



Physiology
OF THE CARDIOVASCULAR SYSTEM

ECG

1. In which phase of the ventricular muscle action potential is the potassium permeability the highest?

- A) 4
- B) 1
- C) 2
- D) 3

1. Which ONE of these waves is caused by the repolarization of the ventricles?

- A) P wave
- B) Q wave
- C) T wave
- D) R wave

2. Which ONE of these segments does the AV nodal delay happens?

- A) S-T
- B) P-R
- C) T-P

3. What is the last place in the ventricle to be depolarized?

- A) Septum
- B) Pulmonary conus
- C) Purkinje fibers

4. In the ECG if the P-R segment is prolonged means a problem in the:

- A) SA node
- B) AV node
- C) Purkinje fiber

5. Time between the beginning of electrical excitation of the atria and the beginning of excitation of the ventricles?

- A) S-T segment
- B) Q-T interval
- C) P-R interval

6. Which of the following phases of the cardiac cycle follows immediately after the beginning of the QRS wave?

- A) Isovolumic relaxation
- B) Ventricular ejection
- C) Atrial systole
- D) Diastasis
- E) Isovolumic contraction

7. When recording lead I on an EKG, the right arm is the negative electrode, and the positive electrode is the

- A) left arm
- B) left leg
- C) right leg
- D) left arm + left leg
- E) right arm + left leg

8. When recording lead aVL on an EKG, the positive electrode is the

- A) left arm
- B) left leg
- C) right leg
- D) left arm + left leg
- E) right arm + left leg

9. 65. A 60-year-old woman has been diagnosed with atrial fibrillation.
Which of the following statements best describe this condition?

- A) Ventricular rate of contraction is 140 beats/min
- B) P waves of the EKG are pronounced
- C) Ventricular contractions occur at regular intervals
- D) QRS waves are more pronounced than normal
- E) Atria are smaller than normal

10. From the picture what is his diagnosis?

- A) Normal EKG
- B) Atrial flutter
- C) High A-V junctional pacemaker
- D) Middle A-V junctional pacemaker
- E) Low A-V junctional pacemaker



Answers:

Q1: D

D) During phase 3 of the ventricular muscle action potential, the potassium permeability of ventricular muscle greatly increases, which causes a more negative membrane potential.
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Q2: B

Q3: B

Q4: B

Q5: C

Q6: E Immediately after the QRS wave, the ventricles begin to contract and the first phase that occurs is isovolumic contraction. This occurs before the ejection phase and increases the ventricular pressure enough to mechanically open the aortic and pulmonary valves.

Q7: A By convention, the left arm is the positive electrode for lead I of an EKG

Q8: A By convention, the left arm is the positive electrode for lead aVL of an EKG

Q9: A Atrial fibrillation has a rapid irregular heart rate. The P waves are missing or are very weak. The atria exhibit circus movements, and often are very enlarged, causing the atrial fibrillation.

Q10: E The term paroxysmal means that the heart rate becomes rapid in paroxysms, with the paroxysm beginning suddenly and lasting for a few seconds, a few minutes, a few hours, or much longer. Then the paroxysm usually ends as suddenly as it began and the pacemaker shifts back to the S-A node. The mechanism by which this is believed to occur is by a re-entrant circus movement feedback pathway that sets up an area of local repeated self-re-excitation. The EKG shown is ventricular paroxysmal tachycardia. That the origin is in the ventricles can be determined because of the changes in the QRS complex that have high voltages and look much different than the preceding normal QRS complexes. This is very characteristic of a ventricular irritable locus.