

ventricular side by AVN & AV bundle from where bundle of His transmits it through the ventricular musculature.

-As a result, ventricles contract. It is called ventricular systole.

-During this, the atria undergo diastole. Ventricular systole increases the ventricular pressure causing

- * Closure of tricuspid and bicuspid valves due to attempted backflow of blood into the atria.

- * Semilunar valves open. So deoxygenated blood enters the pulmonary artery from right ventricle and oxygenated blood enters the aorta from left ventricle.

-The ventricles now relax (ventricular diastole) and the ventricular pressure falls causing

- * The closure of the semilunar valves which prevents the backflow of blood into the ventricles.

- * The tricuspid and bicuspid valves are opened by the pressure in the atria.

& The ventricles and atria again undergo joint diastole and the above processes are repeated.

-A cardiac cycle is completed in 0.8 seconds.

- One heartbeat = a cardiac cycle.

So, normal heartbeat: 70-75 times/min (average: 72/min).

• **STROKE VOLUME**

-It is the volume of blood pumped out by each ventricle during a cardiac cycle.

-It is about 70 ml.

• **CARDIAC OUTPUT**

- It is the volume of blood pumped out by each ventricle per minute, i.e. stroke volume x heart rate (70 x 72)

- It is about 5000 ml (5 litres).

-Cardiac output of an athlete is very high.

• **HEART SOUND**

- During each cardiac cycle, 2 sounds are produced.

-The first sound (lub) is due to the closure of tricuspid and bicuspid valves.

-The second sound (dub) is due to the closure of the semilunar valves.

-One heartbeat = a lub + a dub.

ELECTROCARDIOGRAPH (ECG)

- It is an instrument used to obtain electrocardiogram.

- Electrocardiogram is the graphical representation of the electrical activity of the heart during a cardiac cycle.

- To get an ECG, a patient is connected to the machine with 3 electrical leads (one to each wrist and to left ankle) that monitor heart activity.

-For a detailed evaluation of heart's

function, multiple leads are attached to the chest region.

- An ECG consists of the following waves:

o **P-WAVE**

1 Represents the excitation (depolarization) of atria during atrial systole.

o **QRS-COMPLEX**