

# Cardiac cycle

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# Cardiac Cycle

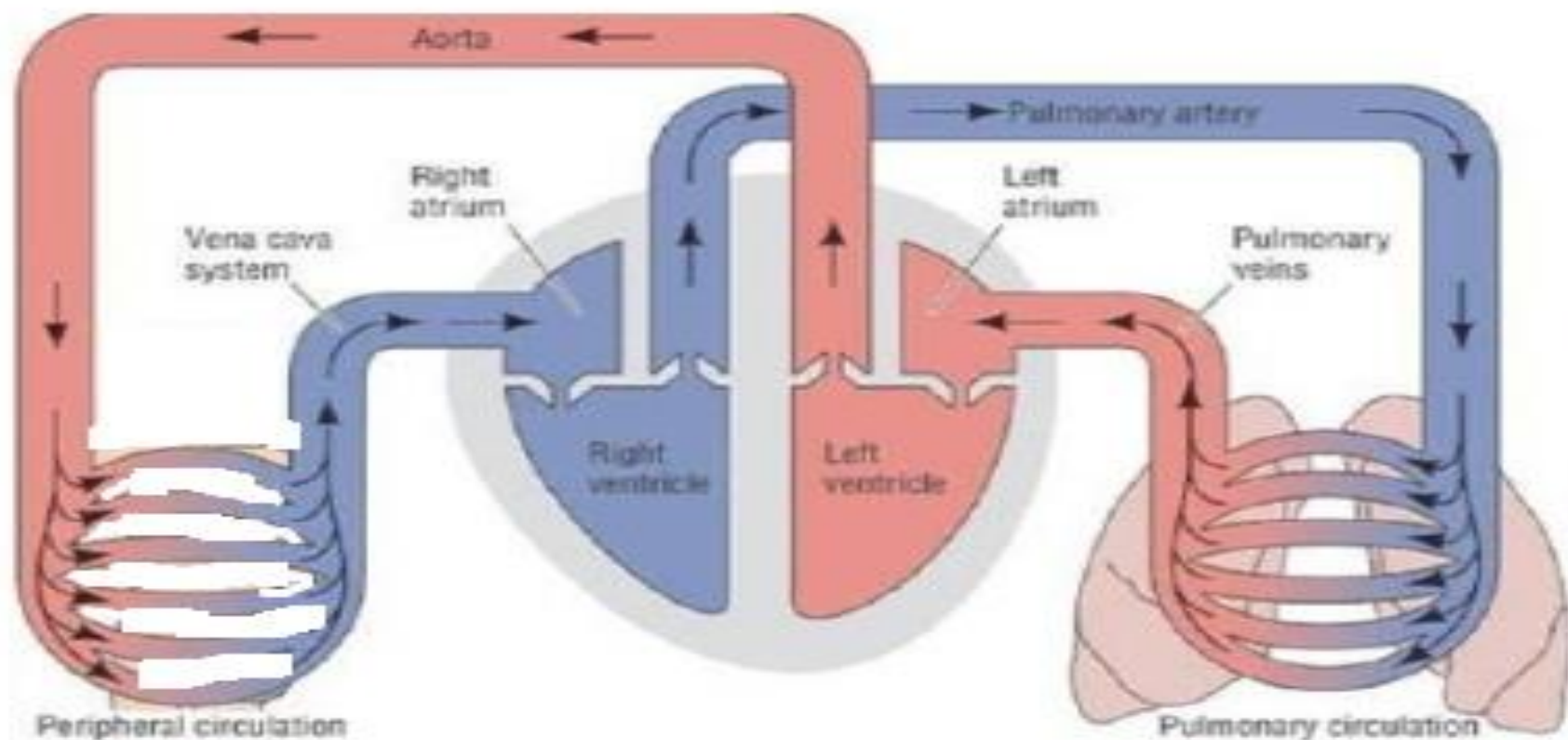
- The two atria contract at the same time, then they relax while the two ventricles simultaneously contract.
- The contraction phase of the ventricle chambers is called **systole**.
- The relaxation phase is called **diastole**.
- At a normal heart rate, one cardiac cycle last for *0.8 seconds!*

