

Section 36–2 The Muscular System (pages 926–931)



TEKS FOCUS: 5A Specialization of structure and function of muscles; 10A Functions of the muscular system; 10B Interrelationships of organ systems; 11C Importance of exercise on health

This section describes types of muscles and explains how muscles contract.

Types of Muscle Tissue (pages 926–927)

1. List the three different types of muscle tissue.
 - a. _____
 - b. _____
 - c. _____
2. Is the following sentence true or false? Each type of muscle has the same function.

3. Is the following sentence true or false? Skeletal muscles are usually attached to bones.

4. Circle the letter of each sentence that is true about skeletal muscles.
 - a. They have striations.
 - b. Most of them are consciously controlled by the central nervous system.
 - c. Their cells have just one nucleus.
 - d. Their cells are long and slender.
5. Circle the letter of each sentence that is true about smooth muscle cells.
 - a. They are spindle-shaped.
 - b. They can function without nervous stimulation.
 - c. They have two or more nuclei.
 - d. They are connected by gap junctions.
6. What are three functions of smooth muscles? _____

7. Is the following sentence true or false? Cardiac muscle cells always have two nuclei.

8. Complete the table that compares and contrasts the three types of muscle tissue.

TYPES OF MUSCLE TISSUE

Muscle Tissue Type	Striated/Not Striated	What It Controls
Skeletal	Striated	
	Not striated	Involuntary movements
Cardiac		

Muscle Contraction (page 928)

9. Circle the letter of the choice that lists the muscle structures from largest to smallest.
- a. Myofibrils, filaments, muscle fibers
 - b. Muscle fibers, myofibrils, filaments
 - c. Muscle fibers, filaments, myofibrils
 - d. Myofibrils, muscle fibers, filaments

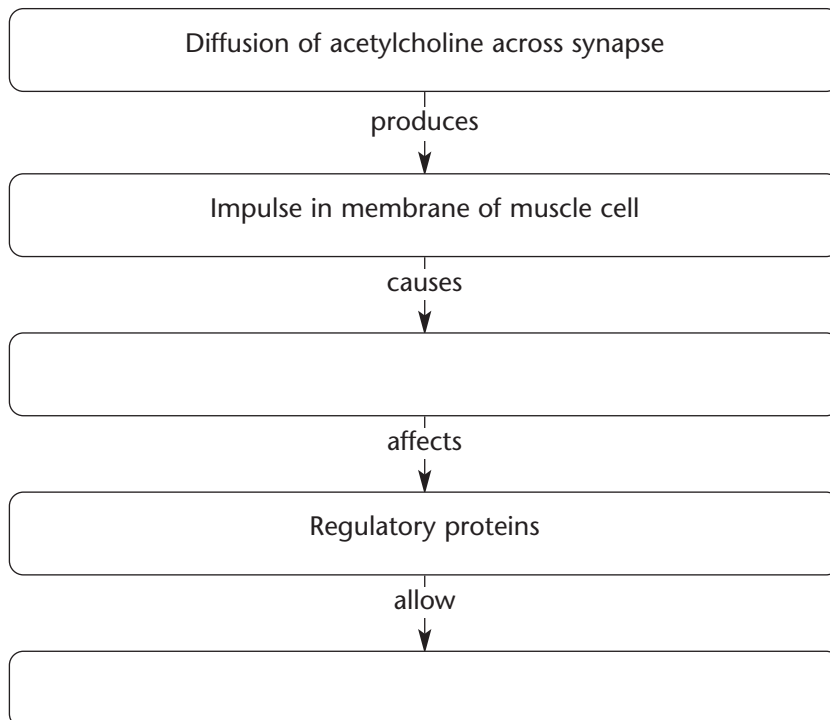
Match each type of muscle filament with the protein it contains.

Type of Filament	Protein It Contains
_____ 10. thick	a. Actin
_____ 11. thin	b. Myosin

12. The filaments are arranged along the muscle fiber in units called _____.
13. Is the following sentence true or false? When a muscle is relaxed, there are only thin filaments in the center of a sarcomere. _____
14. How does a muscle contract according to the sliding-filament model of muscle contraction? _____
15. The energy for muscle contraction is supplied by _____.

Control of Muscle Contraction (page 929)

16. Complete the flowchart to show the missing steps in the stimulation of a muscle cell by a neuron.



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17. Is the following sentence true or false? Impulses from motor neurons control the contraction of skeletal muscles. _____
18. The point of contact between a motor neuron and a skeletal muscle cell is a(an) _____.
19. What terminates a muscle contraction? _____
20. Is the following sentence true or false? A single motor neuron can form synapses with many muscle cells. _____
21. What is the difference between a strong muscle contraction and a weak muscle contraction? _____

How Muscles and Bones Interact (page 930)

22. Is the following sentence true or false? Individual muscles can pull in only one direction. _____
23. Circle the letter of the term that refers to the tough connective tissue joining skeletal muscle to bone.
a. cartilage b. ligament c. tendon d. bursa
24. If bones are like levers, what functions as a fulcrum? _____
25. What does it mean for muscles to “work in opposing pairs”? _____

Exercise and Health (page 931)

26. Why is regular exercise important? _____

Reading Skill Practice

When you read a section with many details, writing an outline may help you organize and remember the material. Outline Section 36–2 by first writing the section headings as major topics in the order in which they appear in the book. Then, beneath each major topic, list important details about it. Title your outline *The Muscular System*. Do your work on a separate sheet of paper.