



# NSCA TSAC-F Tactical Prep

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## Practice Questions

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**1. You are designing a fitness program for a firefighter. What should be the essential focus of the resistance training component to effectively prepare them for their job duties?**

- A. Enhancing the ability to exert large amounts of force quickly and explosively
- B. Boosting cardiovascular endurance to run long distances
- C. Increasing total body max strength

**2. Which aspect of motor learning requires the ability to detect and perform precise movement patterns efficiently in novel sport tasks?**

- A. Reactiveness
- B. Differentiation
- C. Rhythm

**3. A tactical strength and conditioning facilitator is developing a fitness program for firefighters. Which of the following exercises would effectively target both upper body strength and core stabilization?**

- A. Bicep curl with a resistance band
- B. Tricep extension on a cable machine
- C. Push-up to side plank

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**4. Below is a table outlining various exercises considered for developing muscular endurance. Identify the exercise that is a common component in all tactical operations group fitness protocols. Exercise Primary Muscle Groups Trained Inclusion in Tactical Protocols Burpees Full Body Moderate Rope Climbing Upper Body, Core Low Push-Ups Chest, Triceps, Shoulders High Box Jumps Legs, Core Moderate**

- A. Burpees
- B. Rope Climbing
- C. Box Jumps
- D. Push-Ups



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5. Which of the following exercises is primarily a compound movement?

- A. Leg extension
- B. Deadlift
- C. Leg curl

6. Which combination of exercises is considered a compound set?

- A. Barbell curl and chin-up
- B. Deadlift and bench press
- C. Barbell squat and leg press

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7. When designing a training program for tactical athletes, what type of workout would utilize work intervals at an intensity of 90% of maximum effort, typically lasting between 30 and 90 seconds?

- A. HIIT workout
- B. Aerobic base training
- C. Steady-state cardio

8. During sustained physical activity, which hormone is primarily responsible for increasing heart rate and energy availability by stimulating the breakdown of glycogen?

- A. Epinephrine
- B. Insulin
- C. Dopamine

9. Review the table below regarding physiological adaptations to different types of training. Identify which adaptation is not commonly associated with aerobic endurance training. Adaptation Resistance Training Aerobic Endurance Training Increase in muscle size Common Uncommon Decrease in body fat percentage Variable Common Increase in capillary density Uncommon Common Increase in short-term endurance Common Uncommon

- A. Decrease in body fat percentage
- B. Increase in short-term endurance
- C. Increase in capillary density

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**10. What is a potential muscle adaptation as a result of resistance training?**

- A. Increase in muscle fiber size
- B. Decrease in muscle fiber size
- C. Decrease in motor unit recruitment

**11. During intense exercise, what physiological process increases to meet the body's higher oxygen demands?**

- A. Decreased heart rate
- B. Decreased oxygen uptake by the body's tissues
- C. Increased oxygen uptake by the body's tissues

**12. Identify the type of cartilage found in the knee menisci that is adapted to withstand compressive forces from high-impact activities.**

- A. Hyaline cartilage
- B. Fibrocartilage
- C. Elastic cartilage

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**13. What resistance exercise would you recommend to enhance an athlete's sprinting speed?**

- A. Box jumps
- B. Deadlifts
- C. Cycling

**14. Which of the following exercises is classified as a pull?**

- A. Lunge
- B. Pull-up
- C. Push-up

**15. During a deadlift, what is the term used for the phase where the lifter raises the bar off the ground?**

- A. Eccentric
- B. Isometric
- C. Concentric

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**16. In what exercise must an athlete maintain a neutral spine during the movement?**

- A. Deadlift
- B. Crunch
- C. Bench Press

**17. When executing a box squat jump, how tall should the platform be and where should it be positioned relative to the feet?**

- A. The platform should be 6-12" high and positioned shoulder width apart.
- B. The platform should be 12-18" high and positioned wider than shoulder width apart.
- C. The platform should be 18-24" high and positioned wider than shoulder width apart.
- D. The platform should be 12-18" high and positioned shoulder width apart.

