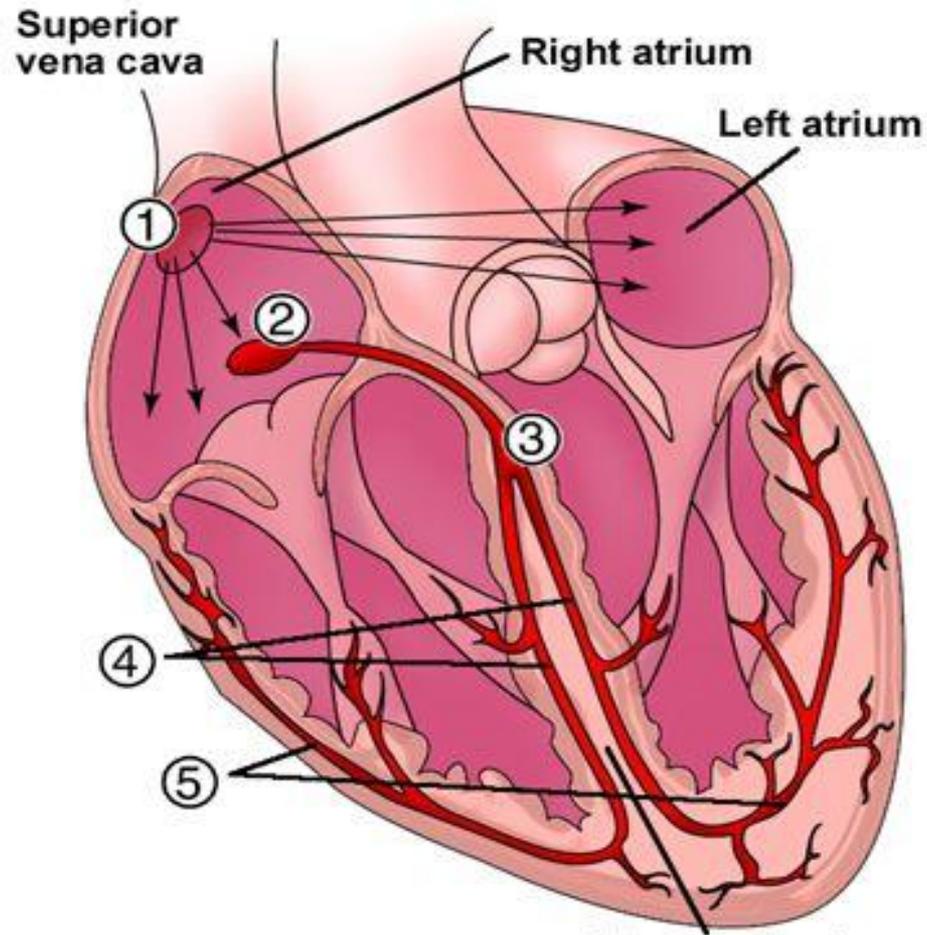


The heartbeat



“LUP” refer to page 39

- a) SA node (pacemaker) impulse
- b) Right and left atria contract
- c) Right and left ventricles relax
- d) Blood pumped to the ventricles
- e) Tricuspid/bicuspid valve close

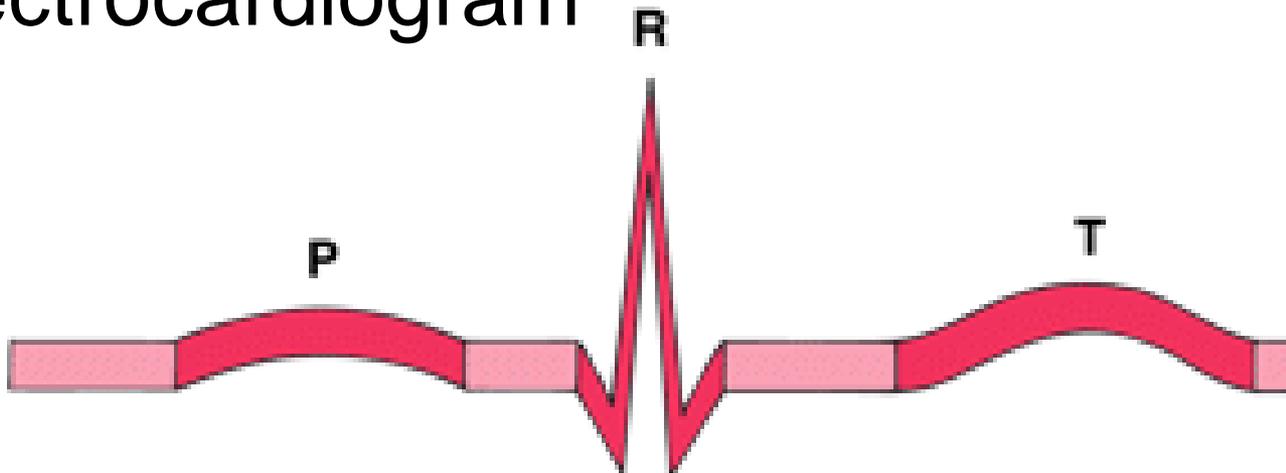
“DUP”

