

Heart and Circulatory System II

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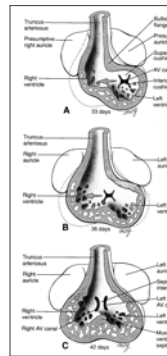
Review

- Venous return (systemic and pulmonary)
- Formation of the primitive ventricles
- Atrial septation

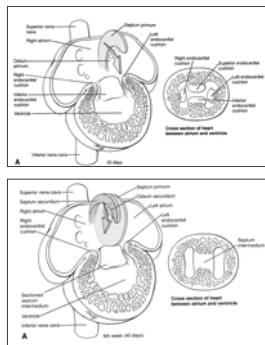
Outline

- Atrioventricular septation: formation of the atrioventricular valves
- Ventricular septation
 - Conotruncal septum
 - Membranous septum
- Development of the great arteries
- Transition from fetal to neonatal circulation
- Congenital heart defects

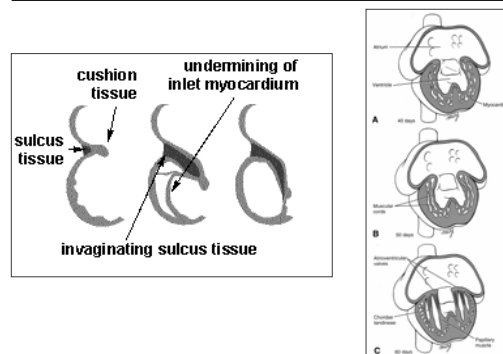
Formation of Primitive Ventricles



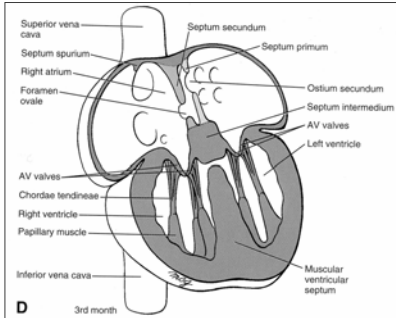
Atrial Septation: Endocardial Cushion Formation



Atrioventricular Valve Formation



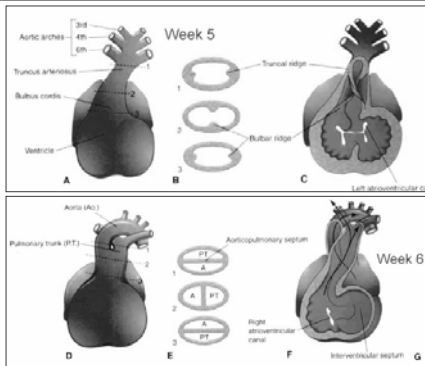
Week 12



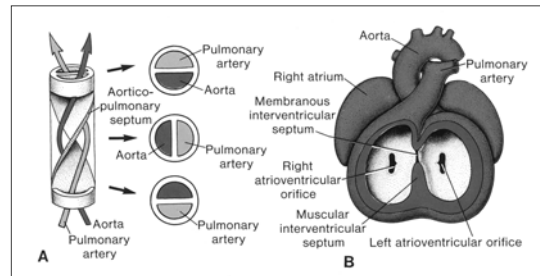
Conotruncal septation

- **Septation of the truncus arteriosus**
 - Aorta
 - Pulmonary artery
- **Ventricular septation**
 - Conotruncal septum

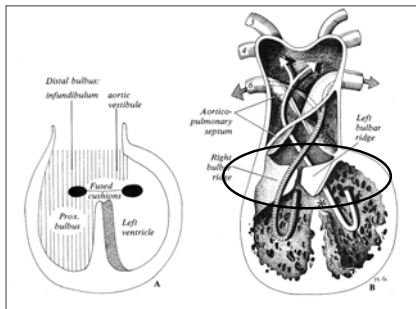
Conotruncal Septation



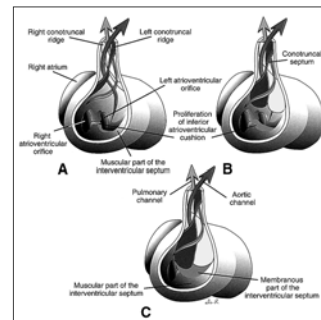
Formation of the Aorta and Pulmonary Artery



