

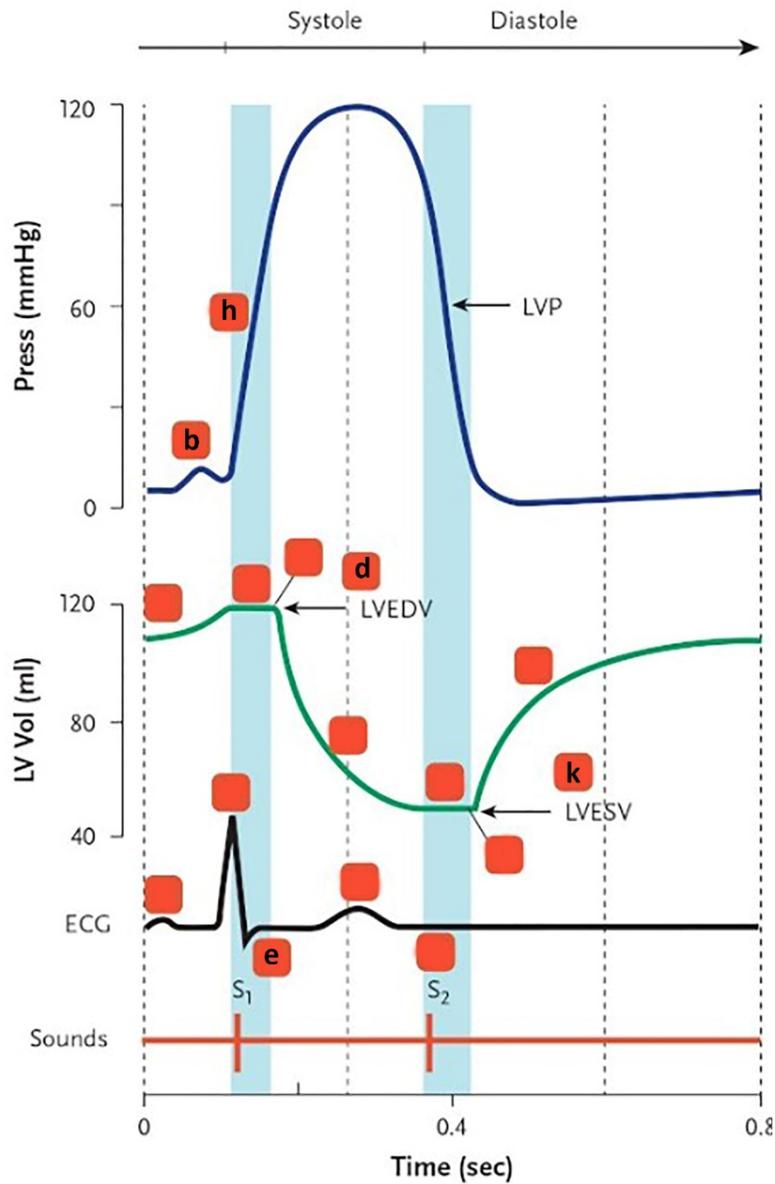
Electrical Conduction

Read Chapter 18.5

Fill in the blanks

1. The conducting system of the heart begins at the _____ node.
2. The SA node can spontaneously depolarize, a trait called _____.
3. In a neuron, the ion that causes depolarization is _____ moving (in/out) _____.
4. There are three main ions that are involved in the pacemaker potential:
 - a. _____ moving _____ (in or out) causes the early, slow depolarization.
 - b. _____ moving _____ (in or out) causes the late, rapid depolarization.
 - c. _____ moving _____ (in or out) causes repolarization.
5. Sodium will leak into the SA node cells as soon as the charge is approximately _____ mV.
6. Calcium channels will open when the charge of the cell is approximately _____ mV.
7. Repolarization will begin when the charge of the SA node cells reaches approximately _____ mV.
8. The autonomic nervous system can influence heart rate. The _____ system will increase heart rate and the _____ system will decrease heart rate.
9. The sympathetic nervous system neurons release _____.
10. The parasympathetic neurons release _____.
11. A typical, healthy, adult resting heart rate is _____ bpm.
12. The order of conducting structures is – SA node to _____, to _____ node to _____ to _____ then to the _____.
13. An _____ is a method of measuring the electrical currents caused by the movement of ions throughout the heart during the cardiac cycle.
14. The _____ represents atrial depolarization.
15. The QRS represents _____.
16. The _____ represents ventricular repolarization.
17. A malfunction in the cardiac conduction system causes _____, which are irregular heart contractions.
18. A _____ is a relatively common, harmless irregular heartbeat.

19. Fill in the chart with the correct letter in the right location: **Note** that 'e' should be on the left side of the blue region above S1, not the right side.



- a. P wave
- b. Pressure in ventricle increases

- c. 10-20ml of blood is added to ventricles
 - d. End Diastolic Volume
 - e. AV valves close
 - f. First isovolumetric phase
 - g. QRS
 - h. Ventricular systole begins
 - i. Semilunar valves open
 - j. Blood moves into pulmonary arteries
 - k. End systolic volume
 - l. Semilunar valves close
 - m. T wave
 - n. The second isovolumetric phase
 - o. Atrioventricular valves open
 - p. Ventricles begin filling
20. A typical EDV is _____ ml
21. A typical ESV is _____ ml
22. Stroke volume is calculated by subtracting _____.