Chapter 12 - Study Guide

1. The functions of the skeletal muscles include:
   A. supporting the body and protecting internal organs
   B. providing movement and stabilizing joints
   C. maintaining a constant body temperature
   D. assisting movement in the cardiovascular and lymphatic systems
   E. all of the above responses are correct

2. The basic muscle tissues found in humans include:
   A. smooth muscle
   B. cardiac muscle
   C. skeletal muscle
   D. All of the choices are correct.

3. Identify the incorrect statement.
   A. Cardiac muscle is found in the heart.
   B. Smooth muscle can be found in the muscles of the arm.
   C. Skeletal muscle can be found in the arms and legs.
   D. Smooth muscle lines blood vessels.
   E. All of the statements are correct.

4. A muscle which does most of the work during a specific action is called the:
   A. antagonist
   B. prime mover
   C. synergist
   D. secondary mover
   E. buccinators

5. A muscle which opposes the action of another muscle is called the:
   A. secondary mover
   B. buccinators
   C. antagonist
   D. prime mover
   E. synergist
6. A muscle which assists another in an action is called a(n):
   A. antagonist
   B. secondary mover
   C. buccinator
   D. prime mover
   E. synergist

7. The end of the muscle that is attached to the stationary bone is called the _____.
   A. prime mover
   B. insertion
   C. fascia
   D. antagonist
   E. origin

8. The _____ of a muscle is located on the bone that moves.
   A. synergist
   B. origin
   C. secondary mover
   D. insertion
   E. antagonist

9. Muscles may be named as associated with:
   A. size
   B. shape
   C. attachment
   D. action and location
   E. all of the above

10. ____________ is the movement of a body part towards the midline of the body.
    A. Flexor
    B. Extensor
    C. Abductor
    D. Adductor
    E. Rotator

11. Which is the correct pairing of the muscle name to its descriptor?
    A. maximus; largest muscle
    B. deltoid; triangular shape
    C. frontalis; location on frontal bone
    D. masseter; chew
    E. All of the above are correct
12. The gangster movies call a dead person a stiff, rigor mortis is the proper name. How does this occur?
   A. Blood coagulates in the body causing stiffness.
   B. Tissues harden due to a lack of circulation.
   C. Without ATP, muscles remain fixed in their last state of contraction.
   D. With a lack of nerve signals the body tenses.
   E. None of the above.

13. The contractile unit of a muscle fiber is called a:
   A. myosin
   B. actin
   C. sarcomere
   D. sarcolemma
   E. None of the choices are correct.

14. The striations observed in skeletal and cardiac muscles are produced by:
   A. multiple nuclei in each cell
   B. multiple sarcomere alternations
   C. alternating actin filaments and calcium deposits
   D. alternating A bands and I bands
   E. alternating T bands and I bands

15. The contractile elements inside muscle cells are grouped into structures called:
   A. muscle fibers
   B. myofibrils
   C. fascia
   D. mitochondria
   E. transverse tubules

16. The sarcomere extends between two dark lines called the _______ lines.
   A. Q
   B. Z
   C. T
   D. R
   E. D

17. The light bands in skeletal muscle are composed of ______ and the dark bands are composed of ______.
   A. troponin, tropomyosin
   B. actin, myosin
   C. myosin, actin
   D. tropomysin, troponin
   E. collagen, keratin
18. According to the sliding filament theory, myosin filaments pull actin filaments by means of ________.

A. cross-bridges  
B. active transport  
C. passive transport  
D. expansion  
E. dystrophin

19. ________ is a neurotransmitter that triggers muscle contraction.

A. Myosin  
B. Tropomyosin  
C. Troponin  
D. Acetylcholine  
E. Dopamine

20. The release of this substance from the sarcoplasmic reticulum causes the filaments within the sarcomeres to slide past one another.

A. calcium  
B. acetylcholine  
C. potassium  
D. ATPase  
E. myoglobin

21. When calcium ions are released from the sarcoplasmic reticulum, they combine with the protein ________.

A. troponin  
B. tropomyosin  
C. keratin  
D. myoglobin  
E. collagen

22. ________ is a protein that winds about an actin filament covering the binding sites for myosin.

A. Troponin  
B. Tropomyosin  
C. Keratin  
D. Myoglobin  
E. Collagen

23. According to the sliding filament theory, a sarcomere:

A. is a section of actin  
B. gets shorter when it contracts  
C. is myelinated  
D. has intercalated discs  
E. none of the above
24. A single muscle contraction that lasts only a fraction of a second is called a:

A. treppe  
B. muscle twitch  
C. motor unit  
D. tetanus  
E. None of the choices are correct.

25. A motor neuron and all of the muscle fibers that it enervates is called:

A. treppe  
B. a myogram  
C. a motor unit  
D. tetanus  
E. None of the choices are correct.

26. Michelle was receiving Botox injections for her wrinkles. Botox works by ___.

A. preventing uptake of the neurotransmitter at synapses  
B. preventing release of ACH  
C. preventing nerve impulses from traveling past the cell body of a neuron  
D. preventing calcium ion release  
E. unknown

27. Choose the following that is an ATP forming reaction that requires oxygen.

A. fermentation  
B. creatine phosphate breakdown  
C. cellular respiration  
D. lactic acid fermentation  
E. None of the choices are correct.

