

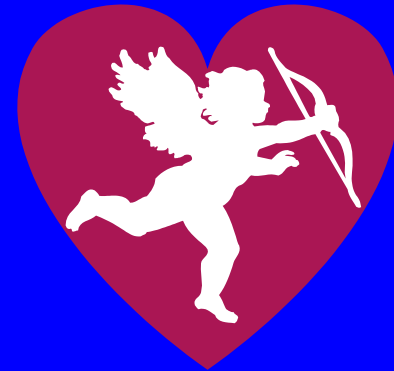
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Circulatory System

The Heart & Blood Flow

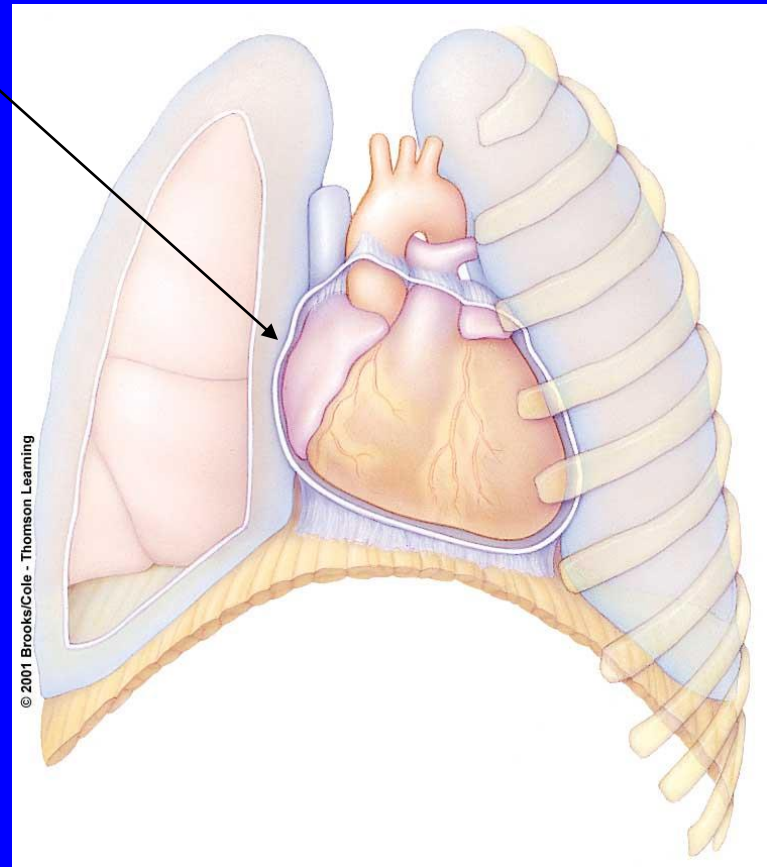
General Description

- Hollow
- 4 Chambers
- About the size of a fist
- Triangular in shape with apex pointed down
- The base of the heart is the superior portion
- The great vessels attach to the base

