# Muscle Tissue and Muscular System Information

**The muscular system plays a major role in movement, support, and homeostasis of the body.**

# Standards:

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| --- | --- |
| SC912.L.14.16 | Describe the anatomy and histology, including ultra-structure, of muscle tissue. |
| SC.912.L.14.17 | List the steps involved in the sliding filament of muscle contraction. |
| SC.912.L.14.19 | Explain the physiology of skeletal muscle. |
| SC.912.L.14.20 | Identify the major muscles of the human on a model or diagram. |

**Essential Question(s):**

1. Other than movement, how does the muscular system affect the body?
2. How do the structure of muscles aid in their function?
3. What are the similarities and differences in the three types of muscle tissue?
4. How does muscle contraction occur?
5. How does aging and diseases of the muscles disrupt the “normal” structure and functions?

# Student Objective(s):

* I will be able to identify the functions and functional characteristics of the muscular system.
* I will be able to explain how muscles are named.
* I will be able to identify microscopic structures of muscles.
* I will be able to explain the sliding filament theory.
* I will be able to label the major muscles.
* I will be able to apply knowledge of muscle physiology to a case study.
* I will be able to apply knowledge of muscles to a case study.

# Vocabulary Terms:

|  |  |  |  |
| --- | --- | --- | --- |
| Skeletal Muscles | smooth muscle | cardiac muscle | Origin |
| Insertion | Sarcomere | endomysium | epimysium |
| perimysium |  | myofibrils | fascia |
| antagonistic | myosin | actin |  |

**Key Concepts:**

* The types of muscle are skeletal, cardiac, and smooth; voluntary and involuntary.
* Functional characteristics of muscles include: excitability, extensibility, contractility, elasticity.
* Muscular anatomy must be examined at both the gross and microscopic levels.
* Reference points for muscles include: origin, insertion, aponeuroses, and tendons.
* Muscle contractions are isotonic or isometric.
* Muscles are named according to size, shape, number and location origins, bones associated with, and action of the muscle.
* To remain healthy, muscles must be regularly exercised.

# Test Preparation/Competency Checklist (I can….):

* + **Identify** the three types of muscle and **describe** the muscular system’s function.
  + **Describe** the location and function of skeletal muscle.
  + **Describe** the distinguishing features of each of the three types of muscle.

# Skeletal Muscle Tissue

* + **Describe** the microscopic structure of skeletal muscles.
  + **Explain** how an impulse generated by the central nervous system results in the contraction of a skeletal muscle.

# Smooth and Cardiac Muscle Tissue

* + **Locate and identify** smooth muscle in the body.
  + **Describe** the location and function of smooth muscle.
  + **Describe** the location and function of cardiac muscle.

# Muscular System

* + **Describe** the roles of agonists and antagonists in muscle movement. Identify at least one example of paired muscles that oppose each other’s action.
  + **Explain** the meaning of the terms insertion and origin and describe how skeletal muscles attach to the bony skeleton.
  + **Explain** how the skeletal and muscular systems work together to produce leverage. **Identify and describe** examples of first, second and third-class levers

in the body.

* + **Locate and identify** the major skeletal muscle regions of the body as discussed in class.

# I can Statements:

|  |  |  |  |
| --- | --- | --- | --- |
| **Self Evaluation** | | | **I Can Statements Date:** |
| I got it!  ☐ | Sort of got it  ☐ | I didn’t get it  ☐ | I can …….. |
| Evidence to support statement…… | | | |
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