

# RTBC Lower Extremities 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. What does a positive Trendelenburg sign indicate?**
  - A. Weakness of the gluteus maximus muscle**
  - B. Weakness of the gluteus medius muscle on the opposite side**
  - C. Stability of the hip joint**
  - D. Strong core muscle engagement**
  
- 2. A positive Trendelenburg sign suggests weakness in which muscle?**
  - A. Gluteus maximus**
  - B. Gluteus medius**
  - C. Quadriceps**
  - D. Hamstrings**
  
- 3. Which age group is particularly prone to osteoarthritis in the lower extremities?**
  - A. Teenagers**
  - B. Young adults**
  - C. Middle-aged and older adults**
  - D. Children**
  
- 4. What is the purpose of using a cephalic angle during the AP axial foot projection?**
  - A. To demonstrate bone density**
  - B. To reduce magnification**
  - C. To ensure the central ray aligns with the joint space**
  - D. To visualize soft tissue structures**
  
- 5. What structure is represented by the letter (A) in a typical image of the foot?**
  - A. Metatarsals**
  - B. Cuneiforms**
  - C. Sesamoids**
  - D. Phalanges**

- 6. How should the femur be positioned for optimal visibility when performing radiography?**
- A. Internally rotated 15-20 degrees**
  - B. Externally rotated 30 degrees**
  - C. Flexed at the hip**
  - D. Absolutely parallel to the table**
- 7. What does the term "ankle sprain" typically refer to?**
- A. Injury to the ligaments that support the ankle joint**
  - B. Fracture of the ankle bone**
  - C. Tendon inflammation near the ankle**
  - D. Dislocation of the ankle joint**
- 8. Which of the following tests assesses both Achilles tendon function and spinal nerves?**
- A. Patellar reflex test**
  - B. Biceps reflex test**
  - C. Achilles reflex test**
  - D. Triceps reflex test**
- 9. Which ligament helps prevent excessive inversion of the ankle?**
- A. Anterior talofibular ligament**
  - B. Deltoid ligament**
  - C. Calcaneofibular ligament**
  - D. Posterior talofibular ligament**
- 10. What is the largest bone in the lower extremities?**
- A. Tibia**
  - B. Patella**
  - C. Fibula**
  - D. Femur**

## Answers

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

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## **Explanations**

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## 1. What does a positive Trendelenburg sign indicate?

- A. Weakness of the gluteus maximus muscle
- B. Weakness of the gluteus medius muscle on the opposite side**
- C. Stability of the hip joint
- D. Strong core muscle engagement

A positive Trendelenburg sign indicates weakness of the gluteus medius muscle on the opposite side. This finding occurs when a patient stands on one leg, and the pelvis drops on the side opposite to the stance leg, suggesting that the gluteus medius on the supporting side is unable to maintain pelvic stability. The gluteus medius is crucial for maintaining balance and stability during single-leg stance, which is common in activities such as walking and running. When the muscle on the supporting side is weak, it fails to counteract the gravitational pull on the pelvis, leading to the observed drop. This sign is often used clinically to assess for hip abductor weakness and can be indicative of conditions such as hip osteoarthritis, gluteal tendinopathy, or other issues involving the hip joint and surrounding musculature. In contrast, weakness of the gluteus maximus would not typically present as a Trendelenburg sign and would manifest differently, perhaps affecting stance and power in movements like the sit-to-stand transition. Stability of the hip joint or strong core muscle engagement would not explain the specific observation of pelvic dropping during a single-leg stance, hence amplifying the importance of understanding the significance of gluteus medius function in

## 2. A positive Trendelenburg sign suggests weakness in which muscle?

- A. Gluteus maximus
- B. Gluteus medius**
- C. Quadriceps
- D. Hamstrings

A positive Trendelenburg sign indicates weakness in the gluteus medius muscle. This muscle plays a critical role in stabilizing the pelvis during walking or standing on one leg. When the gluteus medius is weak or not functioning properly, the pelvis cannot maintain a level position; it will drop on the side opposite to the weak muscle. This drop is observable during the single-leg stance or while walking, leading to the characteristic Trendelenburg gait. Understanding the function of the gluteus medius is essential in assessing hip mechanics and overall lower extremity stability. The other muscles listed do not directly contribute to pelvic stabilization in the same manner, making them less relevant to the Trendelenburg sign. The gluteus maximus primarily extends the hip, the quadriceps are key in knee extension, and the hamstrings assist in knee flexion and hip extension, all of which are critical functions but do not specifically cause the pelvic drop associated with a positive Trendelenburg sign.

