

MUSCULAR SYSTEM

Levels of Organization: "Support and Movement" – Muscular System

Topic: Introduction:

1. The cell membrane of a muscle cell (fiber) is called the sarcolemma.
2. A skeletal muscle is composed of a variety of tissues including layers of connective tissue. Fascia covers the surface of the muscle, epimysium lies beneath the fascia, and perimysium extends into the structure of the muscle, where it separates muscle cells into fascicles. Endomysium separates individual muscle fibers.
3. The immovable end of the muscle is called its origin and the moveable end is its insertion.

Topic: Muscle Characteristics:

4. Match the four characteristics of muscle with their function:

a. contractility	b. _____ can respond to stimulation (by nerves and hormones)
b. excitability	d. _____ can return to original length when stretched
c. extensibility	a. _____ can shorten in length
d. elasticity	c. _____ can stretch beyond resting length

Topic: Muscle Structure:

5. Put these structures in order from the smallest (#1) to the largest (#5) in size:

3. _____ Muscle cell (fiber)
5. _____ Muscle
4. _____ Fascicle
1. _____ Filament
2. _____ Myofibril
6. What gives striated muscle its striped appearance?
The alignment of actin and myosin, or the myofilaments.
7. The basic functional unit of a muscle is the sarcomere, a section of a myofibril.
8. What is a sarcomere composed of?
Thick and thin filament, elastic filaments, Z disc (Z line)
9. Thin filaments are called actin.
Thick filaments are called myosin.
10. What does a T-tubule do?
Runs across the cell and carries the action potential in order to stimulate the sarcoplasmic reticulum

Topic: Neuromuscular Junction:

11. What two things form a neuromuscular junction?

Synaptic knob of motor neuron fiber and muscle fiber

12. When a nerve impulse reaches the end of a motor neuron fiber, synaptic vesicles release a
_____ *ACh* _____ into the gap (synaptic cleft).

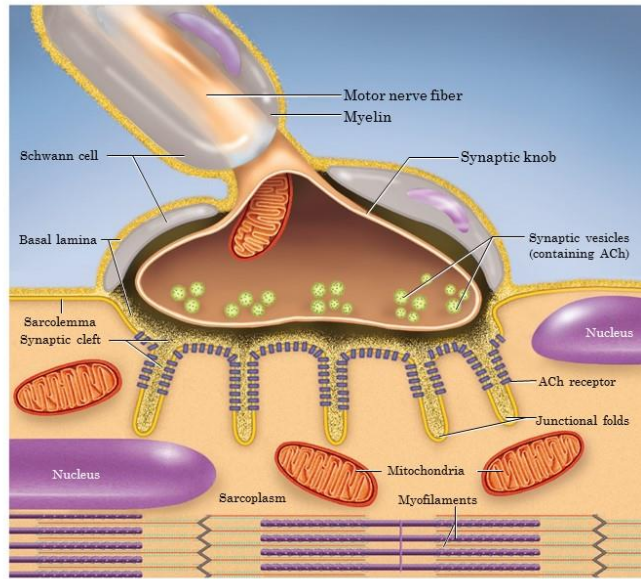
13. What does a motor unit consist of?

One motor neuron and all of the muscle fibers it stimulates.

14. In the space below, draw a neuromuscular junction and label with the following structures: synaptic knob, synaptic cleft, synaptic vesicles, sarcolemma, ACh receptors, and transverse tubules.

Fig. 11.7b

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(b)

Fig. 11.9-1

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