

Study Guide Chapter 11

Muscle Tissue

1. Skeletal muscle:
 - a. What are the characteristics?
 - b. What is the difference between the parallel and series elastic components?
2. How do muscle fibers become multinucleated?
3. What name is used to describe a skeletal muscle cell the membrane around the cell?
4. What is contained by the sarcolemma?
5. Define the skeletal muscle fiber structures and their functions (see Fig 11.2)
6. What causes the striations in a muscle fiber?
7. What is the name that describes the theory which explains how a skeletal muscle contracts?
8. Nerve-Muscle Relationships
 - a. What is a motor neuron?
 - b. What is a motor unit?
 - c. Describe the anatomy of a neuromuscular junctions and outline the events leading up to a muscle contraction:
9. How is an action potential created? What is a resting membrane potential?
10. What are the four major phases associated with muscle contraction and relaxation?
11. What is rigor mortis? Explain this condition in relationship to events associated with skeletal muscle contraction and relaxation?
12. How does the resting length of a skeletal muscle affect the tension it can create? Explain this relationship in terms of the sarcomere's myofibrils.
13. Contractions
 - a. What is the difference between isotonic and isometric contractions?
 - b. What are the two types of isotonic contraction?
14. What two metabolic processes are used to make ATP?
15. What is myoglobin and how is this molecule used by skeletal muscle?

16. What is the phosphagen system? What two enzymes play a role in the phosphagen system?
17. How does short-term and long-term energy differ?
18. What causes muscle fatigue?
19. How does maximum oxygen uptake influence performance?
20. How do the muscle fibers of a sprinter differ from those of a marathon runner?
21. Are muscles stronger than the bones?
22. What factors determines muscular strength?
23. How is the muscle fiber changed by resistance exercise?
24. How is the muscle fiber changed by endurance exercise?
25. Why is cross training important?

(Note: additional questions to follow for cardiac and smooth muscle)