Chapter 7

Muscular System

Main Terms:

Myology-

Azygous-

Bi, tri-, quadri -

Externus-

Gracilis-

Latissimus-

Longissimus, Longus-

Medius-

Orbicularis-

Quadratus-

Rectus-

Rhomboideus-

Scalenus-

Serratus-

Teres-

Transversus-

Vastus-

Functions

This system works with the skeletal system to create movement.

The skeletal system provides the attachment for the muscles.

It is also one half of the animal weight (varies from animal to animal)

The muscles in addition to movement, support and maintain posture, and produce body heat.

They help for internal organs such as heart, uterus, lungs, and intestines.

There is never a time that the muscles are not working because the stomach, heart, intestine, and arteries move even when we are not aware.

Allied Structures

Tendons- strong, fibrous white bands which attach to bones. They enable movement.
The phalanges of the foot are controlled by the muscles of the limb through their tendons.
Aponeurosis- a flat and ribbon like tendon, attaches the muscles to the bone
Tendon Sheath- surrounds the tendons when there is a long distance between the joint and the attachment
Fascia- a sheet of fibrous membrane that encloses muscles and separates them into groups
Ligament- strong band of fibrous tissue connecting bones or cartilage
Origin- the less moveable of the two points of attachment
Insertion- the point of attachment by a muscle
Motor Nerve- causes muscle to move by stimulating a group of muscle fibers.
Motor (neuromotor) unit- nerve cell and its group of muscle cells.

Composition of Muscle

Muscle cells are long and slender so they are called fibers.
Sarcolemma- the plasma membrane of a muscle cell
Sarcoplasm- the cytoplasm of a muscle cells
Muscle cell contractions varies on the action needed.
More rapid action is used to move a smaller size structure. An example would be the eye
Many muscles are moved by a muscle group not just one muscle.
Exercise does not increase muscle fibers, but the thickness of the muscle fiber.

Classification of Muscles

Skeletal
- Voluntary
- Striated

These are attached to the skeleton.

They are voluntary because they are controlled at will

When muscles contract they become shorter and thicker.

Smooth

Nonstriated

Involuntary

Found in the stomach, intestines, uterus, blood vessels, and iris of the eye

These muscles are involuntary and controlled by the autonomic nervous system

Some muscles might be under the control of hormones

Cardiac

Striated

Involuntary

It is involuntary but shows striation

Controlled by the autonomic nervous system

Attachment of Muscles

Muscles can be attached to many things in many different locations.

Tendons extend into the phalanges not the muscles which reduces the bulk of the digits.

Muscle usually attaches to the bone except for in the larynx and thorax where they are attached to cartilage.

Some muscles are attached to skin like the cheek and mucous membranes like the tongue

Movement of Muscles

Prime movers- actively produce movement

Antagonists- in oppositions to prime movers which relax as the prime movers contract

Synergists- contract with the prime movers to help execute the movement or steady a part

Naming Muscles

Muscles may be named for their action.

- Example: Extensor carpi radialis
- Extends the carpus

Muscles may be named for their origin and insertion

- Example: occipitofrontal
- Between the occipital and frontal skull bones

Muscles maybe named for their location.

- Example: External Oblique muscle of the abdomen

Muscles may be named for their shape or use

- Example pyramidal
- Shaped like a pyramid

Muscles may be named for the direction of their fibers

- Example: Orbicular muscles of the eye
- Around the eye

Muscles maybe named according to the number of their sections.

- Examples: Biceps
- Bi- two cep- means head