

Neurophysiology of nerve impulses laboratory report

[Health & Medicine](#), [Body](#)



Moorpark College Human Physiology Name: _____

EXERCISE 3 Neurophysiology of Nerve Impulses Laboratory Report Answer

the following questions. (3 points each). 1. What is the difference between membrane irritability and membrane conductivity? Membrane irritability is the ability to respond to a stimuli and convert it in to nerve impulses.

Membrane conductivity is the ability to transmit that impulse that is created by membrane irritability. 2. If you were to spend a lot of time studying nerve physiology in the laboratory, what type of stimulus would you use, and why?

You would use a electric stimulus, this is because with the electric stimulus you can adjust and determine the pressure, frequency, duration, and voltage and control them. 3. Briefly explain how the addition of NaCl in the ECF elicit an action potential? With the addition of more Na ions it increases the concentration of Na ions outside the cell. The driving force of the action potential is the increase in the concentration gradient because of the increase of Na ions outside the cell. 4. General anesthetics such as ether and chloroform open K⁺ gated-channels in the brain.

What would be the effect of inhaled ether on the generation of action potentials in neurons in the brain of a rat exposed to this anesthetic? Provide a good and brief physiological explanation. In activity 7 you tested the effect of lidocaine on eliciting an action potential. Answer the following: 5. What is lidocaine (type of macromolecule) Lidocaine (2-(diethylamino)-N-(2, 6-dimethylphenyl)acetamide) is a topical anesthetic used for dental surgeries or other minor surgeries. 6. List three (3) common use of lidocaine.

Topical anesthetic. Antiarrhythmic medication Relieves itching and burning due to skin inflammation. 7. Lidocaine blocks fast voltage gated sodium (Na^+) channels in the cell membrane of nerve fibers. How this explains the analgesic effect of lidocaine? 8. Provide the generic name and brand name of 3 other local anesthetics. Generic Name: Bupivacaine Brand Name: Marcaine Generic Name: Trimecaine Brand Name: Mesdicain Generic Name: Benzocaine Brand Name: Auralgan 9. What is the relationship between size of a nerve and conduction velocity?

The larger the size of the nerve it creates a lesser amount of resistance that the ions need to travel the lesser amount of resistance will increase the conduction velocity. 10. What is myelin and how does myelination affect nerve conduction velocity? Explain. Myelin is a mix of proteins and phospholipids which creates a sheath around nerve fibers which will then increase the speed of conduction. The larger the myelination the larger the gap of the channels is, the farther the signal can jump at a more rapid speed.

How to write this report. 1. You may type your answers. Please has a double space from the end of one question and the beginning of the next question. 2. If you handwrite this report first hit return to open space between the questions, print the page and then write your answer. The statement of the questions should be included in the report. 3. Leave the Question statement in BOLD but your answer as plain. 4. Unstapled report = -3 points 5. Give a clean report