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

1. Which are the three main connective tissue coverings of skeletal muscle?

A. Epimysium, Perimysium, Endomysium

B. Fascia, Tendon, Ligament

C. Epimysium, Endomysium, Fascia

D. Perimysium, Endomysium, Fascia

2. What kinds of activities is cellular respiration used for?

A. During sprinting

B. Only at rest

C. Activities lasting hours

D. Activities lasting seconds

3. What is rapid stimulus?

A. Constant contraction or tetanus

B. A brief twitch contraction

C. Rapid burst without sustained contraction

D. No contraction

4. Which muscle type is typically attached to bones and enables voluntary movement?

A. Cardiac Muscle

B. Tendon

C. Skeletal Muscle

D. Smooth Muscle

5. In the muscular system, inflammation of the muscle tissue is called?

A. Myalgia

B. Tendinitis

C. Tenosynovitis

D. Myopathy

6. What do muscles use stored ATP for?

- **A. Energy**
- **B. Calcium buffering**
- **C. Nerve conduction**
- **D. Protein synthesis**

7. Which is a muscular dystrophy?

- **A. Tendonitis**
- **B. Myasthenia Gravis**
- **C. Muscular Dystrophy**
- **D. Duchenne MD**

8. The sarcoplasmic reticulum is a specialized form of which organelle?

- **A. Endoplasmic reticulum**
- **B. Golgi apparatus**
- **C. Lysosome**
- **D. Nucleus**

9. Myasthenia Gravis involves a shortage of receptors for which neurotransmitter?

- **A. Norepinephrine**
- **B. Dopamine**
- **C. GABA**
- **D. Acetylcholine**

10. What is creatine phosphate?

- **A. A high-energy compound that is the fastest way to make ATP available for muscles**
- **B. A low-energy storage molecule**
- **C. A sugar stored in muscle**
- **D. An enzyme that breaks ATP**

Answers

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

Explanations

1. Which are the three main connective tissue coverings of skeletal muscle?

A. Epimysium, Perimysium, Endomysium

B. Fascia, Tendon, Ligament

C. Epimysium, Endomysium, Fascia

D. Perimysium, Endomysium, Fascia

The main idea is how skeletal muscle is organized by three concentric connective tissue layers that wrap at different levels. The endomysium surrounds each individual muscle fiber, providing support and housing capillaries and nerves. The perimysium wraps groups of fibers into fascicles, helping organize force transmission and pathways for vessels and nerves. The epimysium is the outer layer that encloses the entire muscle and blends with the tendon to attach to bone. These three layers—endomysium, perimysium, and epimysium—are the primary coverings of a skeletal muscle. Other terms like fascia, tendon, and ligament describe broader connective tissues or attachments rather than the specific muscle-covering layers, so they don't fit as the three main coverings of a muscle.

2. What kinds of activities is cellular respiration used for?

A. During sprinting

B. Only at rest

C. Activities lasting hours

D. Activities lasting seconds

Cellular respiration provides energy through aerobic metabolism, using oxygen to fully break down fuel in the mitochondria to make ATP. This process yields a lot of ATP, but it happens relatively slowly, which makes it ideal for sustained work that can last many minutes to hours. That's why it supports activities lasting hours. Short, high-intensity efforts like sprinting rely on faster, anaerobic energy systems that don't require oxygen and can produce ATP quickly but only for a few seconds to a couple of minutes. Even at rest, aerobic respiration is ongoing, and during long-duration activity the body continues to use it to meet ongoing energy needs, often shifting toward fat as a fuel source to sustain the activity over time.

3. What is rapid stimulus?

A. Constant contraction or tetanus

B. A brief twitch contraction

C. Rapid burst without sustained contraction

D. No contraction

Rapid stimulation means impulses arrive so often that there isn't time for the muscle to relax between them. Each new impulse adds to the previous contraction, and as the frequency increases the twitches fuse into a single, sustained contraction called tetanus. That's why a rapid stimulus best describes constant contraction or tetanus. A lone impulse gives a brief twitch; a rapid burst that doesn't sustain would imply incomplete tetanus or insufficient frequency, and no contraction happens only without any stimulus.

4. Which muscle type is typically attached to bones and enables voluntary movement?

A. Cardiac Muscle

B. Tendon

C. Skeletal Muscle

D. Smooth Muscle

Skeletal muscle is the type that attaches to bones and enables voluntary movement. It forms the majority of the muscles you use to move your limbs, and you control it consciously through the somatic nervous system. Its fibers are striated and usually multi-nucleated, organized into sarcomeres that shorten when they contract, pulling on tendons to move bones at joints. This direct connection to bone via tendons and its voluntary control set skeletal muscle apart from other muscle types. Cardiac muscle, found in the heart, contracts involuntarily; smooth muscle lines the walls of hollow organs and also contracts involuntarily; and a tendon is connective tissue that links muscle to bone, not a muscle itself.

