NASM PES Performance Prep

Free Practice Test — 30 Real Exam-Style Questions

with full answer key & explanations

Practice Questions

Try all 30 first, then check the answer key at the back.

1. What is the hand position called when the index and middle fingers wrap around the thumb while executing a pull-up?

A. Crush grip
B. Supinated grip
C. Hammer grip
D. Hook grip

2. In basketball, the player's defensive stance, and in volleyball, the ready position, are both examples of which of the following?

A. Basic Athletic Stance
B. Sport-Specific Posture
C. Universal Athletic Position
D. Athletic Balanced Position

3. Consider the following rowers. Which of the following is NOT an appropriate exercise for improving rowing stroke strength and efficiency? Rower Exercise Rower A Leg presses Rower B Barbell rows Rower C Seated cable rows Rower D Lateral cone drills

A. Lateral cone drills
B. Leg presses
C. Barbell rows
D. Seated cable rows

4. During the execution of the deadlift exercise, which technique is most effective for enhancing activation of the local core stabilizers?

A. Bracing
B. Arching the back
C. Grip strength technique
D. Drawing-in maneuver

5. Which exercise technique is most effective in reducing the risk of muscular imbalance and injury in athletes?

A. Plyometric Training
B. Dynamic Warm-Up
C. Static Stretching
D. Self-Myofascial Release

6. At which point of muscle soreness should the foam roller be held during self-myofascial release?

A. Second
B. Third
C. Fourth
D. First

7. Which of the following statements about the core strengthening exercise - the plank - is true?

A. This exercise primarily targets the hip flexors
B. The plank is best performed in a seated position
C. Placing hands at shoulder width decreases the challenge
D. The transverse abdominis must be engaged to maintain body stability

8. During a proper deadlift set-up, which of the following is not a stability cue to ensure safe execution?

A. Overarching the lower back
B. Maintaining a neutral spine
C. Bracing the core
D. Keeping the bar close to the body

9. During a functional movement screen, John shows an increased lumbar lordosis. Which of the following is not likely to influence this posture deviation?

A. Weak abdominal muscles
B. Weak hip flexors
C. Tight lower back muscles
D. Tight hip flexors

10. During a single-leg hop assessment, if the gluteus medius of the supporting leg is weak, which of the following compensations is most likely to occur?

A. Foot flattening
B. Knee hyperextension
C. Pelvic drop
D. Pelvic lift

11. Which of the following types of training would be ideal for a client who runs marathons?

A. Agility ladder exercises
B. Long-distance endurance runs
C. 30-yard sprint drills
D. Plyometric jump training

12. A client is performing the Thomas Test to assess hip flexibility. To what degree should the hip joint remain flexed to indicate normal flexibility?

A. 0 degrees
B. 15 degrees
C. 30 degrees
D. 45 degrees

13. During a bicep curl, identify the primary two types of muscles involved in lifting the weight.

A. Stabilizers and synergists
B. Agonists and stabilizers
C. Agonists and synergists
D. Antagonists and stabilizers

14. Which component in the performance of a vertical jump is determined by the product of force application rate and jump height?

A. Power
B. Endurance
C. Agility
D. Flexibility

15. Which principle explains the adaptation of bones to loading and stress?

A. Hooke's Law
B. Wolff's Law
C. Law of Redundancy
D. Archimedes' Principle

16. When performing resistance training, in what position should a muscle be held to optimize the length-tension relationship for maximal force production?

A. Overstretched
B. Compressed
C. Slightly lengthened
D. Fully shortened

17. In context of a sports training program, why is it beneficial to integrate both short-distance (sprints) and long-distance running in an athlete's regimen?

A. To strengthen specific muscles exclusively
B. To prevent over-training
C. To prevent boredom
D. To decrease cardiovascular endurance

18. A basketball player is instructed to perform plyometric exercises at 50% of their maximum power output for muscular endurance. What is the most appropriate number of jumps to perform during each set?

A. 5
B. 25
C. 10
D. 15

19. A basketball player is completing a training regimen with 20 sets per workout. Which of the following training objectives is most likely to be the goal of this training program?

