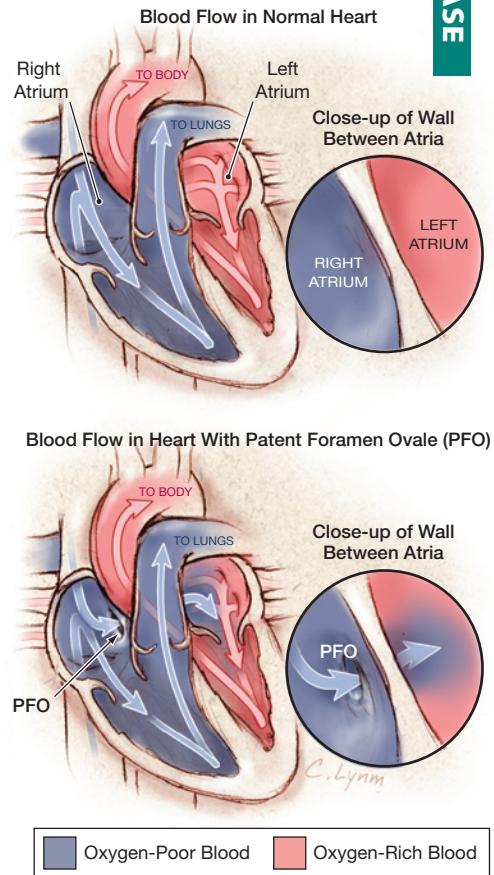
- Right-sided heart enlargement—increased blood flow to the right side of the heart can cause the right heart chambers to enlarge over time.
- Tricuspid valve regurgitation—the valve between the right atrium and ventricle does not close properly. Some blood leaks back (**regurgitation**) into the right atrium.
- Pulmonary hypertension—increased blood to the right side of the heart can increase blood pressure in the lungs.
- Rhythm disturbances—atrial **fibrillation** (irregular beating of the heart).
- Stroke—there is an increased risk of blood clot formation and stroke due to abnormal blood flow or irregular heart rhythm.

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FOR MORE INFORMATION

- American Heart Association
www.americanheart.org
- March of Dimes Birth Defects Foundation
www.marchofdimes.com

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