

## 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:

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

### 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

Perimysium

Endomysium

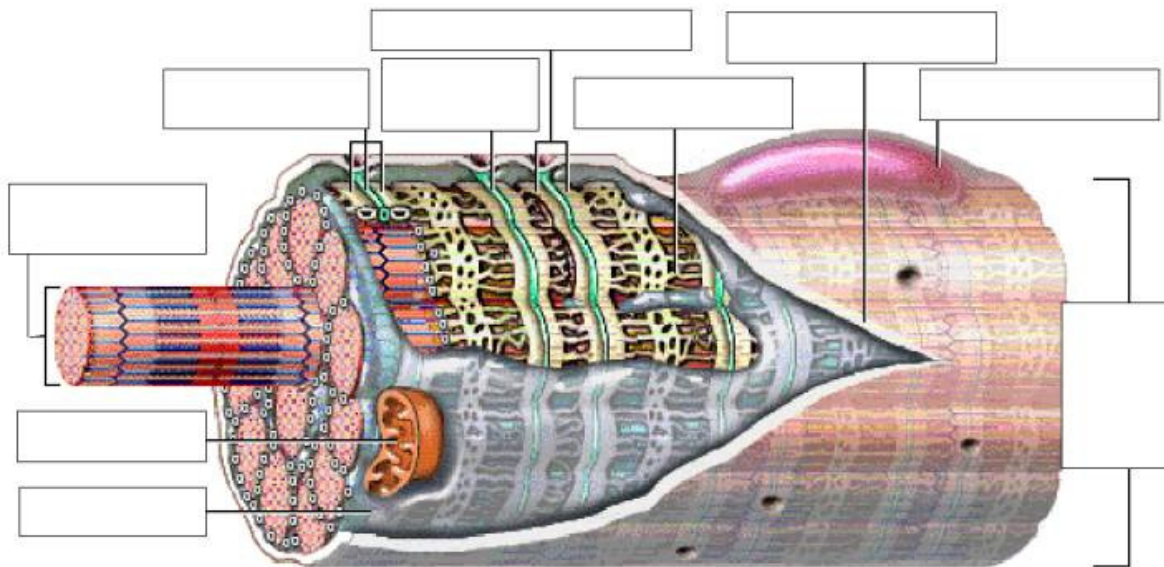
Muscle fiber

Nucleus

Mitochondrion Fasciculus

Myofibril

Tranverse tubule



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***