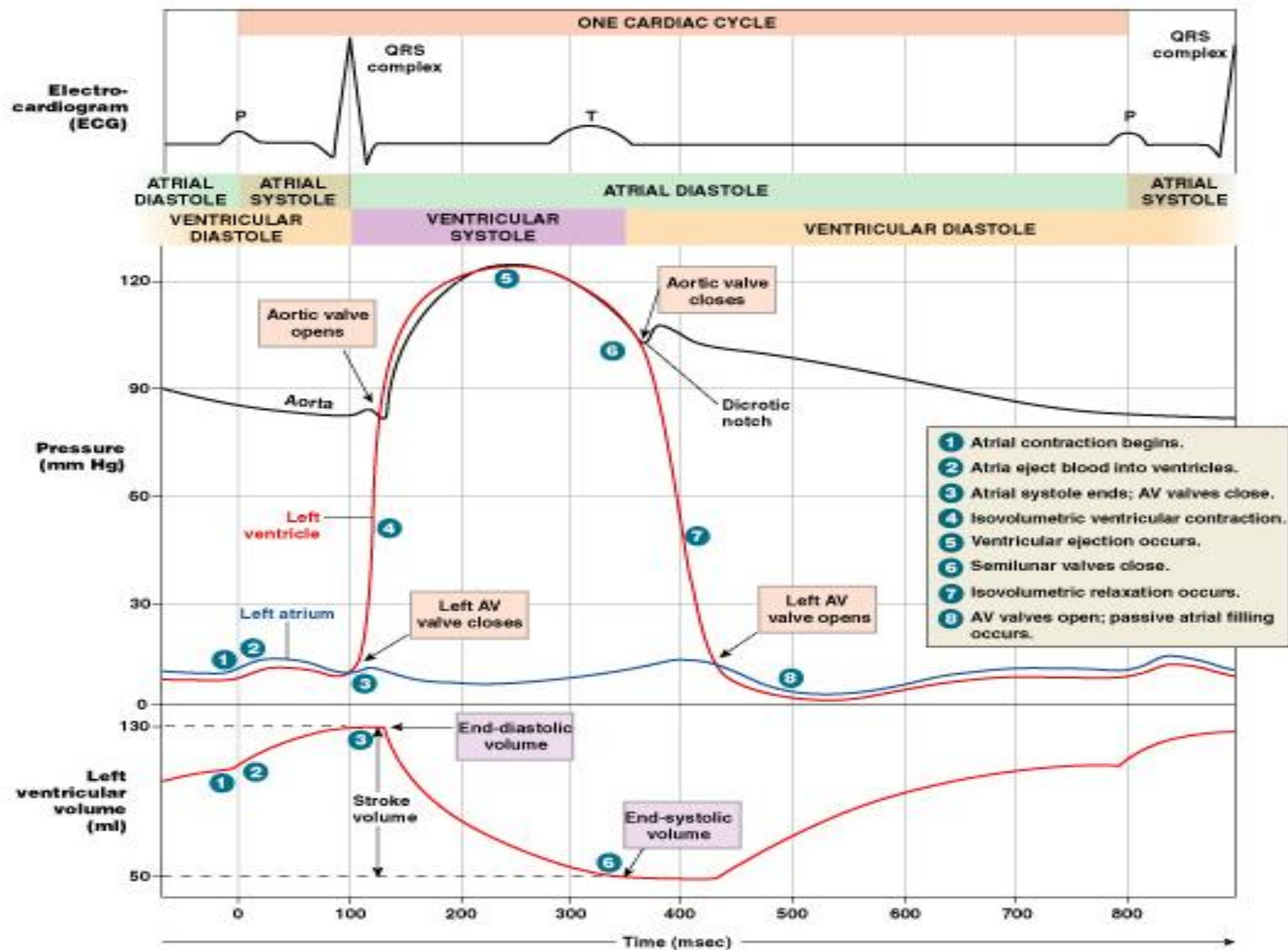
❑ **When heart rate increases: all phases of cardiac cycle shorten, particularly diastole**

# Cardiac Cycle Continued....

- Cardiac Cycle = “events of one complete heart beat”
- Mid-to-late diastole (relaxation) = blood flows into ventricles
- Ventricular systole (contraction) = blood pressure builds before ventricles contract pushing blood out
- Early diastole = atria finish re-filling; ventricular pressure is low

