

Muscle Anatomy and Physiology Outline

- I. Know external muscle
 - a. Page 279 & 280
- II. Anatomy of Skeletal Muscles
 - a. Muscle Organization
 - i. Be able to list the parts from organ to inside a muscle cells
 1. page 281
 2. connective tissue
 - a. Epimysium, Perimysium, Endomysium, Tendon, Aponeurosis
 - b. Muscle Shape – helps determine their function
 - i. Parallel
 - ii. Convergent
 - iii. Pennate
 - iv. Bipennate
 - v. Sphincter
 - c. Muscle attachment
 - i. Origin – the bone that _____
 - ii. Insertion – the bone that _____
 - d. Muscle Actions
 - i. Primer Mover – the muscle that _____ another name is _____
 - ii. Antagonist - the muscle that _____
 - iii. T/ F the Primer Mover and the Antagonist will never work at the same time.
 - iv. What is the function of synergist _____
 - v. What are the muscles called that stabilize a joint? _____
 - e. Levers –
 - i. Why does the body need levers?
 - ii. Know the pieces of a level and what part of the body that acts as each piece.
 1. lever or bar
 2. fulcrum or pivot
 3. force or pull
 4. resistance or load
 - iii. Know the types of levers
 1. 1st class
 2. 2nd class
 3. 3rd class
 4. which type of lever is the knee during flexion of the knee
 - a. be able to tell the pieces and parts of the lever
 - b. be able to define your answer
 5. which type of lever is most common in the body and why?
- III. Physiology of muscles
 - a. The working unit of a muscle cell is called a sarcomere
 - i. Z Line
 - ii. A Band
 - iii. H Zone
 - iv. Thick filament – also known as _____
 - v. Thin filament – also known as _____
 1. the three parts of a thin filament
 - a.
 - b.
 - c.
 - vi. Which filament moves? _____ which filament does the moving? _____
 - vii. Which areas change size (shorten)

- b. Muscle Cell Structure
 - i. The cell membrane is known as _____
 - ii. The cytoplasm is known as _____
 - iii. A network of sacs that store Ca^{++} ions _____
 - iv. Tube that help to transmit the signal thru the cell _____
- c. Muscle Contraction
 - i. Know the steps of a muscle contraction
 - 1. a _____ must come from a _____ usually
 - 2. _____ is released from _____
 - 3. _____ attaches to _____
 - 4. _____ releases which causes _____ to move
 - 5. exposing _____ for _____ to bind to
 - 6. _____ flex pulling the _____
 - 7. _____ attaches to the _____ causing it to release from _____
 - ii. T/F all of the myosin heads attach to actin at the same time
- d. Types of skeletal muscle fibers
 - i. Fast fibers have _____ and are able to respond _____ and are used for _____
 - ii. Slow fibers have _____ and are able to respond _____ and are used for _____
 - iii. Intermediate fibers have _____ and are able to respond _____ and are used for _____
- e. Motor unit
 - i. a motor unit is composed of _____ and _____
 - ii. if a motor unit has few muscle fibers per nerve then _____
 - iii. if a motor unit has many muscle fibers per nerve then _____
- f. Myography
 - i. Be able to explain what happens during each phase of a twitch contraction (specifically what is happening inside the cell)
 - 1. latent
 - 2. contraction
 - 3. relaxation
- g. Muscle Tone
 - i. What happens when someone loses muscle tone
- h. Types of contractions
 - i. Isotonic contractions are when the tension _____ while the muscle cell _____
 - 1. concentric contractions are when muscle cells _____
 - 2. eccentric contractions are when muscle cells _____
 - ii. Isometric contractions are when the tension _____ while the muscle cell _____

IV. Cardiac Muscle

- a. Know the similarities and differences between cardiac, smooth and skeletal muscle
- b. Where does the cardiac muscle cell get the signal to contract
- c. Where is cardiac muscle located in the body
- d. Does cardiac muscle fatigue? Explain

V. Smooth Muscle

- a. Know the similarities and differences between smooth, cardiac and skeletal muscle
- b. Where is smooth muscle located in the body
- c. Know the difference between single-unit and multiunit