

Anatomy and Physiology - Muscular System Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 - 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. Which statement about how skeletal muscles are named is true?**
 - A. Direction of muscle fibers is a criterion.**
 - B. Color of the muscle is a criterion.**
 - C. Length of the muscle is a criterion.**
 - D. Time of day the muscle is used is a criterion.**

- 2. Creatine phosphate serves to rapidly regenerate ATP by donating a phosphate to ADP. Which statement best describes this role?**
 - A. Creatine phosphate converts glucose to lactate.**
 - B. Creatine phosphate donates a phosphate to ADP to form ATP.**
 - C. Creatine phosphate directly supplies energy without ATP.**
 - D. Creatine phosphate is produced from ATP and glucose.**

- 3. Where do myosin and actin overlap somewhat?**
 - A. In the cytoplasm**
 - B. On the plasma membrane**
 - C. In the nucleus**
 - D. In the sarcomere**

- 4. Which condition involves inflammation of the tendon due to repetitive use?**
 - A. Myalgia**
 - B. Myopathy**
 - C. Tendinitis**
 - D. Myositis**

- 5. Where are the nuclei located in a skeletal muscle cell?**
 - A. Beneath the membrane sarcolemma**
 - B. Within the sarcoplasmic reticulum**
 - C. In the center of the cell**
 - D. At the neuromuscular junction**

- 6. What is a sprain?**
- A. A dislocation of the joint**
 - B. Overstretching of a muscle**
 - C. Fracture of a bone**
 - D. Twisting a joint leading to swelling and injury to ligaments, tendons, blood vessels, and nerves**
- 7. Thin filaments are made of which protein?**
- A. Myosin protein**
 - B. Actin protein**
 - C. Troponin**
 - D. Nebulin**
- 8. What is abduction?**
- A. Moving away from the midline**
 - B. Moving toward the midline**
 - C. Circumduction**
 - D. Rotation**
- 9. What is anaerobic respiration/fermentation?**
- A. Reaction that requires oxygen**
 - B. Reaction that breaks down glucose without using oxygen**
 - C. Process that uses oxygen to produce ATP**
 - D. Reaction that consumes ATP to produce glucose**
- 10. Which muscle type pumps blood through the heart?**
- A. Cardiac Muscle**
 - B. Skeletal Muscle**
 - C. Smooth Muscle**
 - D. Tendon**

Answers

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1. A
2. D
3. D
4. C
5. D
6. D
7. B
8. A
9. B
10. A

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Explanations

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1. Which statement about how skeletal muscles are named is true?

A. Direction of muscle fibers is a criterion.

B. Color of the muscle is a criterion.

C. Length of the muscle is a criterion.

D. Time of day the muscle is used is a criterion.

Muscle names often tell you how the fibers run, so the direction of muscle fibers is a reliable and widely used criterion. Terms like rectus, obliquus, and transversus describe straight, diagonal, or horizontal fiber orientations, which also indicate how the muscle pulls on a bone. For example, rectus muscles have fibers that run parallel to the body's long axis, suggesting a straight pull, while oblique muscles have angled fibers that produce a different pull direction. Color isn't used in naming, and time of day has no anatomical basis. Length appears in some names (like longus or brevis) but isn't as universally informative as fiber direction for understanding how a muscle functions.

2. Creatine phosphate serves to rapidly regenerate ATP by donating a phosphate to ADP. Which statement best describes this role?

A. Creatine phosphate converts glucose to lactate.

B. Creatine phosphate donates a phosphate to ADP to form ATP.

C. Creatine phosphate directly supplies energy without ATP.

D. Creatine phosphate is produced from ATP and glucose.

The main idea is the immediate energy buffer system in muscle, where a high-energy phosphate bond is stored and rapidly used to keep ATP levels up during short, intense activity. Creatine phosphate serves as a quick phosphate donor to ADP via the enzyme creatine kinase, reforming ATP so the muscle can continue contracting without delay. This makes the statement that best describes its role the one saying it donates a phosphate to ADP to form ATP. Phosphocreatine is actually formed when ATP donates its phosphate to creatine, not from ATP and glucose together in a single step, and glucose isn't directly involved in making phosphocreatine. It also doesn't directly supply energy on its own; its purpose is to regenerate ATP quickly so energy can be used by the working muscles.

3. Where do myosin and actin overlap somewhat?

A. In the cytoplasm

B. On the plasma membrane

C. In the nucleus

D. In the sarcomere

Within a skeletal muscle fiber, myosin thick filaments and actin thin filaments are organized into repeating units called sarcomeres. Actin extends from the Z-discs toward the center, while myosin sits in the middle. The region where these filaments overlap—the zone of overlap—resides inside the sarcomere, specifically in the A-band. This is the site where myosin heads bind to actin and pull, sliding the filaments past one another to shorten the sarcomere during contraction. The other locations aren't where this contractile overlap is organized: the cytoplasm is just the general fluid inside the cell, the plasma membrane is the cell boundary, and the nucleus houses genetic material, not the arrangement of contractile proteins.