**3. Which age group is particularly prone to osteoarthritis in the lower extremities?**

- A. Teenagers**
- B. Young adults**
- C. Middle-aged and older adults**
- D. Children**

The correct answer identifies middle-aged and older adults as the age group particularly prone to osteoarthritis in the lower extremities. Osteoarthritis is a degenerative joint disease that tends to develop due to wear and tear on the joints over time, making it more prevalent in individuals as they age. As people grow older, their cartilage, which cushions the joints, naturally loses elasticity and can deteriorate, leading to pain, stiffness, and decreased mobility. Factors such as previous joint injuries, obesity, genetics, and certain occupations that stress the joints can further increase the risk of developing osteoarthritis in this demographic. Younger populations, including teenagers and young adults, typically have more resilient joints and fewer instances of osteoarthritis as it is less common in these groups. Children also usually have healthy joint structures, making them less susceptible to this type of degenerative condition. Hence, middle-aged and older adults are the demographic most affected by osteoarthritis in the lower extremities.

**4. What is the purpose of using a cephalic angle during the AP axial foot projection?**

- A. To demonstrate bone density**
- B. To reduce magnification**
- C. To ensure the central ray aligns with the joint space**
- D. To visualize soft tissue structures**

The purpose of using a cephalic angle during the AP axial foot projection is to ensure that the central ray aligns with the joint spaces, specifically the tarsometatarsal joints. When the x-ray beam is angled towards the foot (cephalically), it helps project the foot in a way that reduces distortion of the anatomy, allowing for a clearer view of the joint spaces that are often closely packed with bones. In foot imaging, it's essential to align the central ray appropriately to accurately visualize important structures within the foot, including the relationships between the metatarsals and the tarsal bones. Proper alignment avoids superimposition of the bones over each other, thus providing a more diagnostic image. This technique is especially useful since the natural position of the foot can result in overlapping shadows of the bones, which can obscure pathologies that need to be examined. Other options, while they may seem plausible, do not directly relate to the clarification provided by the cephalic angle in this specific projection. For example, demonstrating bone density is more associated with imaging techniques or modalities focused on bone quality rather than the angle of the central ray. Similarly, reducing magnification refers to the distance between the x-ray source and the image receptor, not

**5. What structure is represented by the letter (A) in a typical image of the foot?**

- A. Metatarsals**
- B. Cuneiforms**
- C. Sesamoids**
- D. Phalanges**

The structure represented by the letter (A) in a typical image of the foot is the sesamoids. Sesamoid bones are small, round bones that are found within tendons, typically where they cross the ends of long bones. They serve to protect the tendon and facilitate movement by providing a smooth surface for tendons to glide over. In the context of the foot, the most commonly referenced sesamoids are located beneath the head of the first metatarsal, acting to enhance the function of the flexor hallucis brevis muscle during walking or running. This enhances the ability of the big toe to push off efficiently. Recognizing the significance of sesamoid bones is key for understanding foot mechanics and addressing conditions such as sesamoiditis, which can result from overuse or trauma to these structures. Understanding this anatomical feature is crucial for evaluating the function of the foot as well as the overall biomechanics involved in lower extremity movements.

**6. How should the femur be positioned for optimal visibility when performing radiography?**

- A. Internally rotated 15-20 degrees**
- B. Externally rotated 30 degrees**
- C. Flexed at the hip**
- D. Absolutely parallel to the table**

For optimal visibility when performing radiography of the femur, the correct positioning involves internally rotating the femur by 15 to 20 degrees. This internal rotation helps to improve the visualization of the femoral neck and head by aligning them in a way that reduces superimposition from surrounding structures. This is particularly important for obtaining clear images that can help in diagnosing potential fractures or other abnormalities. Positioning the femur with this degree of internal rotation aids in the demonstration of the true anatomic relationships within the hip joint and femoral head, which is crucial for accurate assessment. It allows radiographers to achieve images that are not only clearer but also provide a better overall evaluation of the hip's health and alignment. In contrast, the other positioning options would not achieve the desired visibility of the femur's critical anatomy. Externally rotating the femur or flexing it at the hip would alter the angles and potentially obscure important details in the images. Aligning the femur absolutely parallel to the table would not properly position the femur in relation to the x-ray beam, leading to poor visualization. Thus, internal rotation is the most effective method for optimal radiographic results.

