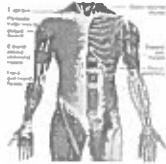






# The Muscular System

Chapter 15 Lesson 3

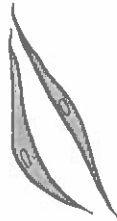


## Functions of the Muscular System

- Moving \_\_\_\_\_ 
- \_\_\_\_\_ blood 
- Moving food through the digestive system 
- Controlling \_\_\_\_\_ movement in and out of the lungs 

## Structure of the Muscular System

- A muscle consists of a mass of \_\_\_\_\_ grouped together.
- Muscle growth is an increase in \_\_\_\_\_, not the number of muscle fibers.



Muscle cell


## Types of Muscles

- Smooth Muscle
- Skeletal Muscle
- Cardiac Muscle





## Smooth Muscle

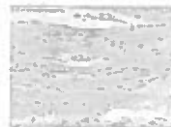


- Act on the lining of passageways and internal \_\_\_\_\_
- \_\_\_\_\_ muscle → 
- Located in the intestines, blood vessels & passageways to the lungs
- \_\_\_\_\_ - person does not activate - works automatically

Human Jejunum

## Skeletal Muscle


- Attached to bone and causes movement 
- \_\_\_\_\_ - person activates movement 
- Account for about \_\_\_\_\_% of body weight
- Are striated → striped appearance under a microscope



Tongue

- Work in \_\_\_\_\_ - one contracts, other extends

## Skeletal Muscle Contraction

- The \_\_\_\_\_ of a muscle
- \_\_\_\_\_ - muscles that bend a limb at a joint 
- Triggered by nerve impulses
  - impulses travel from the spinal cord to the muscle being used through nerves
  - nerves break into nerve endings in the muscle
  - nerve endings stimulate muscle fibers by contact to motor end plates


## Skeletal Muscle Extension

- \_\_\_\_\_ of a muscle
- \_\_\_\_\_ - Muscles that straighten a limb




- If flexors & extensors work at the same time → work against each other = no movement



## Muscle Tone

- Is the natural \_\_\_\_\_ in the fibers of a muscle 
- Muscle fibers contract causing muscle tone or firmness
- Aging and poor health causes muscles to lose their tone = little or no \_\_\_\_\_ from nerves
- Good health = a constant flow of impulses from nerves → muscle tone
- Tone is important for \_\_\_\_\_
- Exercise and good nutrition help muscle tone


## Cardiac Muscle

- Type of \_\_\_\_\_ muscle that forms the walls of the heart 
  - Myocardium (wall of the heart)
- Responsible for \_\_\_\_\_ of the heart → pumps blood through your cardiovascular system
- Heart contracts about 100,000 times each day
- \_\_\_\_\_ - person does not activate - works automatically

## Care for the Muscles

- Regular physical activity with stretching, warm-up, and cool down 
- Practice good posture for health of \_\_\_\_\_ muscles
- Aerobic exercise to help your \_\_\_\_\_ muscles 
- Healthy diet
- Muscles that remain unused for long periods of time will \_\_\_\_\_ decrease in size & strength

## Problems of the Muscular System

- Muscle strain, or pulled muscle, is a sudden, painful stretching or tearing of muscle \_\_\_\_\_
  - Treatment - P.R.I.C.E. (protection, rest, ice, compression, \_\_\_\_\_)
- Sprain - injury to the \_\_\_\_\_ in a joint 

### Problems of the Muscular System



- Tendonitis – inflammation of a \_\_\_\_\_
  - Can be caused by injury, overuse, or aging
  - Symptoms – joint pain or swelling
  - Treatment – rest, anti-inflammatory medication, or ultrasound
- Hernia – when an organ or tissue protrudes through an area of \_\_\_\_\_ muscle
  - Can be caused from straining to lift a heavy object
  - Treatment - \_\_\_\_\_

Infant abdominal hernia (gastroschisis)



### Problems of the Muscular System



- Muscular Dystrophy – a inherited, crippling disease characterized by a progressive wasting away of \_\_\_\_\_ muscles
  - muscle is replaced with \_\_\_\_\_ tissue
  - early detection is important to postpone muscle weakening
  - no \_\_\_\_\_, but exercise can maintain some flexibility



### Problems of the Muscular System



- Muscle cramp – muscle contracts spasmodically and involuntary – feels tense and \_\_\_\_\_ – may occur from using muscles for too long, overworking in the \_\_\_\_\_
  - Treatment: stretch and massage the muscle, heat can help the muscle \_\_\_\_\_

### Problems of the Muscular System



- Myasthenia Gravis – a disease that is characterized by muscles that are weak and easily \_\_\_\_\_
  - most affected are the eye muscles = drooping \_\_\_\_\_ and double vision
  - mostly affects \_\_\_\_\_ of childbearing age, during pregnancy or following an infection
  - symptoms can be treated with medicines