Formation of the Conotruncal Septum

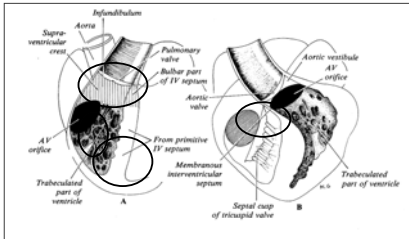


Conotruncal Formation

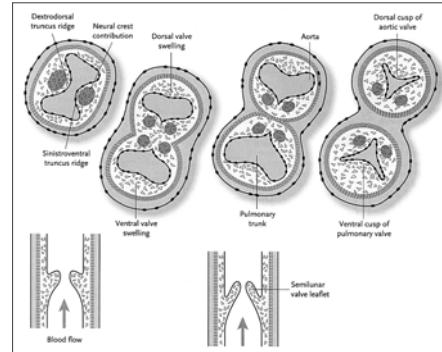


Ventricular Septum

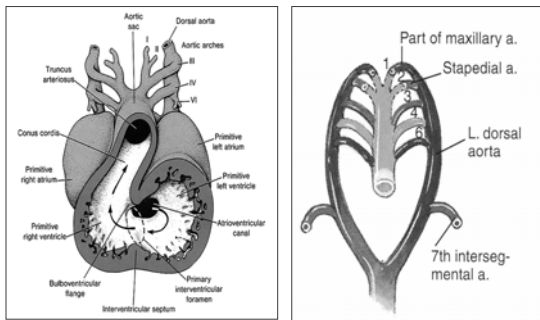
Primitive Septum Conotruncus
Endocardial Cushion Membranous