28. Another name for amyotrophic lateral sclerosis is ____________.

A. Steven Hawking's Disease  
B. Albert Einstein's Disease  
C. Babe Ruth's Disease  
D. Lou Gehrig's Disease  
E. Walter Payton's Disease

29. The quickest method of providing ATP for muscle activity is:

A. anaerobic respiration  
B. creatine phosphate conversion  
C. creatine respiration  
D. aerobic respiration  
E. oxidative respiration
30. As a result of a muscle disorder, Jan is losing her muscle tone. Muscle tone is maintained through the action of:

A. muscle fibrils  
B. nervous muscle fibrils  
C. muscle spindles  
D. muscle bundles  
E. tendons
Chapter 12 - Study Guide Key

1. The functions of the skeletal muscles include:

   A. supporting the body and protecting internal organs
   B. providing movement and stabilizing joints
   C. maintaining a constant body temperature
   D. assisting movement in the cardiovascular and lymphatic systems
   E. all of the above responses are correct

The functions of the skeletal muscles include: supporting the body and protecting the internal organs; providing movement and stabilizing joints; maintaining a constant body temperature; and assisting movement in the cardiovascular and lymphatic systems.

2. The basic muscle tissues found in humans include:

   A. smooth muscle
   B. cardiac muscle
   C. skeletal muscle
   D. All of the choices are correct.

The basic muscle tissues found in humans include: smooth muscle, cardiac muscle, and skeletal muscle.
3. Identify the incorrect statement.

A. Cardiac muscle is found in the heart.
B. Smooth muscle can be found in the muscles of the arm.
C. Skeletal muscle can be found in the arms and legs.
D. Smooth muscle lines blood vessels.
E. All of the statements are correct.

Smooth muscle does not comprise the muscle of the arm.

4. A muscle which does most of the work during a specific action is called the:

A. antagonist
B. prime mover
C. synergist
D. secondary mover
E. buccinators

The muscle that does most of the work during a specific action is called the prime mover.

5. A muscle which opposes the action of another muscle is called the:

A. secondary mover
B. buccinators
C. antagonist
D. prime mover
E. synergist

An antagonist is a muscle that opposes the action of another muscle.
6. A muscle which assists another in an action is called a(n):
   A. antagonist
   B. secondary mover
   C. buccinator
   D. prime mover
   E. synergist

   A muscle which assists another muscle in an action is called a synergist.

7. The end of the muscle that is attached to the stationary bone is called the _____.
   A. prime mover
   B. insertion
   C. fascia
   D. antagonist
   E. origin

   The end of the muscle that is attached to the stationary bone is called the origin.

8. The _____ of a muscle is located on the bone that moves.
   A. synergist
   B. origin
   C. secondary mover
   D. insertion
   E. antagonist

   The insertion of a muscle is located on the bone that moves.
9. Muscles may be named as associated with:
   A. size
   B. shape
   C. attachment
   D. action and location
   E. all of the above

Muscles may be named as associated with: size, attachment, shape, action, and location.

10. ____________ is the movement of a body part towards the midline of the body.

   A. Flexor
   B. Extensor
   C. Abductor
   D. Adductor
   E. Rotator

Adduction is the movement of a body part towards the midline of the body.

11. Which is the correct pairing of the muscle name to its descriptor?

   A. maximus; largest muscle
   B. deltoid; triangular shape
   C. frontalis; location on frontal bone
   D. masseter; chew
   E. All of the above are correct

The following are correct: maximus; largest muscle, deltoid; triangular shape, frontalis; location on frontal bone, and masseter; chew.
12. The gangster movies call a dead person a stiff, rigor mortis is the proper name. How does this occur?

A. Blood coagulates in the body causing stiffness.
B. Tissues harden due to a lack of circulation.
C. Without ATP, muscles remain fixed in their last state of contraction.
D. With a lack of nerve signals the body tenses.
E. None of the above.

Without ATP, muscles remain fixed in their last state of contraction.

13. The contractile unit of a muscle fiber is called a:

A. myosin
B. actin
C. sarcomere
D. sarcolemma
E. None of the choices are correct.

The contractile unit of a muscle fiber is called a sarcomere.
14. The striations observed in skeletal and cardiac muscles are produced by:

A. multiple nuclei in each cell  
B. multiple sarcomere alternations  
C. alternating actin filaments and calcium deposits  
D. alternating A bands and I bands  
E. alternating T bands and I bands

The striations observed in skeletal and cardiac muscles are produced by alternating A bands and I bands.

15. The contractile elements inside muscle cells are grouped into structures called:

A. muscle fibers  
B. myofibrils  
C. fascia  
D. mitochondria  
E. transverse tubules

The contractile elements inside muscle cells are grouped into structures called myofibrils.

