# ACSM Clinical Exercise Physiologist (CEP) Practice Exam (Sample)

## Study Guide


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# Questions

**1. What precordial lead is placed at the 4th intercostal space on the right sternal border?**

**A. V1**

**B. V3**

**C. V4**

**D. V2**

**2. What term describes the force that causes rotation of a lever?**

**A. Gravity**

**B. Torque**

**C. Work**

**D. Impulse**

**3. What acronym represents the Physical Activity Readiness Questionnaire?**

**A. PAR-Q**

**B. PARS**

**C. PVAQ**

**D. PARMS**

**4. What is the anaerobic pathway also known as?**

**A. Aerobic**

**B. Nonoxidative**

**C. Oxidative**

**D. Fermentative**

**5. Which of the following best describes HDL in relation to exercise training?**

**A. Decreases with increased physical activity**

**B. Increases with regular exercise**

**C. No change with exercise**

**D. Decreases with age**

**6. What is the normal range for triglycerides according to health guidelines?**

**A. Under 100 mg/dL**

**B. Under 150 mg/dL**

**C. Under 200 mg/dL**

**D. Under 250 mg/dL**

**7. How much does VO2 max typically decline per decade after age 25?**

**A. 2-7%**

**B. 5-15%**

**C. 10-20%**

**D. 15-25%**

**8. Which diabetic medication is contraindicated for exercise?**

**A. Metformin**

**B. Glipizide**

**C. Insulin**

**D. Acarbose**

**9. What is the most effective method for losing weight?**

**A. Dietary restriction**

**B. Aerobic exercise**

**C. Surgical intervention**

**D. Pharmacotherapy**

**10. Which musculoskeletal lever is most common in the human body?**

**A. First class**

**B. Second class**

**C. Third class**

**D. Fixed class**

# Answers

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

# Explanations

## 1. What precordial lead is placed at the 4th intercostal space on the right sternal border?

**A. V1**

**B. V3**

**C. V4**

**D. V2**

**The precordial lead that is placed at the 4th intercostal space on the right sternal border is V1. This positioning is important for accurately assessing the heart's electrical activity. The V1 lead helps to capture the electrical signals from the right ventricle and provides valuable information about the anterior and septal walls of the heart. The placement of V1 in this specific location ensures optimal visualization of electrical activity, allowing for proper diagnosis and monitoring of various cardiac conditions. Understanding lead positioning and its significance helps clinicians interpret ECG readings effectively.**

## 2. What term describes the force that causes rotation of a lever?

**A. Gravity**

**B. Torque**

**C. Work**

**D. Impulse**

**The correct term that describes the force causing the rotation of a lever is torque. Torque is defined as the measure of the force that can cause an object to rotate about an axis. It is dependent on both the magnitude of the force applied and the distance from the axis of rotation to the point where the force is applied, which is known as the moment arm. In essence, torque is a rotational equivalent of linear force and is crucial in various physical activities, especially those involving levers. Gravity, while it plays a significant role in physical interactions, specifically refers to the attractive force between two masses and does not describe rotational dynamics. Work relates to the energy transferred when a force is applied over a distance in the direction of the force, but it does not specifically account for rotation like torque does. Impulse refers to the change in momentum of an object when a force is applied over time, which does not capture the concept of rotation either. Therefore, torque is the most accurate term in the context of rotational force about a lever.**

## 3. What acronym represents the Physical Activity Readiness Questionnaire?

**A. PAR-Q**

**B. PARS**

**C. PVAQ**

**D. PARMS**

**The acronym that represents the Physical Activity Readiness Questionnaire is PAR-Q. This tool is specifically designed to help individuals determine if they are in a condition to start an exercise program safely. It consists of a series of questions that assess any potential risks or health concerns related to physical activity. By utilizing PAR-Q, fitness professionals can screen clients effectively for medical conditions that may require further evaluation before engaging in exercise, ensuring safer and more tailored exercise prescriptions. The other acronyms listed do not accurately represent this specific questionnaire. PARS, PVAQ, and PARMS relate to different aspects of physical activity or assessments but are not synonymous with the Physical Activity Readiness Questionnaire. Understanding the purpose and function of the PAR-Q is essential for professionals in exercise physiology and health, as it plays a crucial role in promoting safe and effective exercise participation.**

## 4. What is the anaerobic pathway also known as?

**A. Aerobic**

**B. Nonoxidative**

**C. Oxidative**

**D. Fermentative**

**The anaerobic pathway is indeed referred to as the nonoxidative pathway. This terminology is used because the anaerobic pathway does not require oxygen to produce energy. Instead, it relies on the breakdown of glucose to generate ATP, primarily through processes such as glycolysis, which can occur in the absence of oxygen. In contrast, aerobic pathways utilize oxygen to generate ATP through oxidative phosphorylation, linking glycolysis with the Krebs cycle and electron transport chain, a process that occurs in the mitochondria and is more efficient in terms of ATP yield. The term "fermentative" may also be associated with anaerobic processes because fermentation can occur in the absence of oxygen; however, this term is more specific to certain types of anaerobic metabolism, such as lactic acid fermentation or alcoholic fermentation. Thus, nonoxidative is the term that accurately encapsulates the broader category of energy production that occurs without using oxygen. This distinction is vital for understanding how the body generates energy during high-intensity exercise or in conditions where oxygen availability is limited.**

