

Cardiac Cycle

The alternate contraction and relaxation of auricle and ventricle resulting in one heart beat is known as Cardiac cycle. [DEPTH OF BIOLOGY]

It is the sequence of events during a cardiac beat.

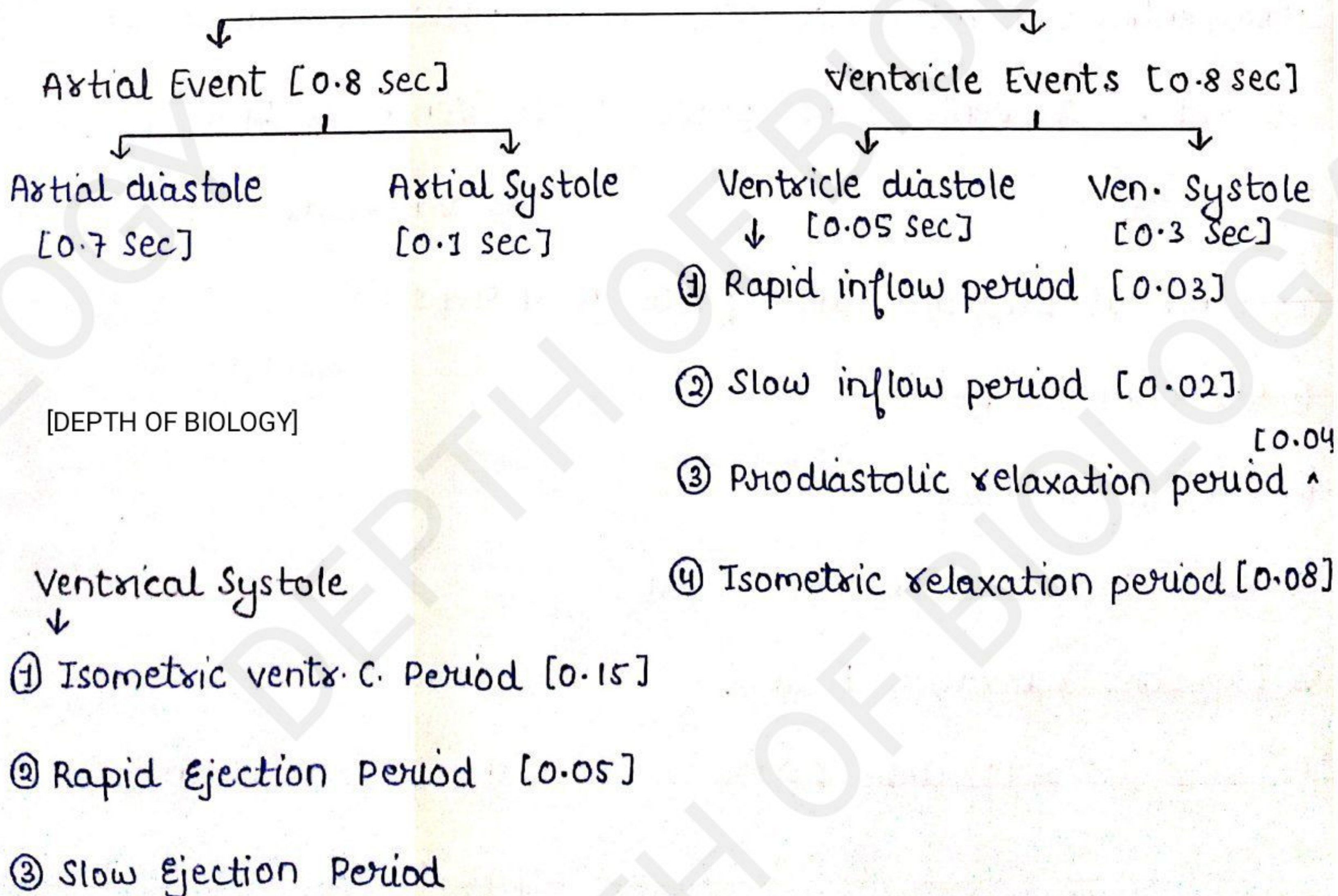
Duration \Rightarrow 1 min = 72 Beats

60 sec = 72 cycle

72 cycle = 60 second

1 cycle = $\frac{60}{72} = 0.8$ second

Cardiac Event



Cardiac event takes place in 0.8 second. Both Atrial and Ventricular events take place in 0.8 second. It takes simultaneously. Now in Atrial events, two events take place.

① Atrial diastole

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② Atrial systole

1st Atrial diastole, it takes 0.7 second. Atria completely filled by deoxygenated blood. and Atrial appendages also completely filled in just 0.7 second. Now 2nd event Atrial systole takes place, In this event Atria become start to systole it takes only 0.1 second. Now the all blood goes into ventricle and Now ventricle event takes place it completes in about 0.8 second. 2 events take place :

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1st Ventricular diastole
2nd Ventricular systole

1st Ventricular diastole takes place in 4 steps :-

- ① Rapid inflow period
- ② Slow inflow period
- ③ Prodiastolic relaxation period
- ④ Isometric relaxation period

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Prodiastolic relaxation period → It is the period which comes

just before the beginning ventricular diastole. It takes 0.04 sec.

Rapid inflow period → In this period, blood fastly filled in ventricle. It take 0.03 sec.

Slow inflow period → In this period, the flow of blood which comes in ventricle is slow [after 50%].

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It takes 0.2 second.

Isometric relaxation period → Nothing happen in this condition.

IInd Ventricle Systole takes place. It takes 0.3 second. It contain 3 events.

(i) Isometric ventricular contraction period

(ii) Rapid Ejection Period

(iii) slow ejection period

(i) Isometric Ventricular contraction → This period takes when completion of Atrial events.

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Now in this event contraction in ventricle start without changing in Blood volume. In this condition blood is not in or out from ventricle and the LUB sound produce. It take place 0.15 second.

(ii) Rapid Ejection period → In this event, ventricle blood flow forcefully into the AORTA and

pulmonary truck and opens the valves.

[DEPTH OF BIOLOGY]

It takes 0.05 second. [DEPTH OF BIOLOGY]

Slow Ejection Period → In this period when blood comes in AORTA and pulmonary trunk in starting. It will come pressurized but the AORTA and pulmonary trunk is in 90° (\perp) so it is against the gravity and blood return but the semilunar valve are closed. So in this condition the flow of Blood will (\downarrow)se and due to closure of Semilunar valve DUB Sound is produced. It takes 0.1 Second.

Total time takes place in one cardiac event only 0.8 sec.

In one minute 72 cycle takes place. and after this all event one cardiac cycle complete. [DEPTH OF BIOLOGY]