

**Topic/Objectives:** 12-2 Heart Action; (1) Identify and explain heart actions; (2) Describe and explain normal ECG pattern; (3) Describe normal heart sounds and explain what they mean

**Name:**

**Date:**

**Period:**

**Essential Question:** What structures and properties should an artificial heart have?

**Questions:**

**Notes:**

The cardiac cycle consists of:

- The atria beating in unison (\_\_\_\_\_)
- Followed by the contraction of both ventricles (\_\_\_\_\_)
- Then the entire heart relaxes for a brief moment (\_\_\_\_\_).

Heart Sounds

- Heart sounds are caused by the vibration of tissue as blood is pushed through the heart.
- “\_\_\_\_\_” occurs as ventricles contract and atrioventricular valves are closing.
- “\_\_\_\_\_” occurs as ventricles relax and aortic and pulmonary valves are closing.

Specialized cardiac muscles tissue conducts impulses throughout the myocardium and comprises the \_\_\_\_\_.

- The \_\_\_\_\_ (SA node or pacemaker) generates the impulses for the heartbeat.
- Impulses spread through junctional fibers to the \_\_\_\_\_ (AV node).
  - Junctional fibers allow the atria to contract before the impulse spreads rapidly over the ventricles.
- Branches of the AV bundle give rise to \_\_\_\_\_ leading to papillary muscles; these fibers stimulate contraction of the papillary muscles as the ventricles contract.

Electrocardiogram

- An \_\_\_\_\_ is a recording of the electrical changes that occur during a cardiac cycle.
- The first wave, the \_\_\_\_\_, corresponds to the depolarization of the atria.
- The \_\_\_\_\_ corresponds to the depolarization of the ventricles and hides the repolarization of the atria.
- The \_\_\_\_\_ end the ECG pattern and corresponds to ventricular repolarization.

The amount of blood pumped at any one time must adjust to the current needs of the body.

- The SA node is innervated by branches of the sympathetic and parasympathetic divisions, so the CNS controls heart rate.
- \_\_\_\_\_ impulses speed up and \_\_\_\_\_ impulses slow down the heart.
- The cardiac control center of the \_\_\_\_\_ maintains a balance between the sympathetic and parasympathetic divisions of the nervous system in response to messages from baroreceptors which detect changes in \_\_\_\_\_.
- Impulses from cerebrum or hypothalamus may also influence heart rate, as do body \_\_\_\_\_ and the concentrations of certain ions.

**Summary:**