

Anatomy & Physiology 12

Circulation – Differences in Fetal Circulation

Why the Difference

- differences are necessary due to the fact that the fetus lungs are not functional
- the fetus receives its nutrients and oxygen by means of its mother's blood

There are four major differences between adult and fetal circulation systems.

1. **Oval Opening**
 - an opening between the two atria; this opening is covered by a flap of tissue which acts as a valve
 - allows blood to pass directly from the right atrium into the left atrium
 2. **Arterial Duct**
 - a connection between the pulmonary artery and the aorta
 - allows blood to bypass the pulmonary artery and flow directly into the aorta
 3. **Umbilical Cord**
 - vessels that travel to and from the placenta
 - allows blood to get rid of wastes and receiving nutrients
 4. **Venous Duct**
 - a connection between the umbilical vein and the inferior vena cava at the liver
 - allows blood from the placenta to re-enter the fetus' internal circulatory pathway
- "Blue babies" is a condition which occurs when the oval opening fails to close directly after birth