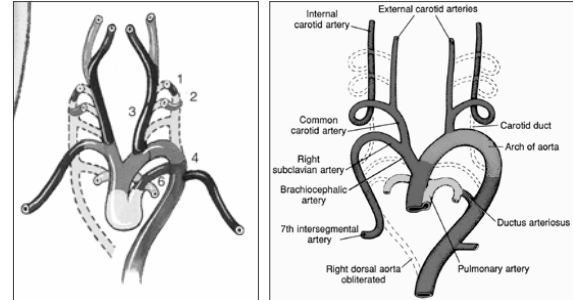
Semilunar Valve Formation



Formation of the Aortic Arch

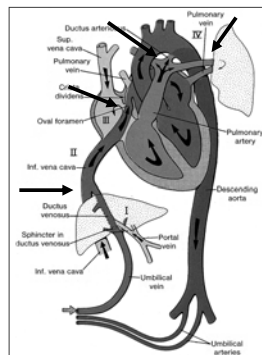


Formation of the Aortic Arch



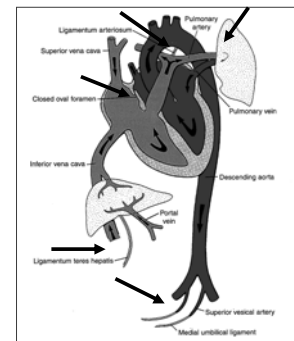
Fetal Circulation

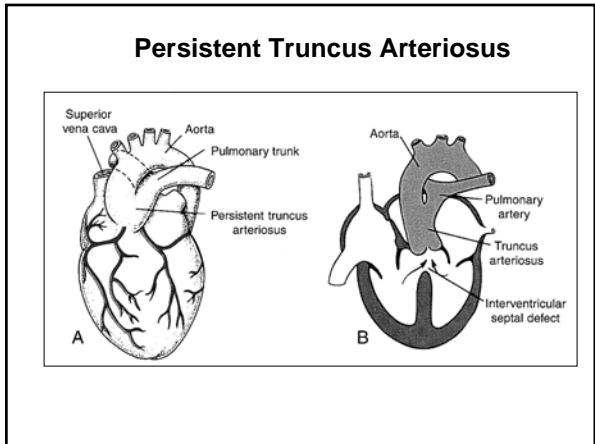
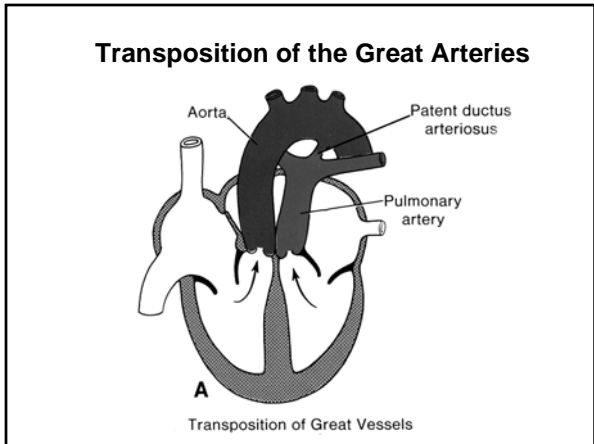
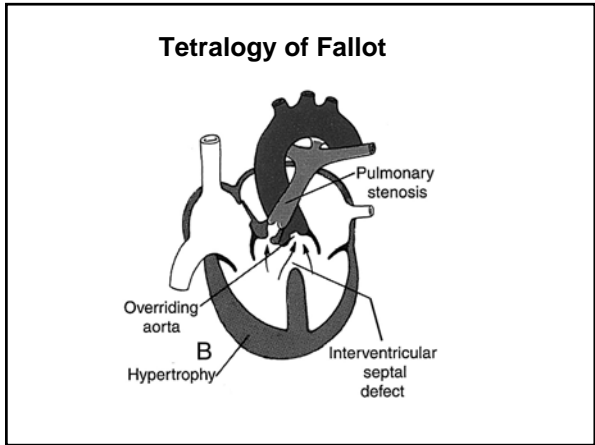
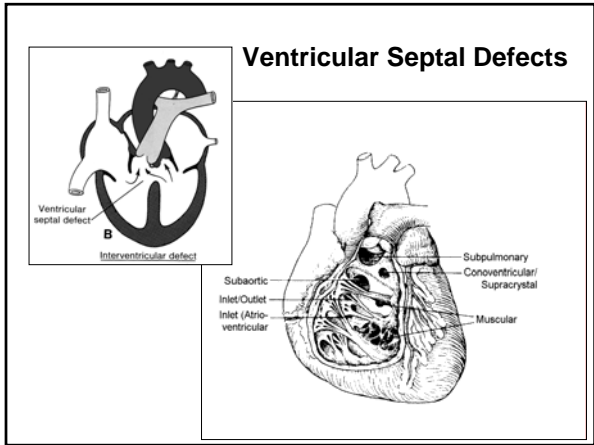
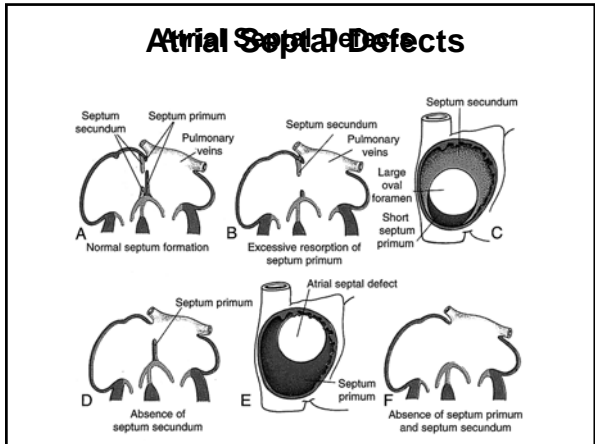
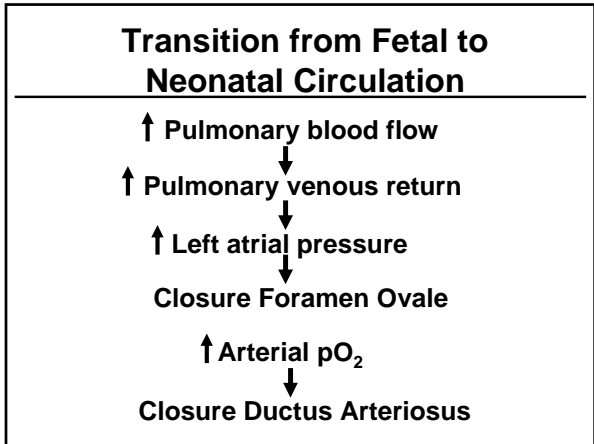
- Placenta supplies oxygenated blood via ductus venosus
- Pulmonary blood flow minimal
- Foramen ovale directs blood to left atrium
- Ductus arteriosus allows flow from PA to descending aorta



Neonatal Circulation

- Separation of maternal and fetal circulations
- Increase pulmonary blood flow
- Closure of foramen ovale
- Closure of ductus arteriosus





Chromosome 22q11 Microdeletion

- Conotruncal malformations
- Malalignment and deficiency of conal septum
- DiGeorge and VCF
- Neural crest migration
- Chromosome 22q11 microdeletions

