Study material:

Paper: Animal Physiology and Biochemistry: Life Sustaining System (409T)
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Topic: The Cardiac Cycle

A single **cardiac cycle** includes all of the events associated with **one heartbeat**. Thus, the cardiac cycle consists of systole and diastole of the atria plus systole and diastole of the ventricles.

In each cardiac cycle, the atria and the ventricles alternately contract and relax, forcing blood from areas of higher pressure to areas of lower pressure. As a chamber of the heart contracts, blood pressure within it increases. When heart rate is **75 beats/min**, a cardiac cycle lasts **0.8 sec**.

Cardiac cycle can be correlated with three steps :-

i) Atrial Systole

ii) Ventricular systole, and

iii) Ventricular Diastole

Atrial Systole: During atrial systole the atria are contracting, which lasts for **0.1** sec. At the same time, the ventricles are relaxed.

Ventricular Systole: During ventricular systole the ventricles are contracting and it lasts for **0.3** sec. At the same time, the atria are relaxed in atrial diastole.

Ventricular Diastole: This is also known as relaxation period. In this period, the atria and ventricles are relaxed and it lasts for about **0.4** sec. As the heart beats faster and faster, the relaxation period becomes shorter and shorter, whereas the durations of atrial systole and ventricular systole shorten only slightly.

As the ventricles continue to relax, the pressure falls quickly. When ventricular pressure drops below atrial pressure, the AV valves open and ventricular filling begins. The major part of the ventricular filling occurs just after the AV valves open. At the end of the relaxation period, the ventricles are about three quarters full.

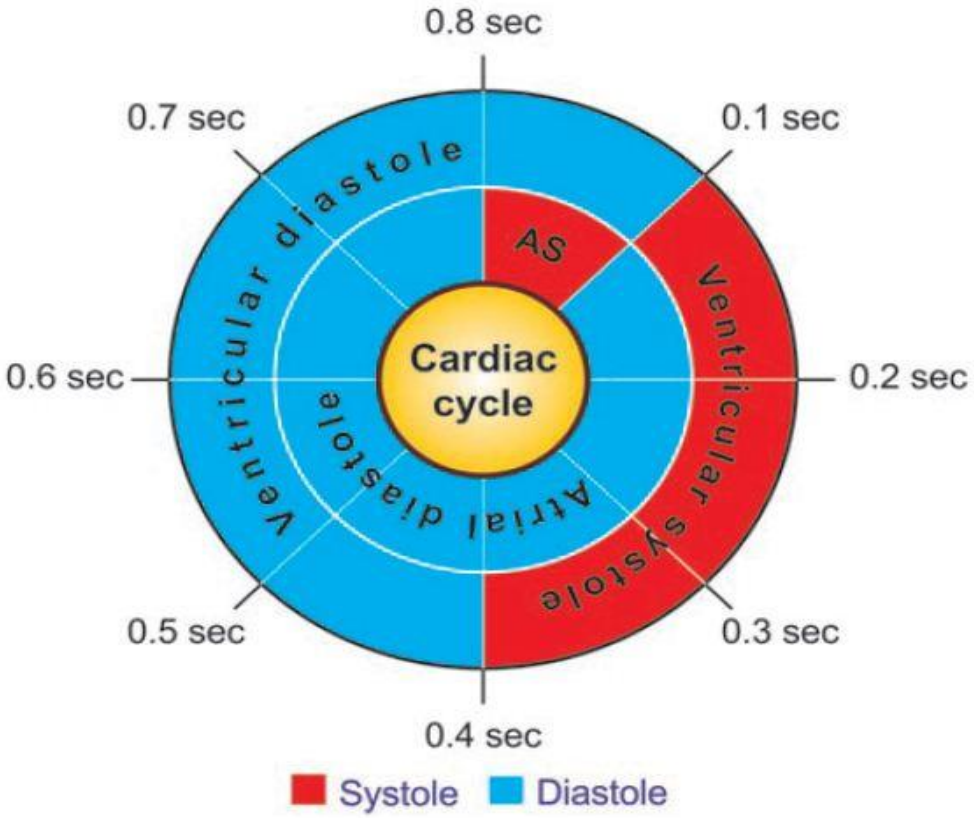

Fig: Diagrammatic representation of cardiac cycle.