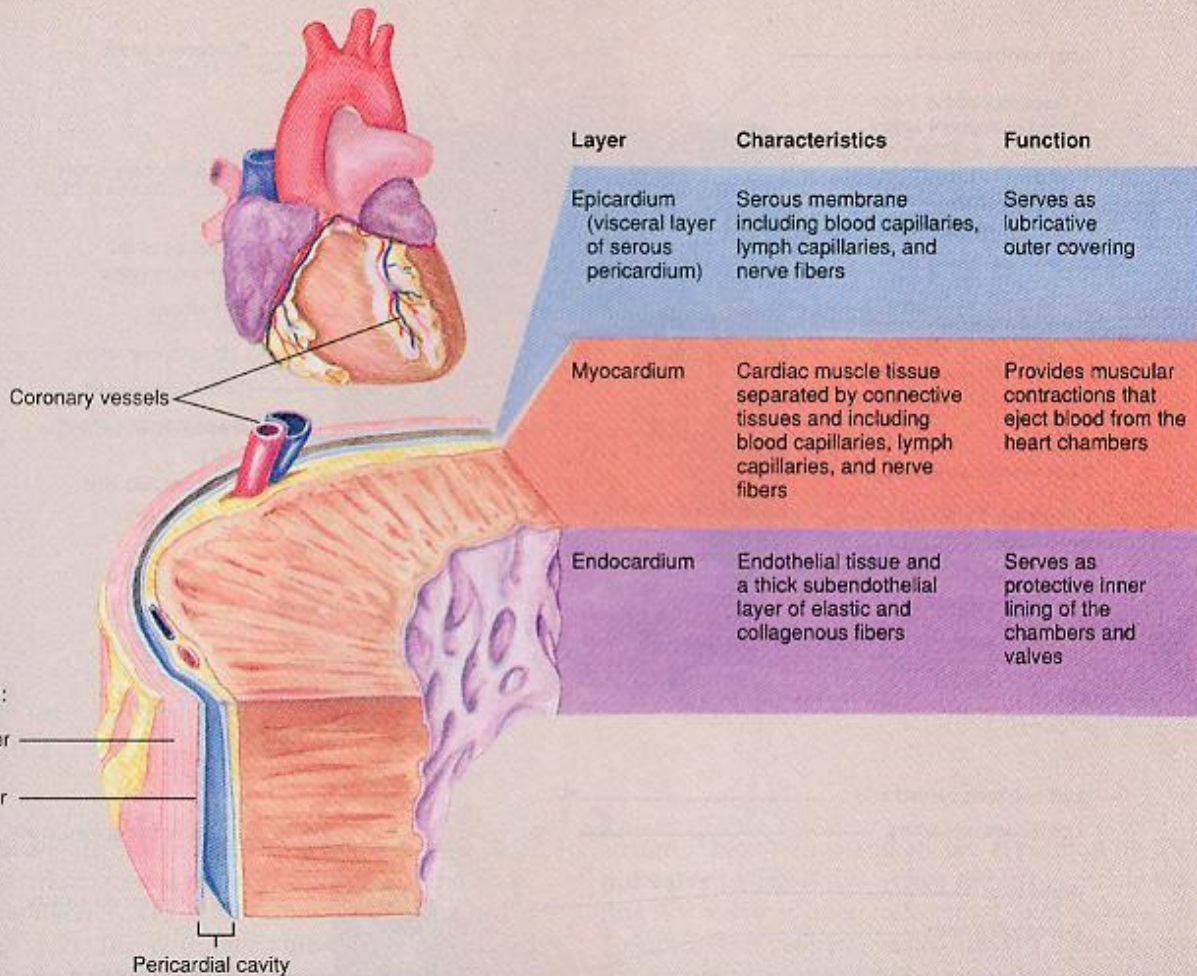


Pericardium

- The heart is surrounded by a loose-fitting sac called the **pericardium**
- The heart beats 42,000,000 times/year and pumps 700,000 gallons of blood



Heart Wall



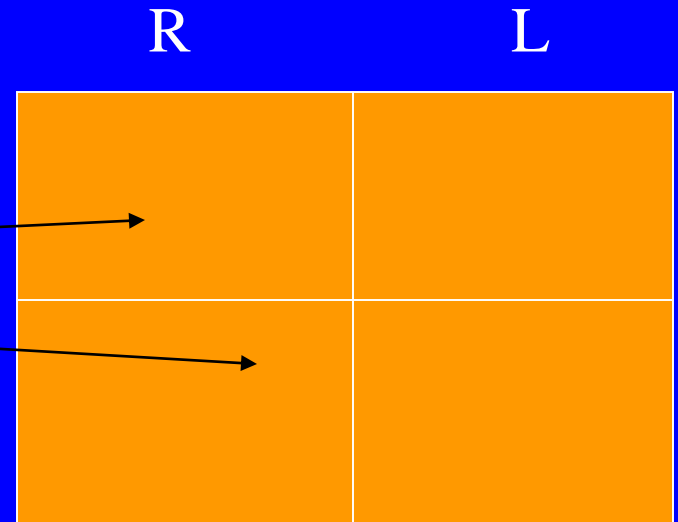
Epicardium – the heart's surface

Myocardium – middle layer, all muscle

Endocardium – the inner layer

Chambers & Valves

- ...is a double pump
- Upper R. & L. atria
- Lower R. & L. ventricles



superior vena cava (from head, upper limbs)

right semilunar valve (shown closed); to the pulmonary trunk

right pulmonary veins (from lungs)

