

Muscular System

Answer Key: Textbook page references are provided as a guide for answering these questions. A complete answer key was provided for your instructor.

OBJECTIVES

1. Identify three types of muscle tissues.
2. Compare the structure of the whole muscle and the structure of a single muscle fiber.
3. Describe the sliding filament mechanism of muscle contraction.
4. Explain the role of calcium and adenosine triphosphate (ATP) in muscle contraction.
5. Describe the relationship between skeletal muscles and nerves, including the motor unit and its relationship to recruitment and the events that occur at the neuromuscular junction.
6. Discuss the force of muscle contraction, including the following:
 - Define *twitch* and *tetanus*.
 - Identify the sources of energy for muscle contraction.
 - Trace the sequence of events from nerve stimulation to muscle contraction.
7. Define muscle terms, and state the basis for naming muscles.
8. Identify and list the actions of the major muscles.

Part I: Mastering the Basics

MATCHING

Types of Muscles

Directions: Match the following terms to the most appropriate definition by writing the correct letter in the space provided. Some terms may be used more than once. See text, pp. 143, 144.

- A. skeletal muscle
- B. smooth muscle
- C. cardiac muscle

1. _____ Striated and voluntary
2. _____ Found in the walls of organs or viscera
3. _____ Found in the walls of blood vessels
4. _____ Striated and involuntary
5. _____ Found in the heart
6. _____ Nonstriated and involuntary
7. _____ Found attached to bones

8. _____ The only type of muscle that is nonstriated
9. _____ The only type of muscle that is voluntary
10. _____ Must be innervated by a somatic motor nerve

MATCHING

Parts of a Whole Muscle

Directions: Match the following terms to the most appropriate definition by writing the correct letter in the space provided. Some terms may be used more than once. See text, pp. 144-146.

- A. fascicles
- B. perimysium
- C. endomysium
- D. aponeurosis
- E. tendon
- F. epimysium

1. _____ Cordlike structure that attaches muscle to bone
2. _____ Small bundles of muscle fibers
3. _____ Connective tissue that surrounds individual muscle fibers
4. _____ Flat sheetlike fascia that attaches muscle to muscle or muscle to bone
5. _____ Connective tissue that surrounds the fascicles or bundles
6. _____ Connective tissue that surrounds a whole skeletal muscle

MATCHING

Structure of a Muscle Fiber

Directions: Match the following terms to the most appropriate definition by writing the correct letter in the space provided. See text, pp. 145-147.

- A. T tubule
- B. sarcoplasmic reticulum (SR)
- C. actin
- D. sarcomere
- E. myosin
- F. cross-bridge

1. _____ Series of contractile units that make up each myofibril; extends from Z line to Z line
2. _____ Thin protein filaments that extend toward the center of the sarcomere from the Z lines

Muscular System Study Guide Packet Answers

Kevin T Patton, PhD



Muscular System Study Guide Packet Answers:

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Resources in Education ,2001 **Resources for Teaching Middle School Science**

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