- a) A-V node impulse
- b) Left and right ventricles contract
- c) Left and right atria relax
- d) Blood pumped to pulmonary artery and aorta.
- e) Pulmonary valve and aortic valve close

- The machine that measures electrical signals from the heart is called: an electrocardiograph

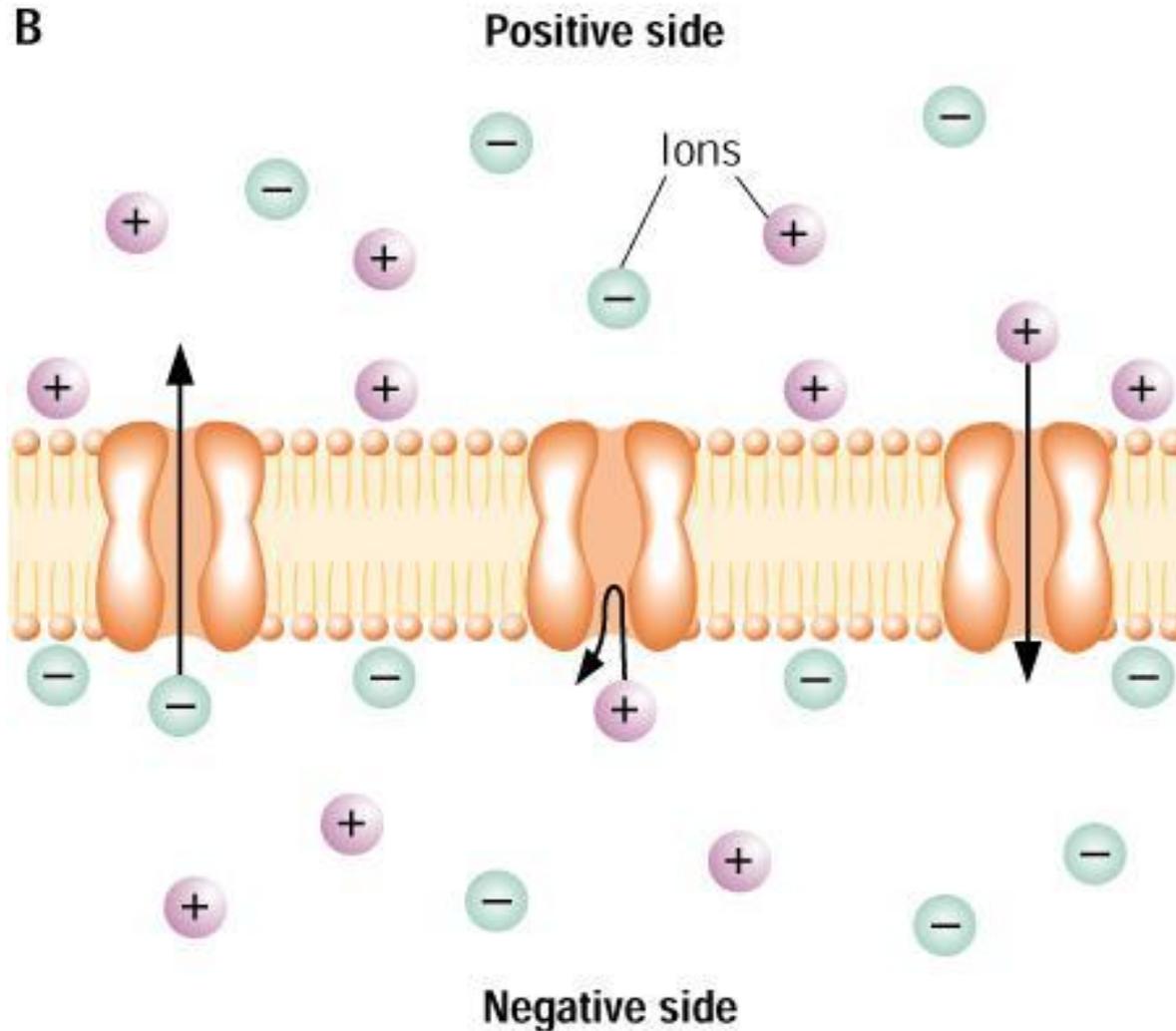
ECG

- Electrocardiogram



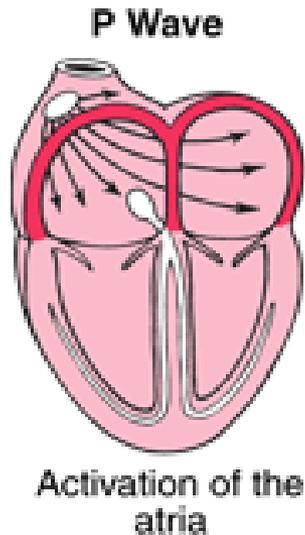
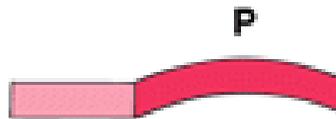
Membrane Potential

B



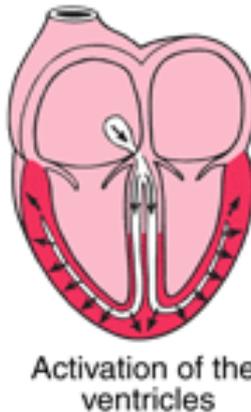
Polarized or
depolarized
membrane?

P Wave



- Contraction of the atria
- Polarized membrane becomes depolarized (even out) using channels.
- Depolarization occurs from the SA-AV node. Signals atria to contract.

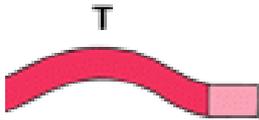
QRS Complex



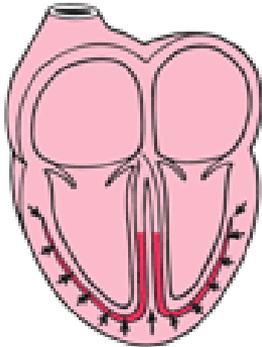
- Contraction of the ventricles.
- Signals travel down the septum around the ventricles (depolarization of ventricles).
- While the ventricles are depolarizing, the atria are repolarizing (at the same time)
- QRS is actually both but you can't differentiate the signals because the atrial repolarizing is smaller.

T wave

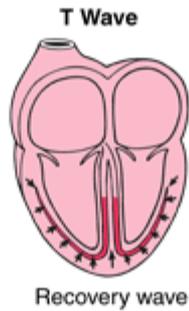
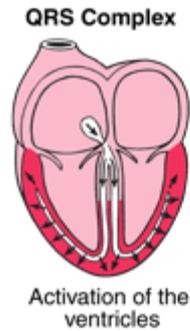
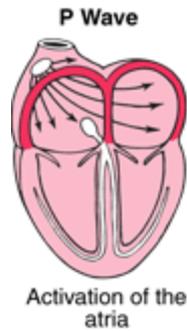
