

NAME \_\_\_\_\_

LAB TIME/DATE \_\_\_\_\_

REVIEW SHEET  
EXERCISE

# 31

## Conduction System of the Heart and Electrocardiography

### The Intrinsic Conduction System

1. List the elements of the intrinsic conduction system in order, starting from the SA node.

SA node → AV node → AV bundle (bundle of His) →

left and right bundle branches → subendocardial conducting network (Purkinje fibers)

At what structure in the transmission sequence is the impulse temporarily delayed? AV node

Why? Allows completion of atrial contraction before initiation of ventricular systole

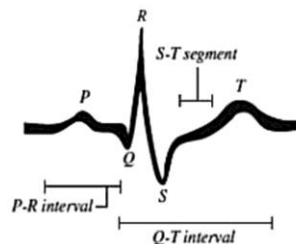
2. Even though cardiac muscle has an inherent ability to beat, the intrinsic conduction system plays a critical role in heart physiology.

What is that role? Ensures that depolarization proceeds in an orderly manner from atria to ventricles; accelerates and coordinates heart activity to effectively pump blood.

### Electrocardiography

3. Define ECG. Recording of electrical changes occurring during heart activity.

4. Draw an ECG wave form representing one heartbeat. Label the P wave, QRS complex, and T wave; the P-R interval; the S-T segment, and the Q-T interval.



5. Why does heart rate increase during running? Heart rate increases during running secondary to action of the sympathetic nervous system. Norepinephrine, released by sympathetic axons on the heart, and the hormone epinephrine released during a sympathetic discharge stimulate pacemaker cells to fire more rapidly.

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6. Match the terms below with their descriptions.

- |                |          |   |
|----------------|----------|---|
| a. AV node     | <u>e</u> | 1. the intrinsic conduction system structure that initiates atrial depolarization           |
| b. interval    | <u>f</u> | 2. a region on an ECG tracing that is between two waves but doesn't include a wave          |
| c. P wave      | <u>c</u> | 3. the deflection on the ECG that is a result of atrial depolarization                      |
| d. QRS complex | <u>d</u> | 4. the deflection on the ECG that is a result of ventricular depolarization                 |
| e. SA node     | <u>g</u> | 5. the deflection on the ECG that is a result of ventricular repolarization                 |
| f. segment     | <u>b</u> | 6. a region on an ECG tracing that includes a segment and at least one wave                 |
| g. T wave      | <u>a</u> | 7. the intrinsic conduction system structure where the conduction of the impulse is delayed |

7. Define the following terms.

1. *tachycardia*: Heart rate over 100 beats/min.

2. *bradycardia*: Heart rate below 60 beats/min.

3. *fibrillation*: Very rapid uncoordinated myocardial activity.

8. Abnormalities of heart valves can be detected more accurately by auscultation than by electrocardiography. Why is this so?

Most often serious valve problems cause turbulent blood flow, which can be detected (heard) with a stethoscope. Since the valves do not have electrical activity (they are not part of the conduction system) no electrical signals can be recorded from them on the ECG.

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