A. Maximal strength
B. Muscular hypertrophy
C. Muscle endurance
D. Power

20. Consider the following program design approach typically used in resistance training. Which of the following best describes a circuit training program?

A. Alternating upper and lower body exercises each session
B. Focusing only on cardiovascular exercises
C. Performing a series of different exercises one after the other with minimal rest
D. Completing all sets of one exercise before moving to the next

21. Your client is preparing for a marathon and needs to enhance cardiovascular endurance. Which heart rate zone should you aim for during their training program?

A. Zone 3: 75-85% of maximum heart rate
B. Zone 4: 85-95% of maximum heart rate
C. Zone 2: 60-70% of maximum heart rate
D. Zone 1: 30-50% of maximum heart rate

22. During a workout, performing a leg press followed immediately by a seated leg curl emphasizes which type of training program?

A. Power vs. strength programming
B. Supersetting antagonist muscle groups
C. Supersetting agonist muscle groups
D. Push vs. pull programming

23. Evaluate the impact of specific dietary patterns on bone health. Consider the information provided in the table below and identify which dietary pattern could lead to increased risk of osteoporosis. Dietary Pattern Characteristic Nutrient Intake Potential Health Impact High protein, low carbohydrate High protein, low carbs, moderate fat May support muscle repair High sugar, low fiber High sugar, low dietary fiber Increased risk of insulin resistance Very low-fat Very low in dietary fat Potential hormonal imbalance Balanced macronutrient Adequate protein, carbs, and fats Supports overall health

A. Balanced macronutrient
B. Very low-fat
C. High protein, low carbohydrate
D. High sugar, low fiber

24. When planning a diet to optimize athletic performance, ensuring adequate protein intake is crucial. Over-consuming protein can lead to issues, including kidney strain. At what daily protein intake can an athlete gain the most protein benefits without risking potential adverse effects?

A. 1.2 to 1.7 grams per kilogram of body weight
B. 2.0 to 2.5 grams per kilogram of body weight
C. 0.8 to 1.5 grams per kilogram of body weight
D. 1.8 to 2.2 grams per kilogram of body weight

25. Which of the following is NOT a commonly recommended dietary strategy for an athlete looking to enhance muscle recovery after intense training?

A. Hydrating adequately to replenish lost fluids
B. Including a protein supplement in the post-workout nutrition
C. Reducing protein intake immediately post-exercise
D. Consuming a carbohydrate-rich snack within 30 minutes post-exercise

26. An endurance athlete is preparing for a marathon and is concerned about optimizing carbohydrate loading. Which of the following supplements is not recommended for maximizing glycogen stores?

A. Caffeine
B. Carbohydrate powders
C. Maltodextrin
D. Dextrose

27. When considering muscle growth and repair, which hormone primarily assists in the absorption of amino acids into muscle cells and encourages protein synthesis?

A. Ghrelin
B. Estrogen
C. Insulin
D. Cortisol

28. Evaluate the table below to determine which macronutrient is primarily responsible for muscle recovery after intense exercise. Macronutrient Role in Muscle Recovery Usage During Exercise Carbohydrate Limited role Primary energy source Protein Essential for repair and growth Used minimally Fat Limited role Secondary energy source

A. Protein
B. Carbohydrate
C. Fat
D. Water

29. What is the direct physiological effect of consuming caffeine in relation to sports performance?

A. Directly enhance muscle protein synthesis
B. Directly increase muscle mass
C. Significantly enhance endurance training adaptations
D. Increase alertness and reduce fatigue

30. A soccer player wants to optimize recovery after intense training sessions. Which nutritional strategies could assist in muscle repair and reduce inflammation? Strategy Effect on Recovery Benefits Increase protein intake Enhances muscle repair High Hydrate with sugary drinks No effect on inflammation None Eat more omega-3 fatty acids Reduces inflammation High Limit carbohydrate intake Potential energy loss Low

A. Hydrate with sugary drinks and limit carbohydrate intake
B. Limit carbohydrate intake only
C. Increase protein intake and hydrate with sugary drinks
D. Increase protein intake and eat more omega-3 fatty acids

Answer Key & Explanations

1. D — Hook grip
The hand position where the index and middle fingers wrap around the thumb during a pull-up is known as the hook grip. This grip is useful for improving grip strength and stability, especially in exercises that require a firm hold, such as pull-ups and weightlifting movements. A crush grip is generally used when squeezing objects like a handshake. A supinated grip refers to an underhand grip where the palms face the lifter. A hammer grip involves holding weights with palms facing each other, typically used in dumbbell exercises.