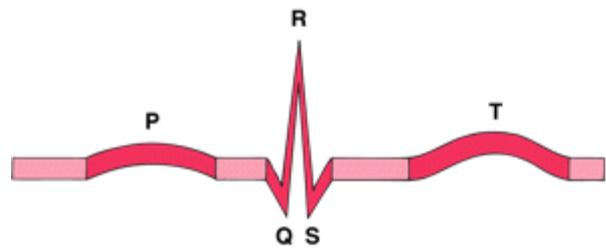
- Ventricles relax
- Membrane repolarizes.



T Wave



Recovery wave



Process: Part I

- Within the heart there is an area of nerve cells known as the pacemaker or sinuatrial node, which is situated in the upper wall of the right atrium.
- The sinuatrial node initiates an impulse, which flows over the two upper chambers of the heart, the right and left atrium.

Part II

- The electrical impulse is picked up by a further electrical node called the atrioventricular node, which is situated in the lower part of the right atrium close to the valves between the upper and lower chambers of the heart.

Part III

- The atrioventricular node picks up the impulse from the sinuatrial node and flows down the central wall of the heart (called the septum), between the two ventricles and into the left and right bundle branches via the electrical conductive tissue to carry the impulse over each of the ventricles.

Part IV

- It is the passage of this electric conduction from the top of the heart over the atria through the septum and ventricles that causes the muscle to contract, the valves to open and close and blood to empty into the lungs from the right side of the heart then back into the left side of the heart and around the body.