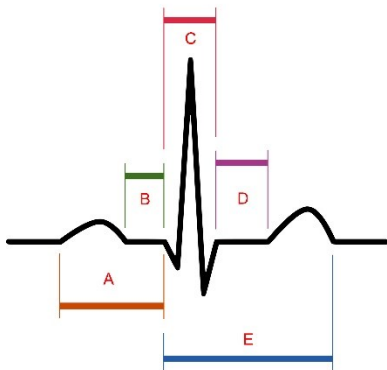


CSCS Exam Scientific Foundations Study Questions
30 Questions

1. Which of the following is not a fibrous connective tissue involved with skeletal muscle?
(A) Endomysium
(B) Epimysium
(C) Myofibril
(D) Perimysium
2. The endomysium surrounds...
(A) Muscle Fascicles
(B) Muscle Fibers
(C) Skeletal Muscle
3. Proximal means...
(A) Closer to the head
(B) Further from the head
(C) Closer to the trunk
(D) Further from the trunk



4. In the electrocardiogram reading pictured above, what is section A?
(A) P-Wave
(B) PR Interval
(C) PR Segment
(D) QRS Complex
(E) QT Interval
(F) ST Segment
(G) T-Wave
5. Which muscle fiber type has the lowest aerobic enzyme content?
(A) Type I
(B) Type IIa
(C) Type IIx

6. The sarcolemma is the...
 - (A) Fibrous connective tissue surrounding a muscle cell
 - (B) Fluid within a muscle cell
 - (C) Membrane of a muscle cell
 - (D) Site of calcium storage within a muscle cell

7. The neuromuscular junction is also called the...
 - (A) Axon Terminal
 - (B) Motor End Plate
 - (C) Myelin Sheath
 - (D) Node of Ranvier

8. During concentric muscle contraction the M-Line of a sarcomere within the active muscle...
 - (A) Increases
 - (B) Decreases
 - (C) Remains the same

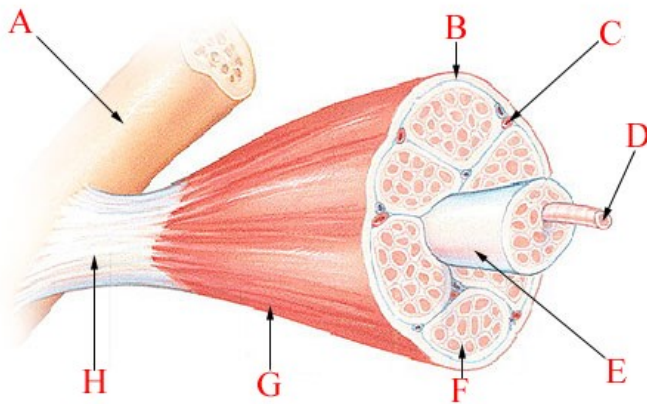
9. True or False: A muscle cell can be innervated by several motor neurons.
 - (A) True
 - (B) False

10. The sarcoplasm of acts as a storage site for which of the following?
 - (A) Calcium
 - (B) DNA
 - (C) Glycogen
 - (D) Sarcolemma

11. Actin is a type of...
 - (A) Myofibril
 - (B) Myofilament
 - (C) Muscle cell organelle

12. True or False: The length of the I-Band in the sarcomere corresponds to the length of a myosin myofilament.
 - (A) True
 - (B) False

