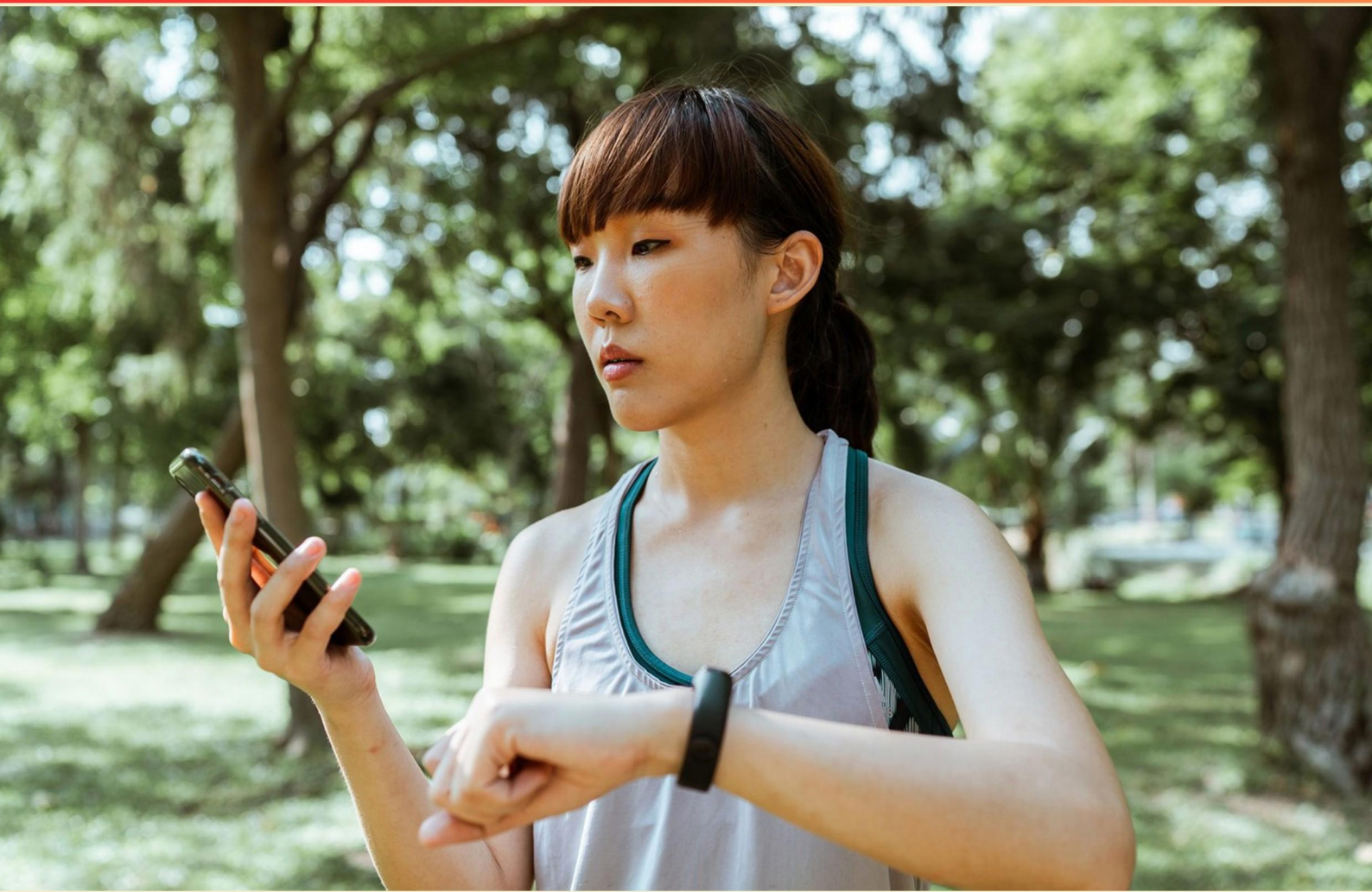


NCSF ACPT SECTION II: EXERCISE PHYSIOLOGY PRACTICE EXAM (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

<https://ncsfacptsec2exercisephysiology.examzify.com>



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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 energy system predominates during sustained, lower-intensity exercise?**
 - A. Anaerobic energy system
 - B. Aerobic energy system
 - C. Phosphagen system
 - D. Glycolytic system

- 2. Why is lactate often considered a performance-limiting factor during exercise?**
 - A. It indicates an increase in oxygen consumption.
 - B. It can lead to acidosis and muscle fatigue.
 - C. It decreases the availability of basic energy substrates.
 - D. It signals a reduction of blood flow to muscles.

