

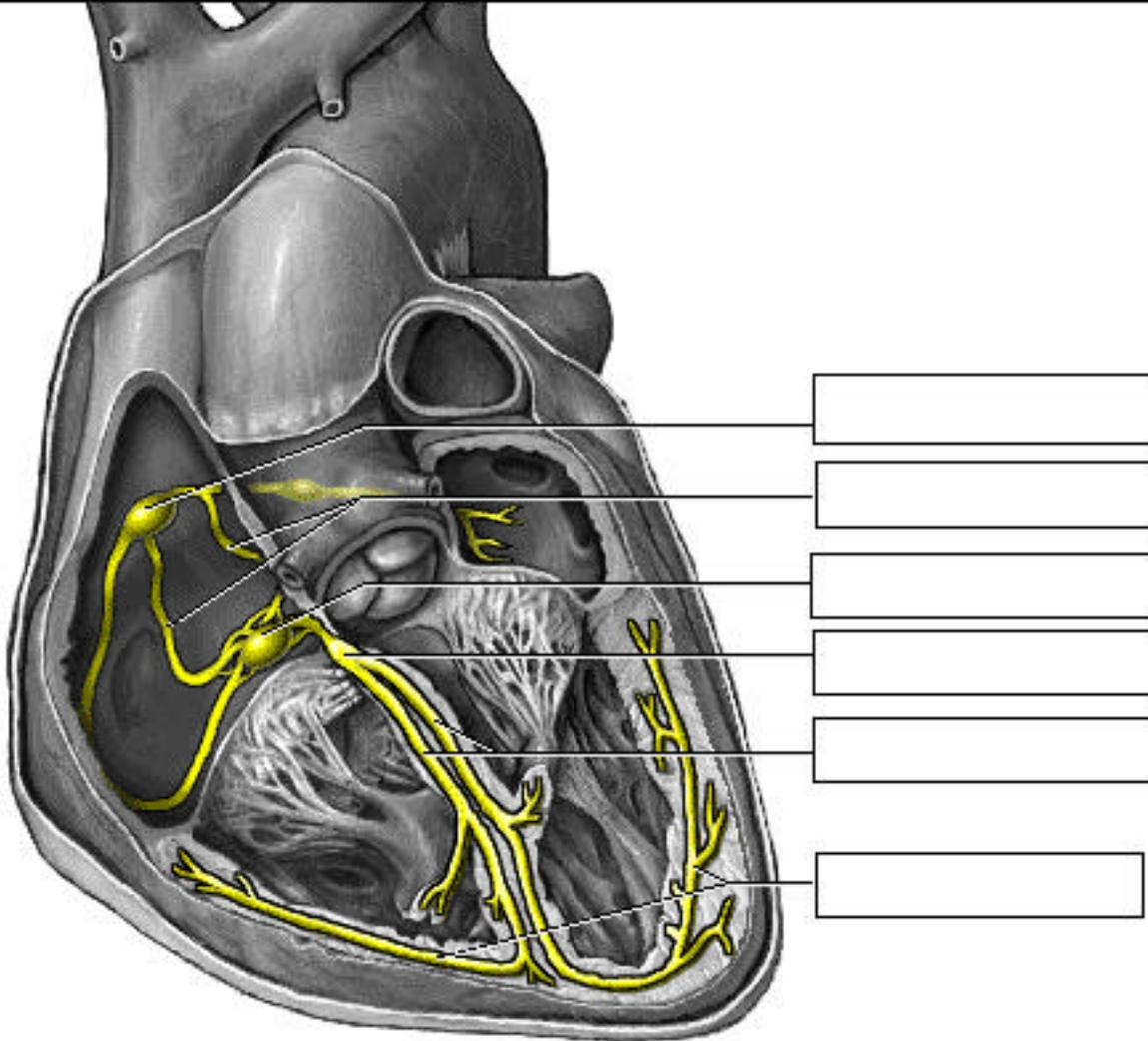
# ADAM Interactive Physiology

## Intrinsic Conduction System

### Goals

- To identify the components of the intrinsic conduction system.
- To recognize that the intrinsic conduction system coordinates heart activity by determining the direction and speed of heart depolarization.
- To relate heart electrical activity to an ECG wave tracing.

1. (Page 3) Label this diagram:



2. (Page 1.) What is the purpose of the intrinsic conduction system of the heart?
3. (Page 1.) What type of cells are present in the intrinsic conduction system of the heart?
4. (Page 3.) List the six areas within the heart where autorhythmic cells are found.

5. (Page 4.) Match the six areas within the heart where autorhythmic cells are found to their location within the heart.

**Location Within the Heart:**

- \_\_\_ Interatrial septum to the interventricular septum.
- \_\_\_ Lower interventricular septum to the myocardium of the ventricles.
- \_\_\_ Inferior interatrial septum.
- \_\_\_ Upper right atrium.
- \_\_\_ Throughout the walls of the atria.
- \_\_\_ Within the interventricular septum.

**Areas Where Autorhythmic Cells Are Found:**

- a. Internodal Pathway
- b. AV Node
- c. Bundle Branches
- d. SA Node
- e. Purkinje Fibers
- f. AV Bundle

6. (Page 4.) Match the six areas within the heart where autorhythmic cells are found to their function.

**Functions:**

- \_\_\_ Initiates the depolarization impulse that generates an action potential, setting the overall pace of the heartbeat.
- \_\_\_ Convey the action potential to the contractile cells of the ventricle.
- \_\_\_ Delays the action potential while the atria contract.
- \_\_\_ Links the SA node to the AV node, distributing the action potential to the contractile cells of the atria.
- \_\_\_ Electrically connects the atria and the ventricles, connecting the AV node to the Bundle Branches.
- \_\_\_ Conveys the action potential down the interventricular septum.

**Areas Where Autorhythmic Cells Are Found:**

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- b. AV Node
- c. Bundle Branches
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7. (Page 4.) Explain the difference between the electrical and mechanical events which occur within the heart, and explain the cell types that carry out each. Which occurs first, the electrical or mechanical events?

8. (Page 5.) In an ECG tracing, how are the following represented:

**Heart Action**

- \_\_\_ atrial depolarization.
- \_\_\_ atrial repolarization
- \_\_\_ ventricular depolarization
- \_\_\_ ventricular repolarization

**ECG Tracing**

- a. P wave
- b. QRS Complex
- c. T wave
- d. Not visible

9. (Page 6.) a. The P wave indicates the electrical event of atrial depolarization. What mechanical event follows the P wave?  
b. The QRS complex indicates the electrical event of ventricular depolarization. What mechanical event follows the QRS complex?  
c. The T wave indicates the electrical event of ventricular repolarization. What mechanical event follows the T wave?

10. (Page 6.) Match the appearance of the heart to its position on the ECG tracing.