2. C — Universal Athletic Position
Answer: Universal Athletic Position The player's defensive stance in basketball and the ready position in volleyball are both examples of the Universal Athletic Position (UAP). The UAP is a fundamental athletic stance that is used across many different sports and activities. The UAP is characterized by a few key components, including a stable base with feet shoulder-width apart, knees bent and hips pushed back, a neutral spine, and a slightly forward-leaning upper body. This position allows individuals to maintain balance and stability while also being able to move quickly and explosively in any direction. In basketball, the defensive stance allows quick lateral movements and reactivity. The player is low, with a wide base, ready to contest shots or intercept passes. In volleyball, the ready position is a variation of the UAP which prepares players for rapid response to the ball, ensuring balance and quick movement. The Athletic Balanced Position, Basic Athletic Stance, and Sport-Specific Posture are not recognized universal stances in sports.

3. A — Lateral cone drills
Correct answer: Lateral cone drills In rowing, strength and efficiency are improved by exercises that enhance pulling strength and leg drive. Leg presses, barbell rows, and seated cable rows focus on these necessary strength aspects. Lateral cone drills are primarily used for agility and lateral movement training, which are less relevant to the power and efficiency demands of a rowing stroke.

4. D — Drawing-in maneuver
The drawing-in maneuver is effective for activating the transverse abdominis, internal obliques, lumbar multifidus, pelvic floor muscles, and diaphragm by pulling the navel towards the spine. This is essential for stabilizing the core during the deadlift. Bracing targets the global stabilization system, arching the back can lead to injury, and focusing solely on grip strength does not activate the core stabilizers.

5. D — Self-Myofascial Release
Answer: Self-Myofascial Release Self-Myofascial Release (SMR) is a technique used to address skeletal muscle immobility and pain by relaxing contracted muscles and improving blood and lymphatic circulation to the targeted muscle. It enhances the recovery process and reduces the chances of injury. SMR helps in releasing the tension within the muscle fascia. Foam rollers or similar tools can be used to apply pressure and relieve muscle tightness.

6. D — First
Answer: First During self-myofascial release, the foam roller should be held at the first point of sensitivity or muscle soreness for effective recovery. This means that the roller should remain at the initial spot where you

feel soreness in the muscle, and you should hold the position to release tension. Maintaining the pressure on the muscle at this point helps to alleviate tightness and improve flexibility. Pushing too hard or moving beyond this point can cause discomfort or potential injury.

7. D — The transverse abdominis must be engaged to maintain body stability
The transverse abdominis must be engaged to maintain body stability is correct because this is the main focus of the plank exercise. It requires the contraction of core muscles, including the transverse abdominis, to hold the body in a stable position. This exercise strengthens the core and prepares the body for dynamic movement and load control. This exercise primarily targets the hip flexors is incorrect as the plank is primarily a core stability exercise. The plank is best performed in a seated position is incorrect because being in a prone position increases activation of the core. Placing hands at shoulder width decreases the challenge is incorrect because a stable base is maintained, ensuring core engagement remains constant.

8. A — Overarching the lower back
Answer: Overarching the lower back Overarching the lower back is not a stability cue for the deadlift set-up. This action can compromise the integrity of the spine during the lift. Proper stability cues for a deadlift include maintaining a neutral spine, bracing the core, and keeping the bar close to the body, all of which support spinal alignment and control throughout the lift.