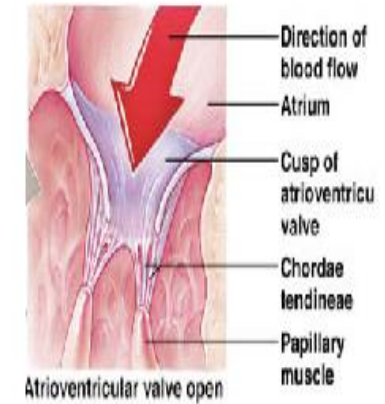
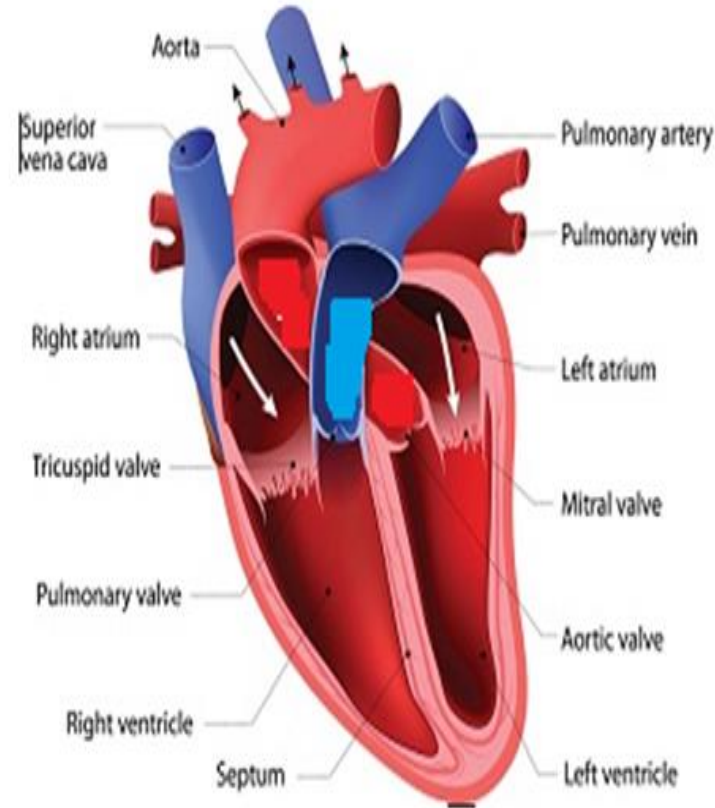
# Cardiac Cycle





# Mid to Late ventricular diastole

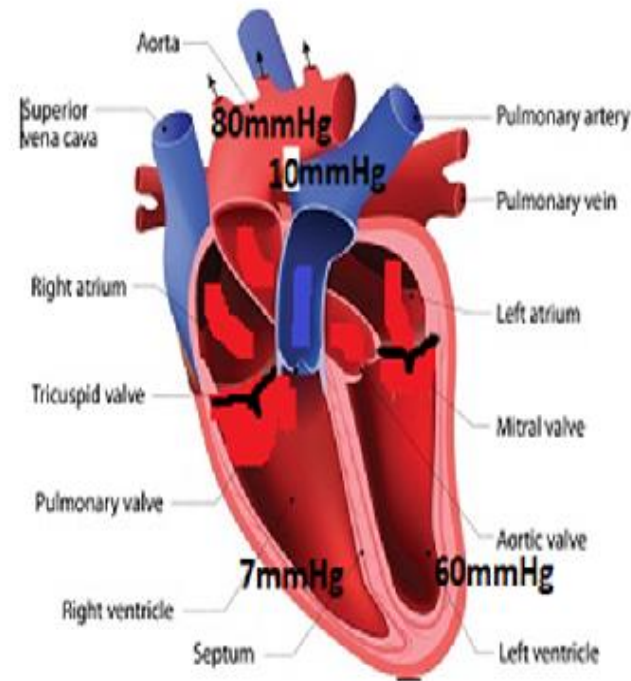
- Atrial pressure > ventricular pressure
- Arterial pressure > ventricular pressure
- AV valves Open
- SLV valves closed



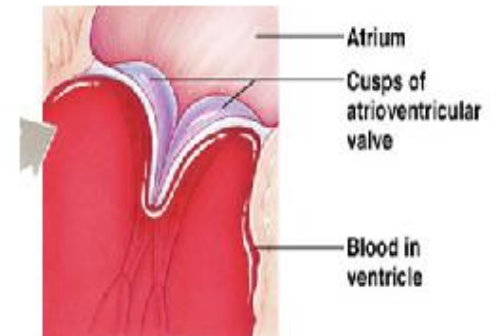
**Semilunar valve closed**

# Isovolumetric contraction

- Atrial pressure < ventricular pressure
- Arterial pressure > ventricular pressure
- AV valves closed Lub sound “S1”
- SLV valves closed



