Unit 6 / Chapter 6: The Muscular System - STUDY GUIDE

Your study guide is not only an excellent guide to preparation for your exams, it is also a homework assignment. Your completed study guide work will be handed in on the day of the Unit Exam.

Words to know:

<table>
<thead>
<tr>
<th>Chapter 6 (Muscular System)</th>
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<tbody>
<tr>
<td>Fascia</td>
</tr>
<tr>
<td>Actin</td>
</tr>
<tr>
<td>Peristalsis</td>
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<tr>
<td>Aponeuroses</td>
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<tr>
<td>Myosin</td>
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<tr>
<td>Cardiac muscle</td>
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<tr>
<td>Epimysium</td>
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<tr>
<td>Troponin</td>
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<tr>
<td>Origin</td>
</tr>
<tr>
<td>Perimysium</td>
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<tr>
<td>Tropomyosin</td>
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<tr>
<td>Insertion</td>
</tr>
<tr>
<td>Endomysium</td>
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<tr>
<td>Sliding filament model</td>
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<tr>
<td>Prime mover (agonist)</td>
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<tr>
<td>Fasicles (fasciculi)</td>
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<tr>
<td>ATP</td>
</tr>
<tr>
<td>Synergist</td>
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<tr>
<td>Sarcolemma</td>
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<tr>
<td>Creatine phosphate</td>
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<tr>
<td>Antagonist</td>
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<tr>
<td>Sarcomplasm</td>
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<tr>
<td>Cross bridges</td>
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<tr>
<td>Hypertrophy</td>
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<tr>
<td>Myofibrils</td>
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<tr>
<td>Hemoglobin</td>
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<tr>
<td>Atrophy</td>
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<tr>
<td>Sarcomere</td>
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<tr>
<td>Oxygen debt</td>
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<tr>
<td>Isometric contraction</td>
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<tr>
<td>Sarcomplasm reticulum</td>
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<tr>
<td>Lactic acid</td>
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<tr>
<td>Isotropic contraction</td>
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<tr>
<td>Transverse tubules (T-tubules)</td>
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<tr>
<td>Threshold stimulus</td>
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<tr>
<td>Bursa</td>
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<tr>
<td>Motor neuron</td>
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<tr>
<td>All-or-none response</td>
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<tr>
<td>Tendon</td>
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<tr>
<td>Motor end plate</td>
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<tr>
<td>Twitch</td>
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<tr>
<td>Ligament</td>
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<tr>
<td>Neurotransmitter</td>
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<tr>
<td>Summation</td>
</tr>
<tr>
<td>Motor unit</td>
</tr>
<tr>
<td>Tetanus</td>
</tr>
<tr>
<td>Acetylcholine</td>
</tr>
<tr>
<td>Muscle tone (Tonus)</td>
</tr>
<tr>
<td>*all muscles from list</td>
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<tr>
<td>Acetylcholinesterase</td>
</tr>
<tr>
<td>Smooth muscle (multiunit, visceral)</td>
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<td>*all types of joint movements</td>
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</tbody>
</table>

Questions to answer:

1) Describe the relationship between the transverse tubules and the sarcoplasmic reticulum (use their functions to explain the relationship).

2) Distinguish between skeletal, smooth, and cardiac muscle. Include where in the body each type of muscle is found.

3) Differentiate between the following muscle proteins (include function or role of each in a muscle contraction)

   Actin:  
   Myosin:  
   Troponin:  
   Tropomyosin:
4) Sketch and label the parts of a sarcomere.

5) Where are calcium ions stored within the muscle? How is calcium ion release triggered?

6) What is the significance of acetylcholine and acetylcholinesterase?

7) Differentiate between prime mover, synergist, and antagonist.

8) Define the following terms having to do with the muscular system.
   • hypertrophy: ________________________________
   • atrophy: ________________________________
   • origin: ________________________________
   • insertion: ________________________________
   • flexion: ________________________________
   • extension: ________________________________
   • abduction: ________________________________
   • adduction: ________________________________

9) What is the name of the fluid-filled sac that cushions a muscle or tendon as well as various joints?
   ________________________________

10) Distinguish between: fascia, aponeurosis, epimysium, perimysium, and endomysium.
11) In the diagram below, label the:
   
   Epimysium   Muscle fiber   Myofibril
   Perimysium   Nucleus   Tranverse tubule
   Endomysium   Mitochondrion   Fasciculus

12) What is the immediate source of energy for a muscle contraction?

13) What is lactic acid? When does it accumulate in muscles and what is the result?

14) Name the three hamstrings:

15) Name the four quadriceps:

16) Differentiate between an isometric and an isotonic contraction.

17) What is summation?
18) Describe the different types of smooth muscle.

19) Describe the contractions for the following types of muscles.

   A) Smooth

   B) Cardiac

   C) Skeletal

20) What is the All-Or-None Response?

**BE SURE TO REVIEW ALL DIAGRAMS...and BE READY TO LABEL DIAGRAMS ON THE TEST**