**18. A firefighter is using a rowing machine as part of their conditioning routine. What are the major muscle groups primarily targeted during this exercise?**

- A. Quadriceps, gluteus maximus
- B. Biceps, latissimus dorsi
- C. Latissimus dorsi, rhomboids

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**19. Which of the following foot placements is not used during a standard back squat?**

- A. Shoulder-width stance
- B. Narrow stance
- C. Wide stance

**20. In a flat bench press exercise, where should the spotter place their hands to ensure safety and proper assistance?**

- A. At the bar with palms up, close to but not touching the bar
- B. Outside the lifter's hands, without holding the bar
- C. Outside the lifter's hands, fully gripping the bar

**21. Consider the fitness evaluation format used by a tactical unit. If soldiers feel that this test genuinely reflects their stamina and skills needed for field operations, which type of test validity does this imply?**

- A. Face validity
- B. Construct validity
- C. Content validity



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**22. A tactical strength and conditioning facilitator is evaluating the anaerobic endurance of a team. Which of the following tests is designed to measure anaerobic endurance?**

- A. T-test
- B. 300-yard shuttle
- C. 1.5-mile run

**23. During a lower body 1RM test, what is the typical weight increment added to the barbell following a successful lift?**

- A. 15-25 pounds
- B. 31-40 pounds
- C. 9-20 pounds

**24. How many coaches are needed to supervise a training session for 30 adult soccer players?**

- A. 2 coaches
- B. 3 coaches
- C. 1 coach

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**25. How many safety officers should be present at a physical training session for a group of 25 first responders to ensure proper supervision?**

- A. Two
- B. One
- C. Three

**26. For optimal recovery following intense physical training sessions lasting over three hours, how much potassium should be consumed per liter of fluid, according to the MDRI guidelines?**

- A. 78-195 mg potassium/liter
- B. 30-50 mg potassium/liter
- C. 200-300 mg potassium/liter
- D. 10-25 mg potassium/liter



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**27. For a tactical athlete with a vigorous training regimen ensuring adequate caloric intake, what are the recommended carbohydrate requirements to optimize performance and recovery?**

- A. 1-2 g/lb body weight
- B. 0.9-1.2 g/kg body weight
- C. 3-5 g/lb body weight

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**28. Which of the following does not contribute to muscle energy production during high-intensity exercise?**

- A. Beta-Alanine
- B. Creatine
- C. ATP (Adenosine Triphosphate)

**29. How should hydration strategies change for tactical athletes operating in desert versus arctic environments?**

- A. Hydration needs decrease in both desert and arctic environments
- B. Hydration needs increase in both desert and arctic environments
- C. Hydration needs increase in desert environments and decrease in arctic environments
- D. Hydration needs decrease in desert environments and increase in arctic environments

**30. Consider the table below to identify the nutritional supplements that are both effective and carry low risk for enhancing recovery in tactical athletes. Supplement Effectiveness Risk Level Creatine High Low Omega-3 Fatty Acids Moderate Low Protein Powder High Low Glutamine Low Low Growth hormone High High**

- A. Glutamine and Omega-3 Fatty Acids
- B. Growth hormone and Protein Powder
- C. Creatine, Omega-3 Fatty Acids, and Protein Powder



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## Answer Key & Explanations

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### 1. A — Enhancing the ability to exert large amounts of force quickly and explosively

Firefighters need to perform tasks that require explosive strength, such as breaking down doors or lifting heavy objects under time constraints. The program should emphasize exercises that develop power, allowing them to quickly generate force. While cardiovascular endurance and max strength are important, the primary focus should be on explosive force to meet the demands of their rapidly changing work environment.

### 2. B — Differentiation

Answer: Differentiation. This aspect involves the accurate, economical adjustment of movement patterns, necessary for performing precise sport tasks. Rhythm involves the timing and smoothness of actions, rather than precision, while reactivity pertains to rapid responses to stimuli.

### 3. C — Push-up to side plank

The correct answer is: Push-up to side plank. Exercises like the push-up to side plank effectively target both upper body strength and core stability, which is crucial for firefighting personnel who require full-body functional strength. In contrast, exercises such as the bicep curl with a resistance band and tricep extension on a cable machine primarily focus on isolated muscle groups and do not significantly engage the core.