9. B — Weak hip flexors
Answer: Weak hip flexors Weak hip flexors are not likely to cause increased lumbar lordosis because tight hip flexors usually contribute to this posture by pulling the pelvis into an anterior tilt. Increased lumbar lordosis can also be influenced by tight lower back muscles and weak abdominal muscles. Tight lower back muscles, tight hip flexors, and weak abdominal muscles contribute to increased lumbar lordosis as they affect pelvic and spinal alignment.

10. C — Pelvic drop
Answer: Pelvic drop If the gluteus medius of the supporting leg is weak during a single-leg hop assessment, the most likely compensation is a pelvic drop. The gluteus medius is a key muscle responsible for stabilizing the pelvis during single-leg movements. Weakness in this muscle results in inadequate stabilization, causing the pelvis on the non-supporting side to drop lower than the supporting side. This compensation can lead to further issues such as poor lower limb alignment, which may increase the risk of injury. Identifying this weakness allows fitness professionals to develop specific exercises to strengthen the gluteus medius and improve overall movement quality.

11. B — Long-distance endurance runs
For a client who runs marathons, the ideal type of training is long-distance endurance runs. Marathon runners need to build stamina and aerobic capacity to sustain long periods of running, making endurance training essential. In contrast, 30-yard sprints, plyometric jump training, and agility ladder exercises focus on speed, power, and agility, respectively, which are not primary requirements for marathon running.

12. A — 0 degrees
Answer: 0 degrees The Thomas Test evaluates hip flexor flexibility. A normal result means the thigh lies flat on the table, indicating 0 degrees of hip flexion. If the client's thigh is raised off the table, it suggests tight hip flexors.

13. C — Agonists and synergists
During a bicep curl, the biceps brachii acts as the agonist muscle, initiating and sustaining the upward

movement. The brachialis acts as a synergist, assisting the biceps to perform the motion efficiently. These muscles collaboratively contract to lift the weight.

14. A — Power
Answer: Power In sports, power is the ability to exert maximum force in the shortest amount of time, which combines the rate of force application and the height achieved in a jump. Force application is the capability to exert force rapidly, while jump height refers to the maximum vertical distance covered during the jump.

15. B — Wolff's Law
Wolff's Law states that bone in a healthy person or animal will adapt to the loads under which it is placed. If loading on a particular bone increases, the bone will remodel itself over time to become stronger to resist that sort of loading. Conversely, if the loading on a bone decreases, the bone will become less dense and weaker due to lack of stimulus. This concept is fundamental in understanding bone density maintenance in exercise and physical therapy.

16. C — Slightly lengthened
The correct position is slightly lengthened to optimize the muscle's length-tension relationship. This allows for an increase in sarcomere concentration and optimized force generation, albeit temporarily as prolonged immobilization in this position can lead to disuse atrophy. In contrast, a fully shortened position decreases sarcomere length and concentration, resulting in reduced force output. Overstretching may inhibit effective sarcomere overlap, and compression does not specifically alter sarcomere dynamics for increasing force output.

17. B — To prevent over-training
To prevent over-training by alternating short and long-distance running is correct because it ensures that different energy systems are used and prevents prolonged high intensity, reducing the risk of fatigue or injuries. Implementing structured variation in training helps to maximize athlete performance and minimize undue stress on the body. To prevent boredom is incorrect as the primary concern is athlete safety, not enjoyment. To decrease cardiovascular endurance is incorrect as the goal is usually to maintain or improve endurance. To strengthen specific muscles exclusively is incorrect because a balanced approach engages multiple muscle groups and ensures holistic development.

18. D — 15
15 is correct because this falls into the lower end of the endurance range, which is associated with moderate power output. Performance at 50% power output typically involves a higher repetition count for endurance. 5 is incorrect because this repetition count is associated with higher power outputs and heavier load intensities. 25 is incorrect because this is more appropriate for a power output lower than 50%. 10 is incorrect as it corresponds to higher power training typically performed at an intensity closer to 70% of maximum power output.

19. B — Muscular hypertrophy
Muscular hypertrophy is correct because the optimal training volume for this objective typically involves a high number of sets, ranging from 18 to 30 sets per workout. This volume is associated with the adaptations in muscle size. Muscle endurance involves a different strategy with higher repetitions. Power typically involves fewer repetitions and sets, focusing on speed. Maximal strength requires a different approach, emphasizing heavier weights with fewer sets.