right atrium

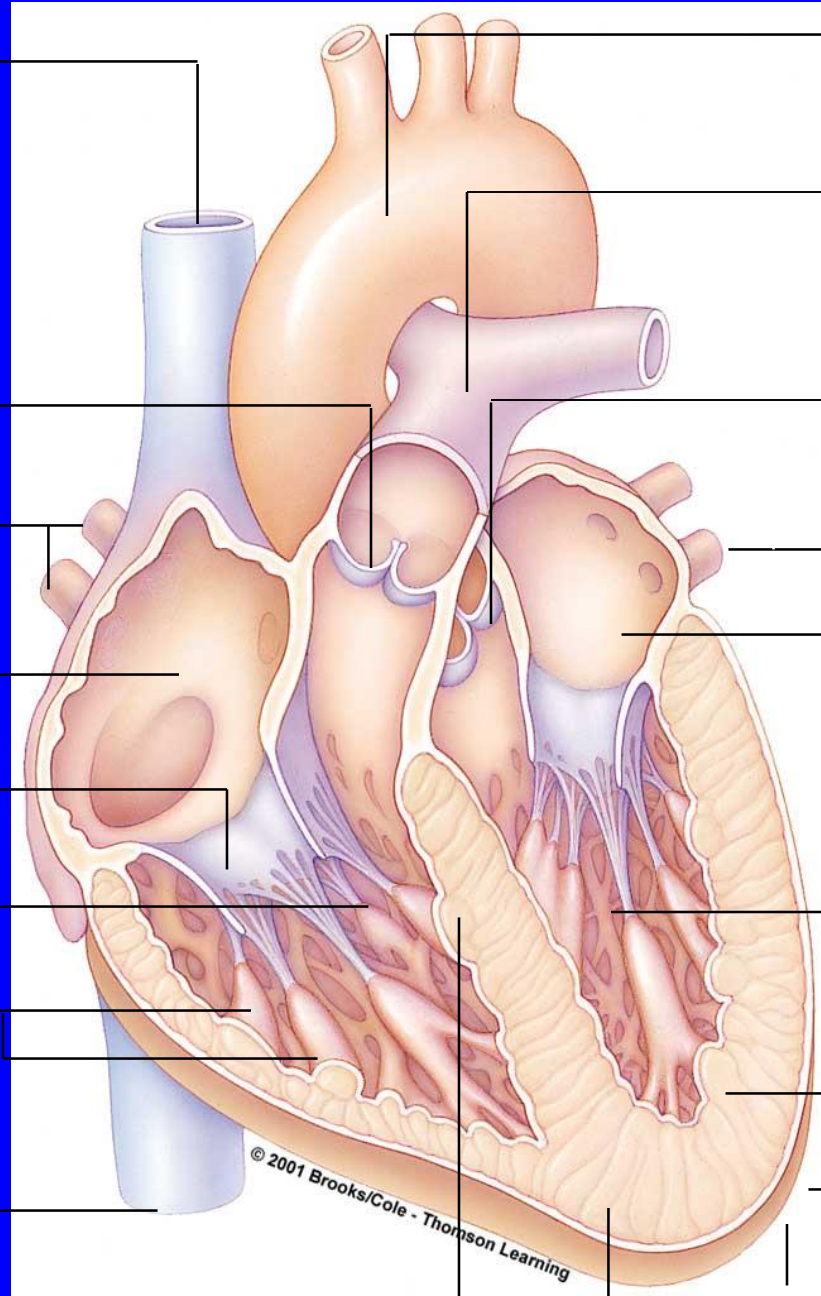
right AV valve (shown open)

right ventricle

(muscles that prevent valve from everting)

inferior vena cava (from trunk, legs)

septum (partition between heart's two halves)



arch of aorta

trunk of pulmonary arteries

left semilunar valve (shown closed); to aorta

left pulmonary veins (from lungs)

left atrium

left AV valve (shown open)

