

Muscle & Exercise Lab Make-up

Biology 1102

Name: _____

Section: _____

This exercise replaces your quiz and homework grade for the Muscle Structure and Exercise Physiology Lab. Most of the questions require you to look up information in your lab manual or one of the following websites:

<http://www.deltagen.com/target/histologyatlas/HistologyAtlas.html>

<http://training.seer.cancer.gov/anatomy/muscular/structure.html>

<http://www.innerbody.com/htm/body.html>

Your answers must be complete, well thought out, and in your own words. Type your answers on a separate sheet of paper, and leave space for your drawings. You may make your drawings on separate sheets and attach them, but you must clearly identify each drawing with the question number and a name label. If you have any questions, feel free to contact your TA.

Part I

1. (2 pts) Name the three major types of muscle fibers and explain how each type produces ATP.
2. (1 pt) Describe the concept of “antagonistic pairs” in regards to muscle action.
3. (1 pt) What two muscles are involved in forearm flexion?
4. (1 pt) Define perimysium.
5. (1 pt) Name two muscles involved in plantar flexion.
6. (1 pt) Draw microscopic views of a skeletal muscle in cross-section and longitudinal-section. Label the muscle fiber nuclei on both views.
7. (1 pt) What is the strongest muscle in the average human body?
8. (1 pt) Google “phosphagen”. What is the phosphagen system? What nutritional supplements do athletes take to help the phosphagen system?

Part II

Refer to the article on this website for the next three questions:

http://www.nytimes.com/2008/02/14/health/nutrition/14BEST.html?_r=1

9. (1 pt) What are three factors that may predispose an individual to muscle cramping?
10. (1.5 pts) Describe the “electrolyte hypothesis” as the cause for exercise-related muscle cramps.
11. (1.5 pts) Describe the muscle cramp hypothesis presented by Dr. Schweltnus.

Part III

(2 pts) Perform experiment C (Investigating the Effects of Heat and Cold on Muscle Function) on page 71 of your lab manual. If ice is not available, place your hand under cold running water for a few minutes. Fill in the table on page 71. Answer the three questions on page 72.