

The Cardiac Cycle

B.Sc (Hons.) Zoology.
Part - II
Paper - IV

The cardiac cycle refers to the sequence of events which takes place during the completion of one heart beat.

It involves repeated contraction and relaxation of the heart muscles.

Contraction is called systole and relaxation is called diastole.

In human being, when the heart is beating normally the cardiac cycle occurs about 72 times/minutes. So, each cycle takes about 0.8 of a second to occur.

Cardiac cycle consists of the following :-

Atrial Diastole :-

- During the time when the atria and the ventricles are both relaxed blood returning to the heart under low pressure in the veins enters the two atria.
- Oxygenated blood enters the ~~right~~^{left} atrium & the deoxygenated blood enters the right atrium.
- At first bicuspid and tricuspid valves are closed but, as the atria fill with blood, pressure in them rises. Eventually, it becomes greater than that in relaxed ventricles and the valves are pushed open.

Atrial Systole :-

When Atrial Diastole ends the two atria contract simultaneously. This is known as Atrial Systole and results in blood being pumped into the ventricles.

Ventricular Systole :-

Almost immediately (about 0.1 to 0.2 sec later) the ventricle contracts. This is known as ventricular systole. When it occurs the pressure in the ventricle rises and closes the Atrioventricular valves during ventricular systole produces the first heart sound known as 'lub'.

Ventricular Diastole :-

- Ventricular systole ends and is followed by ventricular Diastole.
- Then high pressure developed into aorta and pulmonary ~~artery~~ ^{artery} tends to force some blood back towards the ventricle and closes the semi-lunar valves of the aorta and pulmonary artery and backflow into the heart is prevented.

The closing of the valve causes the second heart sound 'dub'.

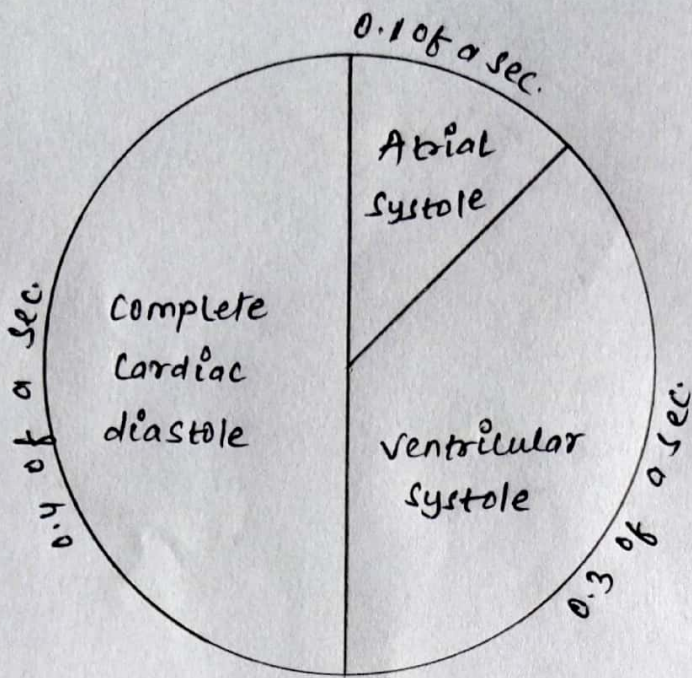
The two heart sounds are :-

Ventricular Systole = 'lub'.

Ventricular Diastole = 'dub'.

One complete heartbeat consists of one systole and one diastole last for about 0.8s.

After a complete cardiac diastole the cycle begins again with atrial systole.



Total period of one cycle.
0.8 second

Fig → The period of one Cardiac cycle.

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