**Semilunar valve closed**

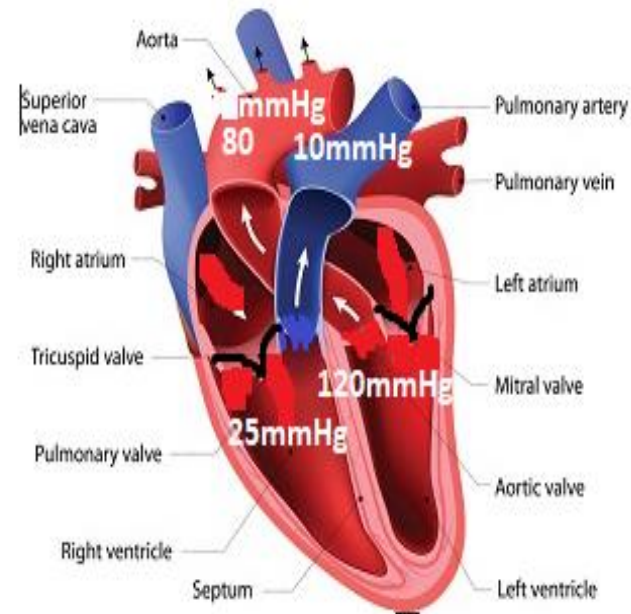


**Atrioventricular valve closed**



## Mid to late ventricular systole or ventricular ejection

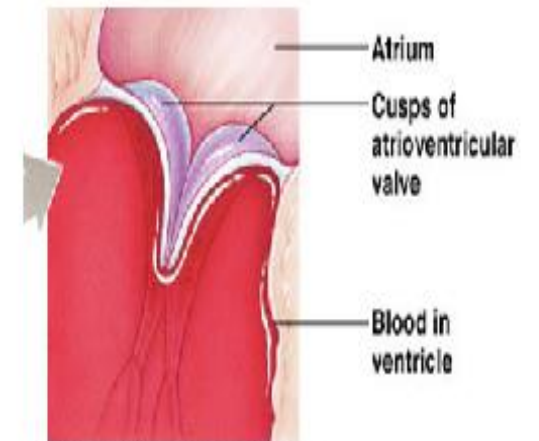
- Atrial pressure < ventricular pressure
- Arterial pressure < ventricular pressure
- AV valves closed
- SLV valves open



**As ventricles contract and intraventricular pressure rises, blood is pushed up against semilunar valves, forcing them open**



**Semilunar valve open**

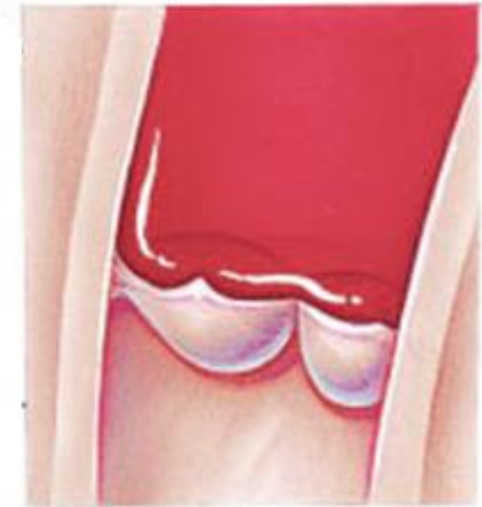
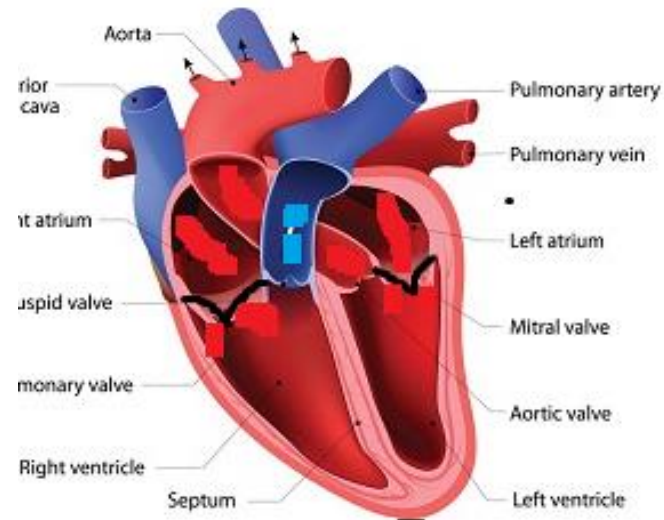


**Atrioventricular valve closed**

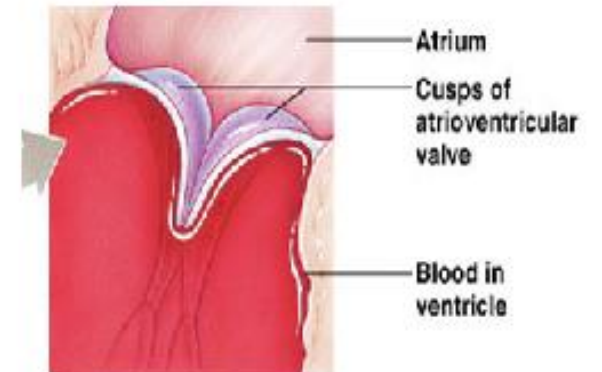


# Isovolumetric relaxation

- Atrial pressure < ventricular pressure
- Arterial pressure > ventricular pressure
- AV valves closed
- SLV valves closed “Dub” sound



**Semilunar valve closed**



**Atrioventricular valve closed**