



Anatomy seventh edition **& Physiology**

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Which of the following statements is NOT true concerning the resting membrane potential?

- A) The membrane is relatively more permeable to potassium ions than to sodium ions.
- B) Potassium ions are constantly moving out of the cell down their concentration gradient.
- C) Sodium ions are in relatively higher concentration inside the cell than outside.
- D) The membrane is relatively permeable to chloride ions

During the repolarization phase of an action potential, which of the following is the primary activity?

- A) Sodium ions are flowing out of the cell.
- B) Sodium ions are flowing into the cell.
- C) Potassium ions are flowing into the cell.
- D) Potassium ions are flowing out of the cell.

A supramaximal stimulus produces which of the following?

- A) the fastest muscle contraction possible
- B) a muscle contraction that is slower than one produced by a maximal stimulus
- C) a greater frequency of action potentials than a maximal stimulus
- D) none of the above

When a depolarization wave reaches the synaptic end bulb of a presynaptic neuron, the NEXT event is

- A) uptake of neurotransmitter from the synaptic cleft.
- B) active transport of calcium ions out of the cell.
- C) diffusion of calcium ions into the cell.
- D) immediate release of neurotransmitter.

In a resting cell, the resting membrane potential is between -70mV and -90mV. This occurs because

A)there are extra Na^+ ions outside the plasma membrane, and extra Cl^- ions inside the plasma membrane.

B) Na^+ ions move with the concentration gradient to the outside of the cell.

C)some K^+ ions diffuse to immediately outside the plasma membrane.

D)large protein ions diffuse to immediately outside the plasma membrane.

E)fewer Ca^{2+} ions inside the plasma membrane make the inside more negative.

If there is an increase in extracellular K^+ ion concentration, the result is

- A)depolarization of the plasma membrane.
- B)hyperpolarization of the plasma membrane.
- C)little, if any, change in the resting membrane potential of the plasma membrane.

Small depolarizations of the plasma membrane, regardless of the cause of the depolarization, cause

- A) voltage-gated K^+ ion channels to close.
- B) voltage-gated Na^+ ion channels to open.
- C) voltage-gated Ca^{2+} ion channels to open.
- D) voltage-gated Cl^- ion channels to open.
- E) both a and b

The afterpotential is a period

A)of increased depolarization.

B)of hyperpolarization.

C)when the cell is completely insensitive to additional stimuli.

D)when a second action potential occurs.

Which of the following types of stimuli produces only a local potential, but not an action potential?

- A) maximal
- B) supramaximal
- C) threshold
- D) subthreshold