4. Which condition involves inflammation of the tendon due to repetitive use?

- A. Myalgia**
- B. Myopathy**
- C. Tendinitis**
- D. Myositis**

Tendinitis is inflammation of the tendon caused by repetitive use. Tendons connect muscle to bone and transmit the force of muscle contractions to move joints. Repetitive motions or overuse create microtears in the tendon fibers, triggering an inflammatory answer that produces pain, tenderness, and sometimes swelling around the joint. The term -itis signals inflammation, which helps distinguish it from other muscle-related conditions. For example, myalgia is muscle pain, myopathy is a disease of muscle tissue, and myositis is inflammation of muscle tissue itself, not the tendon. In some chronic overuse cases, the issue may be described as tendinopathy or tendinosis when inflammation isn't the dominant feature, but the classic inflammatory scenario from repetitive use is tendinitis.

5. Where are the nuclei located in a skeletal muscle cell?

- A. Beneath the membrane sarcolemma**
- B. Within the sarcoplasmic reticulum**
- C. In the center of the cell**
- D. At the neuromuscular junction**

The nuclei are located just beneath the cell membrane, i.e., at the periphery of the skeletal muscle fiber. Skeletal muscle fibers are formed by the fusion of many precursor cells, which leaves multiple nuclei arranged along the edge of the long, cylindrical cell. This peripheral placement supports the high demands for protein synthesis across the fiber and allows gene products to reach distant parts of the cell efficiently. The nucleus is not typically found in the center of the cell in mature fibers. The sarcoplasmic reticulum houses calcium, and the neuromuscular junction is the site of nerve-to-muscle signaling, not a nucleus location.

6. What is a sprain?

- A. A dislocation of the joint**
- B. Overstretching of a muscle**
- C. Fracture of a bone**
- D. Twisting a joint leading to swelling and injury to ligaments, tendons, blood vessels, and nerves**

A sprain is an injury to the ligaments around a joint caused by twisting or wrenching the joint, which leads to swelling, pain, and sometimes instability. Ligaments connect bone to bone and stabilize joints, so when they're stretched or torn in a twist, the surrounding tissues swell as part of the inflammatory response. The description that best fits this is twisting a joint leading to swelling and injury to ligaments and nearby soft tissues, because it captures both the mechanism (twisting) and the primary structures affected (ligaments). In contrast, a dislocation involves bones being forced out of their normal alignment, a fracture is a break in bone, and a muscle strain is overstretching of a muscle rather than ligaments.

7. Thin filaments are made of which protein?

- A. Myosin protein
- B. Actin protein**
- C. Troponin
- D. Nebulin

Thin filaments in muscle fibers are built from actin, specifically filamentous actin (F-actin) that forms the long, thin backbone of the filament. This actin backbone provides the binding sites for myosin heads, enabling cross-bridge formation and force generation during contraction. Along the actin strand sit regulatory proteins like tropomyosin and troponin, which control access to those binding sites in response to calcium. Nebulin helps stabilize and set the length of the thin filament, but it isn't the filament itself. Myosin is the motor protein that makes up the thick filament. So actin is the protein that constructs the thin filament.

8. What is abduction?

- A. Moving away from the midline**
- B. Moving toward the midline
- C. Circumduction
- D. Rotation

Abduction is the movement of a body part away from the midline of the body. For example, lifting the arm out to the side or spreading the fingers apart moves away from the central line that runs down the center of the body. This contrasts with adduction, which brings a limb toward the midline. Circumduction is a circular, cone-shaped motion that combines several movements (flexion, extension, abduction, and adduction), and rotation is turning a part around its own long axis. So moving away from the midline accurately defines abduction.

9. What is anaerobic respiration/fermentation?

- A. Reaction that requires oxygen
- B. Reaction that breaks down glucose without using oxygen**
- C. Process that uses oxygen to produce ATP
- D. Reaction that consumes ATP to produce glucose

Anaerobic respiration/fermentation is a way cells make ATP when oxygen isn't available. It begins with glycolysis, splitting glucose into two pyruvate molecules and producing a small amount of ATP. Without oxygen to drive the mitochondria, the cell must recycle NAD⁺ by converting pyruvate into lactate (in animals) or into ethanol and CO₂ (in yeast). This regeneration of NAD⁺ lets glycolysis continue, giving a limited amount of energy—about 2 ATP per glucose. The defining feature is that no oxygen is used in this process, unlike aerobic respiration. The other ideas involve using oxygen or building glucose, which aren't descriptions of fermentation.

10. Which muscle type pumps blood through the heart?

- A. Cardiac Muscle**
- B. Skeletal Muscle**
- C. Smooth Muscle**
- D. Tendon**

The heart's pumping action is carried out by a specialized muscle designed to contract rhythmically and involuntarily. Cardiac muscle is the muscle of the heart, and its cells form a coordinated network thanks to intercalated discs that include gap junctions. This setup lets the heart beat as a single unit, efficiently ejecting blood from the chambers with each contraction. Cardiac muscle is striated like skeletal muscle but operates without conscious control and has a high mitochondrial density to sustain continuous activity, supported by intrinsic pacemaker activity and autonomic input to modulate rate and force. Skeletal muscle, while powerful, is voluntary and designed for movement of joints rather than sustaining the heart's rhythmic pump. Smooth muscle is found in the walls of blood vessels and hollow organs to regulate diameter and flow, not to drive the heart's pumping action. Tendons are connective tissue, not muscle, and do not pump blood. So, the muscle type that pumps blood through the heart is cardiac muscle.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://anatomyphysiomuscularsys.examzify.com>

We wish you the very best on your exam journey. You've got this!

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