- 3. What is commonly measured during a lactate threshold test?**
 - A. Heart rate variability.
 - B. Maximum oxygen uptake (VO₂ max).
 - C. Blood lactate concentration at various exercise intensities.
 - D. Respiratory exchange ratio.

- 4. What effect does prolonged exercise have on muscle glycogen stores?**
 - A. They become enhanced
 - B. They become depleted
 - C. They remain unchanged
 - D. They are only affected by diet

- 5. What is the primary benefit of increased mitochondrial density in muscle cells?**
 - A. Improved strength
 - B. Increased flexibility
 - C. Enhanced endurance
 - D. Faster recovery

6. What byproduct of glycolysis triggers an elevation in the respiration rate when contractions are high in the blood?
- A. a. Acetyl CoA
 - B. b. Nitrogen
 - C. c. Creatine
 - D. d. Lactic Acid
7. Which factor is most critical for determining exercise intensity in aerobic activities?
- A. Heart rate variability
 - B. Oxygen consumption (VO₂)
 - C. Lactate threshold
 - D. Muscle fatigue
8. Which system of the body is the first to adapt to exercise?
- A. Muscular system
 - B. Nervous system
 - C. Endocrine system
 - D. Cardiovascular system
9. Which pairs of movements employ reciprocal inhibition in a set aimed at strength and flexibility?
- A. Squat and rotator cuff stretch
 - B. Seated leg extension and hamstring stretch
 - C. Romanian deadlift and pectoralis stretch
 - D. Triceps pushdown and triceps stretch
10. The fuel for a 12RM bench press will primarily come from ____.
- A. ATP
 - B. Creatine phosphate
 - C. Sugar
 - D. Fat

Answers

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

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Explanations

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1. Which energy system predominates during sustained, lower-intensity exercise?

- A. Anaerobic energy system
- B. Aerobic energy system**
- C. Phosphagen system
- D. Glycolytic system

The aerobic energy system predominates during sustained, lower-intensity exercise because it relies on oxygen to convert carbohydrates and fats into energy. This system is capable of producing a larger amount of ATP (adenosine triphosphate), which is the energy currency of the body, over an extended period of time. During lower-intensity exercise, such as jogging or swimming at a steady pace, the body can efficiently utilize the aerobic pathways for energy production, enabling prolonged activity without quickly depleting energy stores. In contrast, the anaerobic energy system, including the phosphagen and glycolytic systems, tends to be more predominant during high-intensity, short-duration efforts. These systems operate without the need for oxygen and can provide instant energy but are limited in their capacity to sustain prolonged exercise. Consequently, as exercise intensity decreases, the body shifts towards the aerobic system, optimizing energy production for longer-lasting activities.

2. Why is lactate often considered a performance-limiting factor during exercise?

- A. It indicates an increase in oxygen consumption.
- B. It can lead to acidosis and muscle fatigue.**
- C. It decreases the availability of basic energy substrates.
- D. It signals a reduction of blood flow to muscles.

Lactate is often associated with the body's anaerobic metabolism during intense exercise. As exercise intensity increases, and when the oxygen supply to the muscles is insufficient for aerobic energy production, the body resorts to anaerobic glycolysis, which leads to the production of lactate. The accumulation of lactate in the muscles and blood can result in acidosis, where the pH level decreases, leading to muscle fatigue. This acidosis interferes with the contractile function of muscles and can impair performance by reducing the muscles' ability to generate force and sustain high-intensity activities. Furthermore, the presence of high levels of lactate is linked with discomfort and fatigue during exercise, which can limit an athlete's ability to continue exerting effort. Hence, alleviating the effects of lactate accumulation is crucial for maintaining performance, making it a significant factor in exercise physiology and performance outcomes.

3. What is commonly measured during a lactate threshold test?

- A. Heart rate variability.
- B. Maximum oxygen uptake (VO₂ max).
- C. Blood lactate concentration at various exercise intensities.**
- D. Respiratory exchange ratio.

