

## Chapter 7 Notes- The Muscular System

- All movements require \_\_\_\_\_ to contract.
- Three types of muscle in the body:
  - 1.

2.

3.

Major Functions of the Muscular System:

1.

2.

3.

Structure of a Skeletal Muscle

Each muscle =

-

-

-

A group of muscle fibers make up a \_\_\_\_\_.

A group of fascicles make up each \_\_\_\_\_.

Types of Connective Tissue Coverings:

Epimysium:

Perimysium:

Endomysium:

Fascia extends beyond the muscle and gives rise to \_\_\_\_\_.

Tendons:

Aponeuroses:

### Structure of a Skeletal Muscle Fiber

Each muscle fiber is a:

Parts of a muscle fiber:

Sarcolemma:

Sarcoplasm:

Sarcoplasmic reticulum:

Transverse (T) tubules:

Myofibrils:

Muscles → Fascicles → Muscle Fibers → Myofibrils → Thick and Thin Filaments

### Microscopic Structure of a Muscle

Sarcomere:

Thick filaments =

Thin filaments =

The organization of these filaments produce \_\_\_\_\_.

Sarcomere extends from Z line to Z line.

I bands (light bands) =

A bands (dark bands) =

H zone =

## Neuromuscular Junction:

Parts of a neuron:

1. cell body =
2. dendrite =
3. axon =

Synaptic cleft =

Synaptic vesicles =

Motor unit =

## Skeletal Muscle Contraction

Sliding filament theory =

Stimulus for Contraction:

1. Neurotransmitter \_\_\_\_\_ is released from neuron's \_\_\_\_\_ into the \_\_\_\_\_.
2. Acetylcholine binds to \_\_\_\_\_ on the sarcolemma and initiates an \_\_\_\_\_.
3. An impulse travels through \_\_\_\_\_ to the \_\_\_\_\_.
4. \_\_\_\_\_ are released from SR to the \_\_\_\_\_ and bind to actin filaments and stimulate \_\_\_\_\_ to contract.
5. Enzyme \_\_\_\_\_ rapidly \_\_\_\_\_ acetylcholine and muscle membrane is no longer stimulated.

Energy Sources for Contraction:

Energy for contraction comes from \_\_\_\_\_.

ATP is produced by aerobic and anaerobic respiration.

1. \_\_\_\_\_ occurs in mitochondria during rest and moderate activity.
2. \_\_\_\_\_ occurs during strenuous exercise due to insufficient oxygen and results in accumulation of lactic acid.

Two types of muscle fibers:

1. Slow twitch fibers:

2. Fast twitch fibers:

## Skeletal Muscle Actions

The type of movement a skeletal muscle produces depends on the way the muscle attaches on either side of a joint.

1. Origin =

2. Insertion =

- Some muscles have more than one origin.
- Movement occurs when a muscle contraction pulls the muscle's \_\_\_\_\_ toward its \_\_\_\_\_.
- Skeletal muscles function in groups that belong to opposing pairs.
  1. Prime mover (agonist) =
  2. Synergist =
  3. Antagonist =
- One muscle in a pair pulls a bone in one direction and the other muscle pulls the bone in the opposite direction.
  - 1.
  - 2.

Muscles are named according to any of the following criteria:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.