## 5. Which of the following best describes HDL in relation to exercise training?

**A. Decreases with increased physical activity**

**B. Increases with regular exercise**

**C. No change with exercise**

**D. Decreases with age**

**High-Density Lipoprotein (HDL) cholesterol is often referred to as "good" cholesterol because it helps transport cholesterol from the arteries to the liver, where it can be processed and eliminated from the body. Regular exercise has been shown to have a positive influence on HDL levels. Engaging in aerobic or resistance training can lead to an increase in HDL cholesterol. This is believed to occur due to improvements in the metabolism of lipoproteins and overall cardiovascular health associated with consistent physical activity. Research supports that moderate to vigorous exercise can enhance lipid profiles, including boosting HDL. Those who maintain regular exercise routines often see not just an increase in HDL levels, but also improvements in cardiovascular risk factors overall. Therefore, the relationship between HDL and exercise is characterized by an increase in HDL cholesterol with consistent physical activity.**

## 6. What is the normal range for triglycerides according to health guidelines?

**A. Under 100 mg/dL**

**B. Under 150 mg/dL**

**C. Under 200 mg/dL**

**D. Under 250 mg/dL**

**The normal range for triglycerides according to health guidelines is under 150 mg/dL. This threshold is established to indicate healthy levels of triglycerides in the blood, which is important for cardiovascular health. Elevated triglycerides can contribute to the risk of heart disease and other metabolic conditions. Considering the guidelines, levels below 150 mg/dL are associated with a lower risk of cardiovascular issues, while levels above this can suggest a need for lifestyle changes or medical intervention. Maintaining triglycerides within this range supports overall health and can prevent complications associated with high lipid levels.**

## 7. How much does VO2 max typically decline per decade after age 25?

**A. 2-7%**

**B. 5-15%**

**C. 10-20%**

**D. 15-25%**

**The typical decline in VO2 max per decade after the age of 25 is estimated to be in the range of 5-15%. This decline is influenced by various factors, including a decrease in cardiovascular and muscular fitness, as well as changes in body composition and overall physical activity levels as individuals age. Maintaining a physically active lifestyle can mitigate some of this decline, but in general, the physiological changes associated with aging lead to a natural reduction in maximal oxygen uptake. This statistic is useful for exercise physiologists when assessing an individual's cardiorespiratory fitness over time and designing appropriate exercise programs tailored to age-related considerations. Understanding this decline helps health and fitness professionals guide their clients in setting realistic fitness goals and emphasizes the importance of regular physical activity throughout adulthood.**

## 8. Which diabetic medication is contraindicated for exercise?

**A. Metformin**

**B. Glipizide**

**C. Insulin**

**D. Acarbose**

**The correct option identifies insulin as a medication that may pose risks when engaging in exercise. Insulin therapy is essential for many individuals with diabetes as it helps regulate blood glucose levels. However, its management during physical activity requires careful consideration due to the potential for hypoglycemia—a condition where blood sugar levels fall dangerously low. When someone takes insulin, especially before exercise, there's a risk that their blood sugar can drop significantly during physical activity. This is particularly true if the individual hasn't properly adjusted their carbohydrate intake or insulin dosage prior to working out. Because exercise increases insulin sensitivity and glucose uptake by muscles, athletes or active individuals may need to monitor their blood sugar levels more closely and make necessary adjustments to their insulin regimen around their exercise schedule. In contrast, medications like metformin, glipizide, and acarbose do not carry the same immediate risk of hypoglycemia when compared to insulin during exercise. While they can also affect blood sugar levels, they do not result in acute changes that would contraindicate physical activity. Thus, while individuals on any diabetic medication should be attentive to their blood sugar management during exercise, insulin requires the most caution due to its strong and immediate effects on glucose regulation.**

## 9. What is the most effective method for losing weight?

**A. Dietary restriction**

**B. Aerobic exercise**

**C. Surgical intervention**

**D. Pharmacotherapy**

**Surgical intervention is often considered the most effective method for losing weight, particularly for individuals with severe obesity or those who have not had success with other weight loss strategies. This approach typically involves procedures such as gastric bypass or sleeve gastrectomy, which can lead to significant and sustained weight loss by physically limiting the amount of food the stomach can hold and altering the digestive process to reduce calorie absorption. Surgical options are generally recommended for those with a body mass index (BMI) of 40 or higher, or a BMI of 35 or higher with obesity-related health conditions. This method has been shown to produce more substantial weight loss outcomes when compared to diet or exercise alone, and it can lead to improvements in obesity-related comorbidities like type 2 diabetes, hypertension, and dyslipidemia. While dietary restriction and aerobic exercise are effective strategies for weight loss, they often require long-term commitment and may not yield immediate or significant results for everyone. Similarly, pharmacotherapy can assist in weight loss but may not be as effective as surgical intervention for individuals with severe obesity, especially given the potential side effects of medications and the need for ongoing management. Overall, surgical intervention stands out as a comprehensive approach that can facilitate substantial weight loss in the right candidates**

## 10. Which musculoskeletal lever is most common in the human body?

**A. First class**

**B. Second class**

**C. Third class**

**D. Fixed class**

**The third-class lever is indeed the most common type of lever found in the human body. In this system, the effort is applied between the load and the fulcrum. As a result, this arrangement allows for a greater range of motion and speed, which is crucial for many movements we perform daily, such as lifting weights, throwing, and rapid arm movements. In the context of human anatomy, a typical example of a third-class lever is the elbow joint. When you lift your forearm, the elbow serves as the fulcrum. The biceps muscle applies the effort in the middle when contracting to lift the forearm against the weight of the hand and anything it is holding, which acts as the load. The predominance of third-class levers in the body highlights the design of our musculoskeletal system, emphasizing movement efficiency and speed rather than force. This is particularly important for athletes and individuals engaging in physical activities, as it allows for rapid and coordinated movements.**