During a lactate threshold test, the primary focus is on assessing blood lactate concentration at various exercise intensities. This test helps to identify the intensity of exercise at which lactate begins to accumulate in the blood, indicating a shift from predominantly aerobic metabolism to anaerobic metabolism. By measuring blood lactate levels at different workload intensities—typically during incremental exercise—fitness professionals can determine the lactate threshold, which is a crucial marker for endurance performance. The lactate threshold provides valuable information for training, allowing athletes to tailor their exercise intensities for optimal performance and endurance adaptation. Understanding where this threshold lies helps in developing training regimens that enhance aerobic capacity and delay the onset of fatigue during prolonged physical activity.

4. What effect does prolonged exercise have on muscle glycogen stores?

- A. They become enhanced
- B. They become depleted**
- C. They remain unchanged
- D. They are only affected by diet

Prolonged exercise leads to a depletion of muscle glycogen stores because glycogen is the primary carbohydrate source used by muscles during sustained activity. As the duration of exercise increases, the body relies heavily on stored glycogen for energy, which is especially true in activities lasting longer than about 60 to 90 minutes. During this time, glycogen breakdown occurs to provide glucose, which is then used to fuel muscular contractions. Once glycogen stores are significantly depleted, the body's ability to sustain high-intensity exercise diminishes, potentially leading to fatigue and decreased performance. This depletion is a natural response to extended physical activity, and it highlights the importance of glycogen replenishment through diet and recovery after prolonged bouts of exercise. Other options that suggest enhancement, unchanged levels, or solely dietary influences do not accurately reflect the physiological changes that occur during extended physical activity.

5. What is the primary benefit of increased mitochondrial density in muscle cells?

- A. Improved strength
- B. Increased flexibility
- C. Enhanced endurance**
- D. Faster recovery

Increased mitochondrial density in muscle cells primarily enhances endurance. Mitochondria are known as the powerhouse of the cell, as they play a crucial role in aerobic energy production. When there is a higher density of mitochondria, muscle cells can produce more adenosine triphosphate (ATP) through oxidative phosphorylation, which is the preferred energy system during prolonged, moderate-intensity exercise. This increased capacity for aerobic energy production translates to improved efficiency in utilizing oxygen, which is essential for sustained activities such as running, cycling, or swimming. As endurance performance requires a steady supply of energy over an extended period, a greater number of mitochondria allows athletes to maintain their activity levels for longer durations without fatigue. While increased mitochondrial density does contribute indirectly to aspects like strength and recovery, the primary and most significant benefit is the enhancement of aerobic endurance capabilities, allowing individuals to perform better during prolonged physical activities.

6. What byproduct of glycolysis triggers an elevation in the respiration rate when contractions are high in the blood?

- A. a. Acetyl CoA
- B. b. Nitrogen
- C. c. Creatine
- D. d. Lactic Acid**

The byproduct of glycolysis that triggers an elevation in the respiration rate during high contractions is lactic acid. When intense exercise occurs, the body relies on anaerobic glycolysis to produce ATP rapidly. This process generates lactic acid as a result of pyruvate being converted when there is insufficient oxygen for aerobic metabolism. As lactic acid accumulates in the muscles, it can lead to a decrease in pH, contributing to muscle fatigue and activating sensory receptors that signal the need for increased oxygen. This increase in the respiration rate facilitates a greater oxygen supply to the muscles, helping to clear lactic acid and restore pH balance. The other substances listed do not serve the same role in the context of elevation in respiration rate during high contractions. Acetyl CoA is primarily involved in aerobic metabolism and does not directly trigger respiration rate changes in the presence of anaerobic conditions. Nitrogen is not a byproduct relevant to energy metabolism during exercise, and while creatine is important for energy production, it doesn't directly influence the respiratory response to lactate accumulation.

7. Which factor is most critical for determining exercise intensity in aerobic activities?

- A. Heart rate variability
- B. Oxygen consumption (VO₂)**
- C. Lactate threshold
- D. Muscle fatigue

Oxygen consumption (VO₂) is the most critical factor for determining exercise intensity in aerobic activities because it directly reflects the amount of oxygen the body is utilizing during physical exertion. VO₂ provides insight into the cardiovascular and respiratory systems' efficiency in delivering oxygen to the working muscles and the muscles' ability to utilize that oxygen for energy production. As exercise intensity increases, the body's demand for oxygen also rises, and the rate of VO₂ will increase accordingly. This relationship is crucial in aerobic training and programming, as it helps quantify the effort level during exercise and can be used to assess an individual's fitness level and set personalized training targets. The other factors, such as heart rate variability, lactate threshold, and muscle fatigue, while relevant in the context of exercise physiology, do not capture aerobic exercise intensity as effectively as VO₂. Heart rate variability is more indicative of autonomic nervous system functioning and recovery than exercise intensity itself. Lactate threshold represents the point at which lactate begins to accumulate in the bloodstream and is more related to anaerobic performance and endurance. Muscle fatigue pertains to the temporary inability to maintain the desired level of physical activity, which can occur at varying intensities but does not serve as a direct measure for establishing exercise intensity in aerobic