20. C — Performing a series of different exercises one after the other with minimal rest
Answer: Performing a series of different exercises one after the other with minimal rest. Circuit training involves completing one set of an exercise and then moving quickly to the next, targeting different muscle groups with minimal rest in between. This approach maximizes cardiovascular benefits while improving strength and endurance. It provides a comprehensive workout that can improve muscle tone and cardiovascular fitness simultaneously.

21. C — Zone 2: 60-70% of maximum heart rate
Training in Zone 2 (60-70% of maximum heart rate) focuses on improving cardiovascular endurance, crucial for activities like marathons. It encourages the body to utilize oxygen efficiently and increases aerobic capacity. Zone 1 (30-50%) is more for recovery and light exercise, Zone 3 (75-85%) targets higher intensity aerobic training for performance gains, while Zone 4 (85-95%) is for anaerobic conditioning and short bursts of speed or power.

22. B — Supersetting antagonist muscle groups
The correct answer is supersetting antagonist muscle groups. Performing a leg press immediately followed by a seated leg curl involves a training strategy where opposing muscle groups are targeted consecutively. The leg press primarily focuses on the quadriceps muscles (agonist), while the seated leg curl targets the hamstrings (antagonist). This supersetting technique leads to balanced muscle development, efficiency, and improved performance due to enhanced force generation when one muscle group is activated followed by its opposing group. It's essential to differentiate it from supersetting agonist muscle groups, which involves exercises focusing on the same muscle group, or push vs. pull programming that classifies exercises based on the movement pattern (push or pull). Power vs. strength programming concentrates on differences in force production and load management toward athletic performance.

23. B — Very low-fat
Answer: Very low-fat A very low-fat diet can lead to hormonal imbalances, which may adversely affect bone health. Fat is crucial for hormone production, including those that support bone density. Insufficient hormone levels due to very low-fat intake could increase the risk of osteoporosis.

24. A — 1.2 to 1.7 grams per kilogram of body weight
Answer: 1.2 to 1.7 grams per kilogram of body weight. This range is recommended for athletes to support muscle repair and growth without overloading the kidneys. Increasing protein intake to 1.8 grams/kg or more does not translate into additional benefits and may harm the body's ability to process nutrients efficiently.

25. C — Reducing protein intake immediately post-exercise
Reducing protein intake immediately post-exercise is not recommended as protein is crucial for muscle repair and recovery. Athletes are often encouraged to consume a snack rich in carbohydrates and protein shortly after exercise to optimize muscle recovery and glycogen replenishment.

26. A — Caffeine
Caffeine, though often used for increased alertness and performance, is not specifically designed for maximizing glycogen stores. Carbohydrate powders, maltodextrin, and dextrose are all effective supplements for increasing glycogen storage in muscles prior to endurance events.

27. C — Insulin
Insulin is crucial in muscle growth due to its role in facilitating the uptake of amino acids and promoting protein synthesis, essential for building and repairing muscle tissues.

28. A — Protein
Protein is essential for muscle recovery, as it aids in repairing and rebuilding muscle tissues after exercise-induced damage. While carbohydrates are vital for energy, especially during intense activities, protein is not the primary energy source but rather a critical component in post-exercise recovery.

29. D — Increase alertness and reduce fatigue
Increase alertness and reduce fatigue is correct because caffeine acts as a stimulant that primarily affects the central nervous system, increasing alertness and delaying the onset of fatigue during exercise. While it can contribute to improved performance, it does not directly enhance muscle protein synthesis or increase muscle mass. Any improvements in endurance are more related to reduced perceived exertion rather than direct physiological adaptation.

30. D — Increase protein intake and eat more omega-3 fatty acids
The correct actions are to increase protein intake and eat more omega-3 fatty acids. Protein supports muscle repair after workouts, while omega-3 fatty acids help reduce inflammation, promoting overall recovery. Hydration with sugary drinks does not assist with reducing inflammation, and limiting carbohydrate intake can lead to insufficient energy levels for optimal recovery.

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