left ventricle

endothelium and underlying connective tissue

inner layer of pericardium

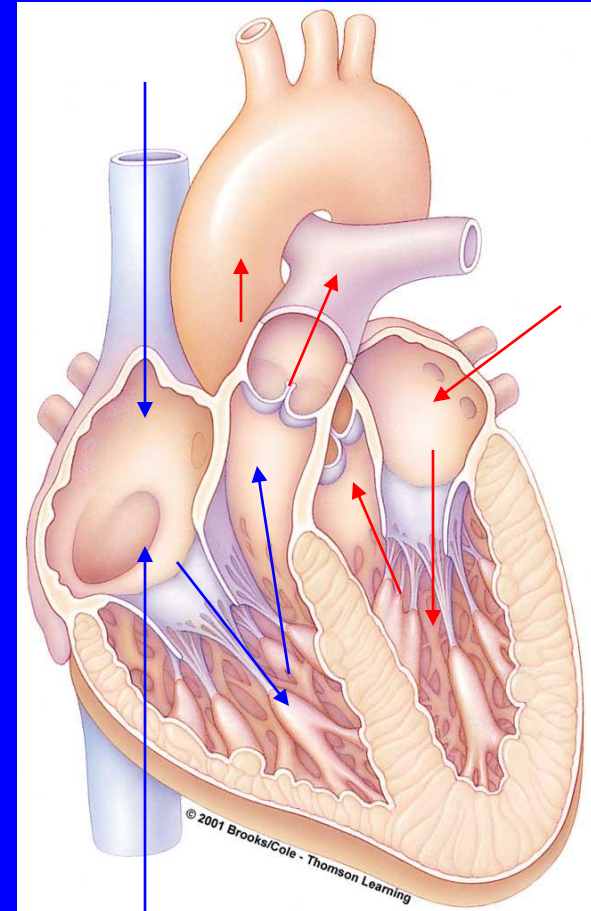
myocardium

heart's apex

Fig. 39.12b, p. 676

Heart Structures

- Valves
 - Atrioventricular valves (chordae tendineae) (papillary muscles)
 - Semilunar valves
- Middle Wall
 - Interatrial septum
 - Interventricular septum

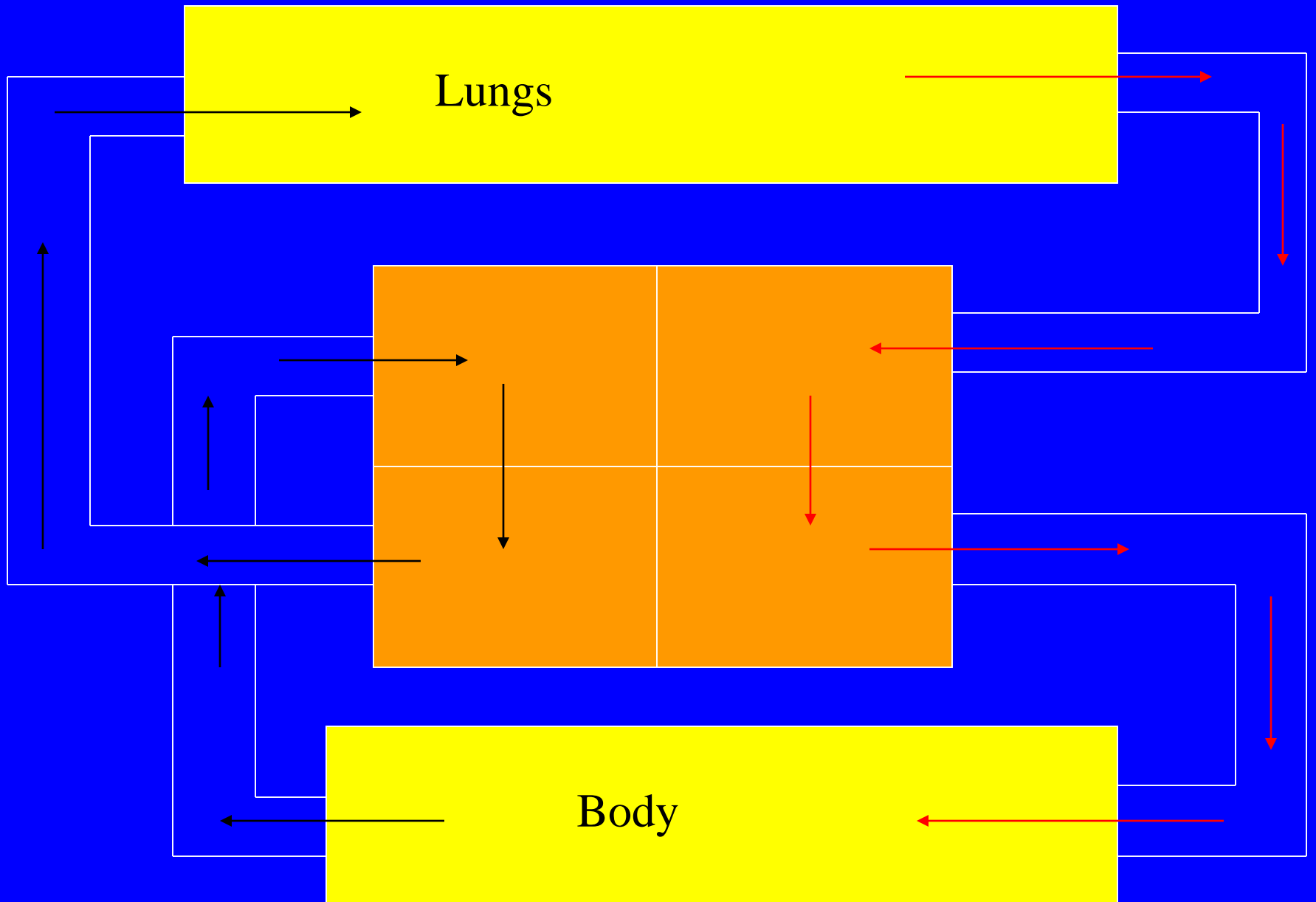


Blood Flow

Superior Vena Cava --- Right Atrium --- past tricuspid valve to Right Ventricle --- past the semilunar valve to the pulmonary arteries --- Lungs --- Left Atrium --- past bicuspid valve to Left Ventricle --- past aortic semilunar valve to the Aorta --- to the body