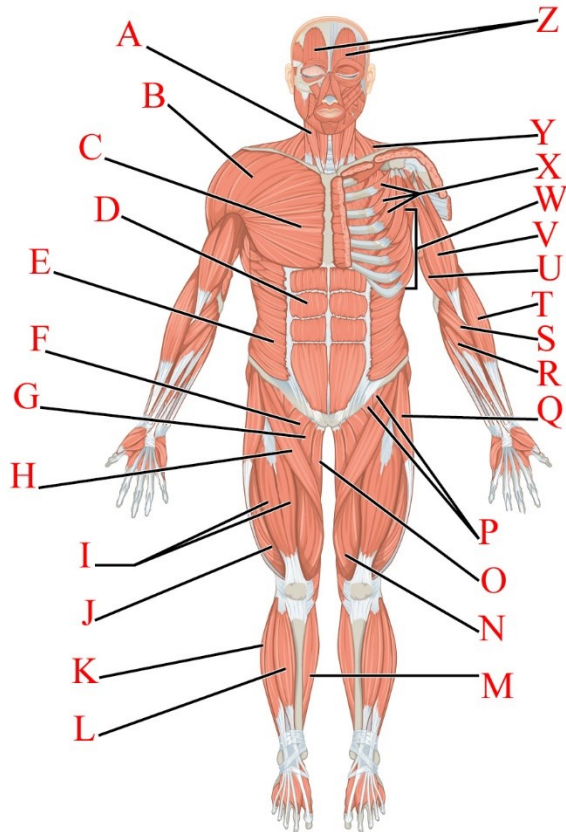
13. Which of the following is the correct sequence of events during muscle cell activation?
- (A) Acetylcholine Release, Sarcolemma Depolarization, Calcium Release, Motor Neuron Depolarization
 - (B) Calcium Release, Sarcolemma Depolarization, Acetylcholine Release, Motor Neuron Depolarization
 - (C) Motor Neuron Depolarization, Acetylcholine Release, Sarcolemma Depolarization, Calcium Release
 - (D) Sarcolemma Depolarization, Motor Neuron Depolarization, Acetylcholine Release, Calcium Release



14. In reference to the diagram pictured above, what structure is B?
- (A) Blood Vessel
 - (B) Bone
 - (C) Endomysium
 - (D) Epimysium
 - (E) Muscle Fascicle
 - (F) Muscle Fiber
 - (G) Perimysium
 - (H) Tendon
15. During muscle cell activation, which of the following events occurs before the other choices?
- (A) Acetylcholine Release
 - (B) Dihydropyridine Receptor Conformation Change
 - (C) Ryanodine Receptor Opening
 - (D) Transverse Tubule Depolarization
16. What determines the length of the A-Band in the sarcomere?
- (A) Length of an actin filament
 - (B) Lack of overlap between actin and myosin
 - (C) Length of a myosin filament
 - (D) Overlap of actin and myosin

17. Up to 150 muscle fibers are grouped together into which structure?
(A) Muscle Fascicle
(B) Muscle Group
(C) Myofibril
(D) Myofilament
18. True or False: 4 actin myofilaments surround each myosin myofilament within a myofibril.
(A) True
(B) False
19. During concentric muscle contraction the H-Zone of a sarcomere within the active muscle...
(A) Increases
(B) Decreases
(C) Remains the same
20. While a muscle fiber is at rest, the sarcoplasmic concentration of calcium is...
(A) High
(B) Low
21. True or False: A single motor unit is composed of a mix of type I and type II muscle fibers.
(A) True
(B) False
22. The function of a muscle cell's transverse tubules is to...
(A) Generate ATP through cellular respiration
(B) Propagate an action potential into the muscle cell interior
(C) Release calcium
(D) Store glycogen
23. What is the relative involvement of type II muscle fibers during a 100 meter sprint?
(A) Low involvement
(B) High involvement
24. Which of the following best describes a mechanism by which muscular force is modulated?
(A) Cross-sectional size of the active muscle
(B) Frequency of motor unit activation
(C) Intracellular calcium concentration
(D) Muscle cell mitochondrial density

25. Specialized sensory receptors that are found within muscles, tendons, and joints are called...
- (A) Baroreceptors
 - (B) Chemoreceptors
 - (C) Proprioceptors
 - (D) Thermoreceptors
26. Which type of proprioceptor causes activation of the muscle that is under tension?
- (A) Alpha Motor Neuron
 - (B) Extrafusal Muscle Fiber
 - (C) Golgi Tendon Organ
 - (D) Muscle Spindle
27. Which chamber of the heart sends oxygenated blood into systemic circulation?
- (A) Left Atria
 - (B) Left Ventricle
 - (C) Right Atria
 - (D) Right Ventricle
28. Which muscle cell organelle stores calcium for release during muscle cell activation?
- (A) Mitochondria
 - (B) Ryanodine Receptor
 - (C) Sarcoplasmic Reticulum
 - (D) Transverse Tubule



Major muscles of the body.
 Right side: superficial; left side:
 deep (anterior view)

29. In reference to the diagram pictured above, what muscle is A?
 (A) Deltoid
 (B) Occipitofrontalis
 (C) Sternocleidomastoid
 (D) Trapezeus
30. A Type II muscle fiber is also referred to as...
 (A) Fast-Twitch
 (B) Slow-Twitch