8. Which system of the body is the first to adapt to exercise?

- A. Muscular system
- B. Nervous system**
- C. Endocrine system
- D. Cardiovascular system

The nervous system is the first to respond and adapt to exercise due to its critical role in coordinating movement and adjusting bodily functions during physical activity. When exercise begins, the nervous system rapidly activates motor units to facilitate muscle contraction. This involves the recruitment of motor neurons that stimulate muscle fibers, allowing for immediate and efficient movement. Moreover, the nervous system is responsible for the integration and processing of sensory information. It helps regulate balance, coordination, and proprioception, all of which are essential during exercise. As training continues, neural adaptations such as increased efficiency in nerve signal transmission and improved motor unit recruitment occur, leading to enhanced performance. This adaptation occurs before the muscular system significantly grows or the cardiovascular system shows marked changes, such as increased heart size or stroke volume. The endocrine system, while important for long-term adaptation and hormone regulation, does not respond as quickly as the nervous system when exercise begins. Therefore, it's this rapid and essential role of the nervous system in initiating movement and facilitating coordination that solidifies its position as the first system to adapt to exercise.

9. Which pairs of movements employ reciprocal inhibition in a set aimed at strength and flexibility?

- A. Squat and rotator cuff stretch
- B. Seated leg extension and hamstring stretch**
- C. Romanian deadlift and pectoralis stretch
- D. Triceps pushdown and triceps stretch

Reciprocal inhibition refers to the process where the activation of one muscle group leads to the relaxation of its opposing muscle group. This physiological principle is often leveraged during strength training and flexibility exercises to promote better performance and reduce the risk of injury. In the scenario described, the correct pair involves movements that incorporate reciprocal inhibition effectively. The seated leg extension targets the quadriceps by actively contracting this muscle group. As the quadriceps contract during the extension exercise, the hamstrings, which are the opposing muscle group, undergo relaxation. Following this strength exercise, performing a hamstring stretch benefits from this principle, as the hamstrings are more likely to relax due to the prior activation and contraction of the quadriceps. The other choices involve combinations where the movements do not effectively utilize reciprocal inhibition. For example, a squat does not facilitate the same level of antagonist relaxation needed in stretches, and similarly, the Romanian deadlift and pectoralis stretch do not create the necessary opposing muscle action for reciprocal inhibition to occur. Lastly, while the triceps pushdown and stretch do involve opposing muscle groups, both actions target the same muscle group without the clear principle of reciprocal inhibition being applied as elegantly as in the seated leg extension and hamstring stretch combination. This understanding of reciprocal inhibition

10. The fuel for a 12RM bench press will primarily come from _____.

- A. ATP
- B. Creatine phosphate
- C. Sugar
- D. Fat

In a 12-repetition maximum (12RM) bench press, the primary source of fuel for the muscles performing the exercise is sugar, specifically in the form of glucose derived from carbohydrates. This activity relies on the anaerobic glycolysis pathway, which breaks down glucose to produce energy quickly for short, intense efforts. During resistance training such as a 12RM bench press, the body does not have enough time to utilize fat as a significant energy source due to the intensity of the exercise and the relatively quick transition of energy demands. While ATP and creatine phosphate play a crucial role in the initial seconds of high-intensity activity, their stores are limited and are depleted quickly, typically within the first 10 seconds of exertion. As the set continues beyond this period, the body increasingly relies on anaerobic glycolysis to continue producing ATP, leading to the breakdown of glucose, which ultimately becomes the primary energy substrate. In contrast, fat metabolism is more suited for endurance activities that occur at lower intensities and for longer durations, making it irrelevant in the context of high-repetition strength training. Thus, for a 12RM exercise like the bench press, carbohydrate utilization through glycolysis is the best fuel source to support performance effectively.

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://ncsfacptsec2exercisephysiology.examzify.com>

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

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