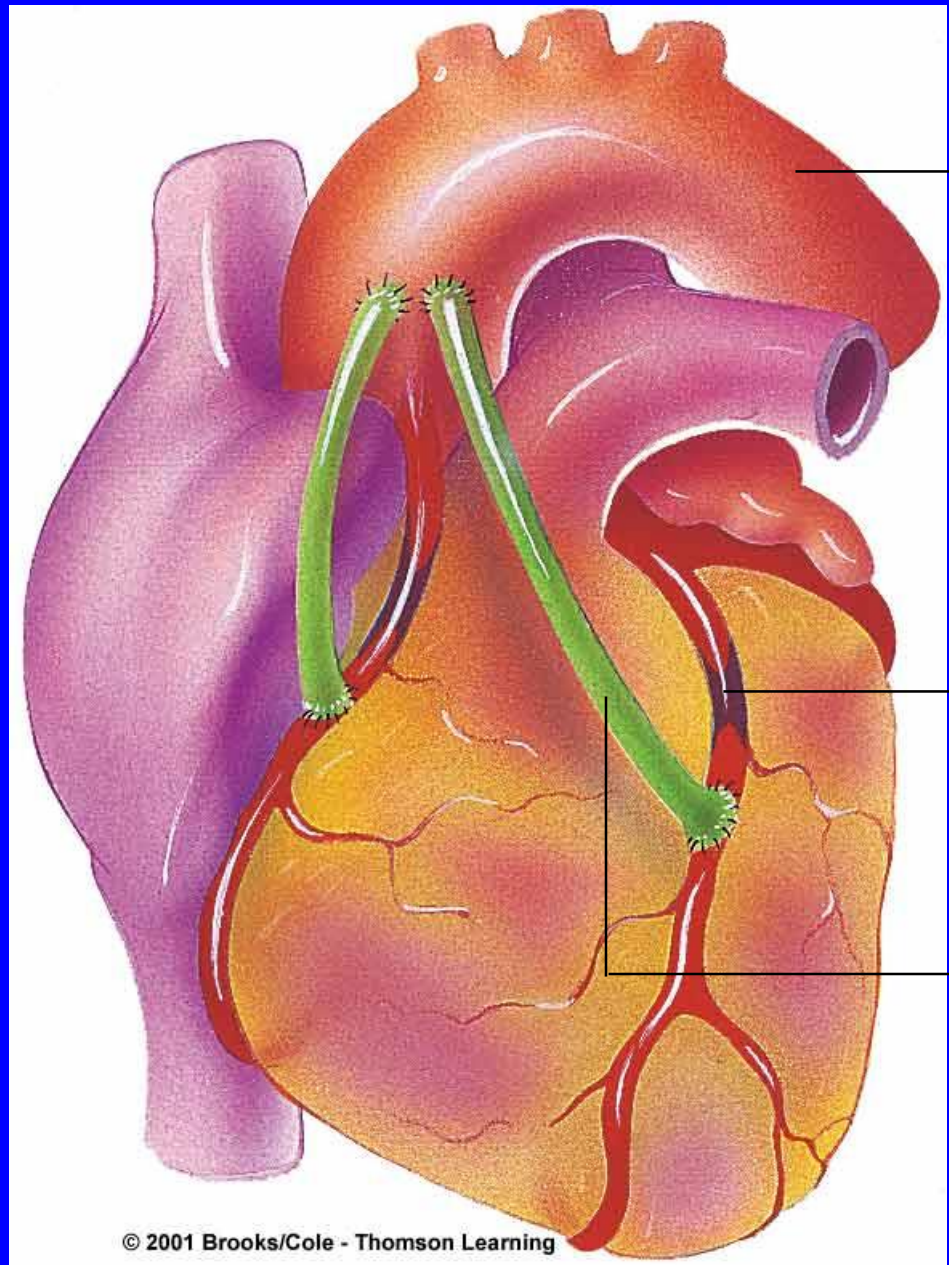
Lungs

Body



Coronary Circulation

- The heart gets its blood via the coronary circulation
- The left & right coronary arteries, 1st vessels from the aorta (the heart gets 1st blood)
- The blood leaves the heart via the coronary sinus
- This sinus drains into the right atrium



aorta

blocked
portion of
coronary
artery

grafted
artery