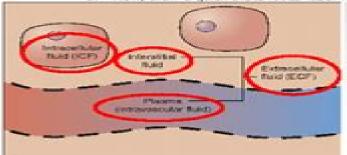
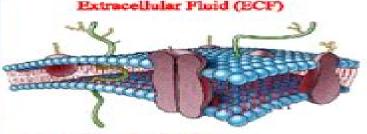
Directions: You will learn best if you WRITE OUT THE QUESTIONS AND ANSWERS ON SEPARATE SHEETS OF PAPER III

- 1. Get these terms straight in your head:
 - a. Extracellular fluid Na+ (positive) (which is also called intentitial fluid and _____).
 - b. Intracellular fluid K + (negative)
 - Intravascular fluid e.g. blood, plasma, etc. within cardiac chambers and vascular system of the body.
 - Now, draw a quick sketch AND label where you would find each of these fluids.





Intracellular Fluid (ICF)

- What portion of total body weight (TBW) is represented by each of the three types of fluids from above? 60-40-20 rule. 40 ICF. 20 BCF. 60 Body fluid
- What is meant by the term "polarity" in regard to the cell membrane of a neuron? Spatial differences in shape, structure, and cell function
- What is meant by the term "propagation" in regard to an axon? Propagated along the axon in 1 direction
- What is the difference between 'passive' and 'active' channels? Passive: look channels, always open
 - Active: gated channels, opens and closes in response to stimuli
- Compare and contrast the 3 classes of gated channels.
 - Chemically regulated channels: open in presence of specific chemicals at a binding site.

 Voltage-regulated channels: respond to changes in transmembrane potential. Have activation gates (opens) and inactivation gates (closes).
 - Mechanically regulated channels: respond to membrane distortion. Found in sensory receptors (touch, pressure, vibration
- Which class of gated channel are the sodium and potassium channels found in an action potential? WHY
 are they that particular class? Voltage gated, and because they need stimuli to open and close.
- Explain each of the following terms (making sure to include which ions are moving in which direction) AND draw/recognize them on a graph:
 - a. Membrane potential y-axis (mV)
 - b. Action potential rapid sequence of changes in voltage across a membrane
 - Resting period (resting membrane potential) -70mV
 - d. Threshold -55mM: Voltage-gated sodium channel opens
 - Depolarization (rising phase) Sodium rushes in, overshoots to 30+. Na+ channel closes. K+ opens
 - f. Repolarization (falling phase) K rushes out, dropping charge quickly to more negative than -90mV
 - g. Hyperpolarization more polarized than resting membrane potential (anything less than -70mV)
 - Refractory period (Absolute and Relative) period of time in which a cell is incapable of repeating action potential (boked and closed)
- 9. "An action potential is an all-or-none phenomenon." Either happens or it doesn't

Human Anatomy Action Potentials Study Guide Answers

Edith Applegate

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