16. The sarcomere extends between two dark lines called the ________ lines.

A. Q  
B. Z  
C. T  
D. R  
E. D

The sarcomere extends between two dark lines called the Z lines.
17. The light bands in skeletal muscle are composed of ______ and the dark bands are composed of ______.

A. troponin, tropomysin  
B. actin, myosin  
C. myosin, actin  
D. tropomysin, troponin  
E. collagen, keratin

The light bands in skeletal muscle are composed of actin and the dark bands are composed of myosin.

18. According to the sliding filament theory, myosin filaments pull actin filaments by means of ________.

A. cross-bridges  
B. active transport  
C. passive transport  
D. expansion  
E. dystropin

According to the sliding filament theory, myosin filaments pull actin filaments by means of cross-bridges.
19. _______ is a neurotransmitter that triggers muscle contraction.
   
   A. Myosin  
   B. Tropomyosin  
   C. Troponin  
   **D.** Acetylcholine  
   E. Dopamine

   Acetylcholine is a neurotransmitter that triggers muscle contraction.

Chapter reference: 12  
Figure/section reference: 12.2  
Level of difficulty: Remember/Understand  
Mader - Chapter 12 #32  
Question type: Missing word sentence  
Topic Area: Muscular System

20. The release of this substance from the sarcoplasmic reticulum causes the filaments within the sarcomeres to slide past one another.
   
   **A.** calcium  
   B. acetylcholine  
   C. potassium  
   D. ATPase  
   E. myoglobin

   The release of calcium from the sarcoplasmic reticulum causes the filaments within the sarcomeres to slide past one another.

Chapter reference: 12  
Figure/section reference: 12.2  
Level of difficulty: Remember/Understand  
Mader - Chapter 12 #34  
Question type: Multiple choice  
Topic Area: Muscular System
21. When calcium ions are released from the sarcoplasmic reticulum, they combine with the protein _________.

A. troponin  
B. tropomyosin  
C. keratin  
D. myoglobin  
E. collagen

When calcium ions are released from the sarcoplasmic reticulum, they combine with the protein troponin.

22. _________ is a protein that winds about an actin filament covering the binding sites for myosin.

A. Troponin  
B. Tropomyosin  
C. Keratin  
D. Myoglobin  
E. Collagen

Tropomyosin is a protein that winds about an actin filament covering the binding sites for myosin.
23. According to the sliding filament theory, a sarcomere:

A. is a section of actin  
B. gets shorter when it contracts  
C. is myelinated  
D. has intercalated discs  
E. none of the above

According to the sliding filament theory, a sarcomere gets shorter when it contracts.

24. A single muscle contraction that lasts only a fraction of a second is called a:

A. treppe  
B. muscle twitch  
C. motor unit  
D. tetanus  
E. None of the choices are correct.

A single muscle contraction that lasts only a fraction of a second is called a muscle twitch.

25. A motor neuron and all of the muscle fibers that it enervates is called:

A. treppe  
B. a myogram  
C. a motor unit  
D. tetanus  
E. None of the choices are correct.

A motor neuron and all of the muscle fibers that it innervates is called a motor unit.
26. Michelle was receiving Botox injections for her wrinkles. Botox works by ___.
   A. preventing uptake of the neurotransmitter at synapses
   **B.** preventing release of ACH
   C. preventing nerve impulses from traveling past the cell body of a neuron
   D. preventing calcium ion release
   E. unknown

Michelle was receiving Botox injections for her wrinkles. Botox works by preventing the release of ACH.

27. Choose the following that is an ATP forming reaction that requires oxygen.
   A. fermentation
   B. creatine phosphate breakdown
   **C.** cellular respiration
   D. lactic acid fermentation
   E. None of the choices are correct.

Cellular respiration requires oxygen.

28. Another name for amyotrophic lateral sclerosis is _____________.
   A. Steven Hawking's Disease
   B. Albert Einstein's Disease
   C. Babe Ruth's Disease
   **D.** Lou Gehrig's Disease
   E. Walter Payton's Disease

Another name for amyotrophic lateral sclerosis is Lou Gehrig's Disease.
29. The quickest method of providing ATP for muscle activity is:

A. anaerobic respiration  
B. creatine phosphate conversion  
C. creatine respiration  
D. aerobic respiration  
E. oxidative respiration

The quickest method of providing ATP for muscle activity is creatine phosphate conversion.

Chapter reference: 12  
Figure/section reference: 12.3  
Level of difficulty: Remember/Understand  
Mader - Chapter 12 #48  
Question type: Multiple choice  
Topic Area: Muscular System

30. As a result of a muscle disorder, Jan is losing her muscle tone. Muscle tone is maintained through the action of:

A. muscle fibrils  
B. nervous muscle fibrils  
C. muscle spindles  
D. muscle bundles  
E. tendons

As a result of a muscle disorder, Jan is losing her muscle tone. Muscle tone is maintained through the action of muscle spindles.

Chapter reference: 12  
Figure/section reference: 12.3  
Level of difficulty: Apply/Analyze  
Mader - Chapter 12 #43  
Question type: Multiple choice  
Topic Area: Muscular System
Chapter 12 - Study Guide **Summary**

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