**7. What does the term "ankle sprain" typically refer to?**

- A. Injury to the ligaments that support the ankle joint**
- B. Fracture of the ankle bone**
- C. Tendon inflammation near the ankle**
- D. Dislocation of the ankle joint**

The term "ankle sprain" typically refers to an injury to the ligaments that support the ankle joint. Ligaments are strong connective tissues that connect bones to one another and provide stability to the joint. An ankle sprain occurs when these ligaments are stretched or torn, often as a result of a sudden twist or impact that causes the ankle to move out of its normal range of motion. In terms of context, the other options describe different types of injuries. A fracture involves a break in the ankle bone, while tendon inflammation near the ankle pertains to conditions like tendonitis, which is separate from the joint stability issues presented in a sprain. A dislocation refers to bones in a joint being displaced from their proper alignment, which is a more severe injury than a sprain. Therefore, the most accurate definition of an ankle sprain focuses directly on the ligamentous injury rather than these other conditions.

**8. Which of the following tests assesses both Achilles tendon function and spinal nerves?**

- A. Patellar reflex test**
- B. Biceps reflex test**
- C. Achilles reflex test**
- D. Triceps reflex test**

The Achilles reflex test is designed to evaluate both the function of the Achilles tendon and assess the integrity of the spinal nerves involved in its reflexive pathway. When the Achilles tendon is tapped, it stimulates the stretch receptors in the tendon, which then send signals through the sensory neurons to the spinal cord, specifically involving the S1-S2 nerve roots. The response is the contraction of the calf muscles, notably the gastrocnemius and soleus, which results in plantar flexion of the foot. Therefore, when this reflex is tested, it provides valuable information about both the integrity of the Achilles tendon itself and the functionality of the associated spinal nerves that control that reflex. This dual assessment makes the Achilles reflex test uniquely beneficial for evaluating both tendon function and spinal nerve pathways. The other tests listed focus on different muscle groups and reflexes that do not serve the same dual purpose as the Achilles reflex test.

**9. Which ligament helps prevent excessive inversion of the ankle?**

- A. Anterior talofibular ligament**
- B. Deltoid ligament**
- C. Calcaneofibular ligament**
- D. Posterior talofibular ligament**

The ligament that helps prevent excessive inversion of the ankle is the calcaneofibular ligament. This ligament is part of the lateral ligament complex of the ankle and plays a crucial role in stabilizing the ankle joint, particularly during movements that involve inversion, where the foot turns inward toward the midline of the body. When the foot inverts excessively, it can lead to injury such as a sprained ankle. The calcaneofibular ligament's primary function is to limit this motion and provide support, especially when the foot is in a plantarflexed position. In contrast, the anterior talofibular ligament, while also contributing to lateral ankle stability, is more involved in resisting inversion when the foot is dorsiflexed rather than preventing excessive inversion on its own. The deltoid ligament, located on the medial side of the ankle, primarily guards against excessive eversion, while the posterior talofibular ligament plays a minor role in ankle stability, primarily providing support in cases of extreme ankle motion rather than during routine inversion movements.

**10. What is the largest bone in the lower extremities?**

- A. Tibia**
- B. Patella**
- C. Fibula**
- D. Femur**

The femur is the largest bone in the lower extremities, and it plays a crucial role in supporting the weight of the body during activities such as standing, walking, and running. It extends from the hip joint to the knee joint and is characterized by its length and strength. The femur's structure includes a thick shaft and two rounded ends—one that fits into the hip bone and the other that connects to the knee, facilitating a wide range of motion and providing stability to the lower limb. The tibia, while also significant and the second largest bone, is not as long or robust as the femur. The patella, or kneecap, serves primarily as a protective structure for the knee joint rather than bearing weight directly. The fibula, on the other hand, is a thinner bone located alongside the tibia and primarily supports the ankle rather than contributing significantly to the overall strength of the leg. Therefore, understanding the anatomical and functional significance of these bones highlights why the femur is recognized as the largest bone in the lower extremities.

## 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](mailto:hello@examzify.com).**

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

**<https://rtbclowerextremities.examzify.com>**

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

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