5. In the muscular system, inflammation of the muscle tissue is called?

A. Myalgia

B. Tendinitis

C. Tenosynovitis

D. Myopathy

Inflammation of muscle tissue is called myositis. Myalgia means muscle pain, which can accompany inflammation but is not the inflammation itself. Tendinitis and tenosynovitis are inflammations of tendon and tendon sheath, respectively, not muscle. Myopathy refers to a disease of muscle tissue, often with weakness, but not specifically inflammation. Because the precise term for muscle inflammation isn't among the options, the correct concept is myositis.

6. What do muscles use stored ATP for?

A. Energy

B. Calcium buffering

C. Nerve conduction

D. Protein synthesis

Muscles use stored ATP as the immediate energy source for contraction. ATP provides the energy that powers the myosin heads during the cross-bridge cycle—myosin binds actin, performs the power stroke, and then releases when another ATP molecule binds. This energy-driven cycling shortens the sarcomere and produces force. The amount of ATP stored in muscle is small, so it lasts only a few seconds of intense activity; phosphocreatine quickly regenerates ATP from ADP to keep contractions going, with longer-term ATP supplied by glycolysis and oxidative phosphorylation. Other roles listed, like calcium handling, nerve signaling, or protein synthesis, involve ATP too but aren't the primary reason muscles carry this immediate, stored energy reserve for a brief burst of activity.

7. Which is a muscular dystrophy?

A. Tendonitis

B. Myasthenia Gravis

C. Muscular Dystrophy

D. Duchenne MD

Muscular dystrophy refers to a group of inherited disorders in which skeletal muscles progressively weaken and waste away. The term itself names the category being asked about, so it directly matches the idea of a dystrophic muscle disease. Tendonitis is just inflammation of a tendon, not a dystrophy. Myasthenia gravis affects the nerve-muscle signaling at the neuromuscular junction and isn't a degenerative muscle disease. Duchenne muscular dystrophy is a specific form within this category caused by dystrophin deficiency; it's indeed a muscular dystrophy, but the question is pointing to the broad category, which is why the broad term is the best fit.

8. The sarcoplasmic reticulum is a specialized form of which organelle?

A. Endoplasmic reticulum

B. Golgi apparatus

C. Lysosome

D. Nucleus

Calcium handling in muscle cells hinges on a specialized network derived from the endoplasmic reticulum. The sarcoplasmic reticulum is essentially the muscle-form of the endoplasmic reticulum, forming a calcium-storage and release system that surrounds the myofibrils. When the muscle is stimulated, this network releases Ca^{2+} into the cytoplasm to trigger actin-moras interaction and contraction. Because its structure and function are built on the same membrane-bound organelle used for general protein and lipid processing, it is classified as a specialized form of the endoplasmic reticulum. The other organelles have different roles—Golgi apparatus processes and sorts proteins, lysosomes digest materials, and the nucleus houses genetic material—so they don't describe the sarcoplasmic reticulum's origin or purpose in muscle cells.

9. Myasthenia Gravis involves a shortage of receptors for which neurotransmitter?

A. Norepinephrine

B. Dopamine

C. GABA

D. Acetylcholine

Communication at the neuromuscular junction hinges on acetylcholine binding to nicotinic receptors on the muscle membrane. In myasthenia gravis, antibodies target and reduce the number of these acetylcholine receptors, so fewer receptors are available to respond to ACh. This makes it harder for the signal to reach the threshold needed to trigger a muscle action potential, leading to muscle weakness that worsens with use. The other neurotransmitters listed are not the ones operating at the somatic neuromuscular junction, so they don't explain this condition.

10. What is creatine phosphate?

A. A high-energy compound that is the fastest way to make ATP available for muscles

B. A low-energy storage molecule

C. A sugar stored in muscle

D. An enzyme that breaks ATP

Creatine phosphate is a high-energy phosphate storage molecule in muscle that quickly donates its phosphate to ADP to regenerate ATP during short, intense activity. The transfer, catalyzed by creatine kinase, happens rapidly and without needing oxygen, making it the fastest way to supply ATP for a quick burst of muscle contraction. Once phosphocreatine is depleted, the muscle relies on glycolysis and oxidative phosphorylation for ATP. It's not a low-energy storage molecule, not a sugar stored in muscle (glycogen), and not an enzyme—its role is to supply the phosphate for rapid ATP regeneration.

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!