### 4. D — Push-Ups

Push-ups are universally included in fitness protocols across various tactical operations groups due to their simplicity and effectiveness in building upper body muscular endurance. They are crucial in ensuring the operational readiness of personnel in real-world scenarios. Other exercises like burpees, rope climbing, and box jumps, while beneficial, are not consistently featured across all tactical group protocols.

### 5. B — Deadlift

The deadlift is a compound movement that engages multiple joints and muscle groups, including the hips, knees, and back. In contrast, leg curls and leg extensions are isolation exercises that focus on a single joint movement, primarily targeting the hamstrings and quadriceps respectively.

### 6. C — Barbell squat and leg press

Answer: Barbell squat and leg press. A compound set involves performing two exercises for the same muscle group back to back without rest. The barbell squat and leg press both target the quadriceps and other muscles of the legs. This type of training increases the intensity for the targeted muscle group, enhancing endurance and strength.

### 7. A — HIIT workout

The correct answer is a HIIT workout. High-intensity interval training (HIIT) involves exercises at 90% of max effort. Work intervals in HIIT are short, typically between 30 and 90 seconds, and require longer recovery periods to maintain workout quality and maximize benefits. This type of training effectively enhances the capacity and tolerance of anaerobic metabolism while challenging different energy systems.

### 8. A — Epinephrine

Answer: Epinephrine Epinephrine, also known as adrenaline, is released by the adrenal glands. It increases



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heart rate and glycogenolysis, delivering more glucose into the bloodstream for energy. Insulin has the opposite effect, promoting glucose storage, whereas dopamine primarily acts as a neurotransmitter with different effects.

### 9. B — Increase in short-term endurance

The correct answer is an increase in short-term endurance. Aerobic endurance training primarily leads to increases in cardiovascular efficiency, capillary density, and fat oxidation. Short-term endurance improves more with resistance or high-intensity interval training.

### 10. A — Increase in muscle fiber size

Answer: Increase in muscle fiber size Several potential adaptations are possible with resistance training, including: increased muscle hypertrophy enhanced motor unit recruitment improved strength and power

### 11. C — Increased oxygen uptake by the body's tissues

During intense exercise, the body's tissues require more oxygen to sustain the increased energy demands. This process is known as oxygen uptake, which refers to the actual amount of oxygen consumed by the body's tissues. The higher the intensity of physical activity, the greater the oxygen uptake. Additionally, a measure of cardiorespiratory fitness is called VO<sub>2</sub> max, indicating the maximal amount of oxygen consumption.

### 12. B — Fibrocartilage

Fibrocartilage is the type of cartilage found in knee menisci capable of withstanding high compressive forces. It is specifically designed to protect joints during high-impact activities such as running or jumping. Hyaline cartilage, on the other hand, is found on articulating bone surfaces, providing support and flexibility. Elastic cartilage, which can return to its normal shape after distortion, is typically found in body parts like the ear.

### 13. B — Deadlifts

Answer: Deadlifts Specificity of training is crucial; choosing exercises that enhance joint movements critical to sprinting is important. Deadlifts train flexion and extension in the hips and knees, similar to the mechanics seen in sprinting. While cycling and box jumps may improve overall fitness and power, respectively, deadlifts are a resistance exercise that directly targets the muscle groups necessary for improving sprint speed.

### 14. B — Pull-up

Answer: Pull-up The pull-up is an upper body strength exercise focusing on the back and biceps, performed by pulling oneself up towards a bar. In contrast, the push-up is a push exercise targeting the chest, shoulders, and triceps. A lunge involves the lower body muscles and is not classified as a pull.

### 15. C — Concentric

Answer: Concentric The deadlift consists of three main phases: eccentric, concentric, and isometric. The concentric phase is when the lifter raises the bar from the ground to a standing position. The eccentric phase occurs when the lifter lowers the bar back to the ground. The isometric phase is characterized by the brief moment the bar is held stationary before the upward lift begins.

### 16. A — Deadlift

Answer: Deadlift Maintaining a neutral spine during a deadlift is crucial to minimize stress on the vertebrae and prevent injury. The neutral spine position involves keeping the natural curves of the back, avoiding excessive arching or rounding.



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**17. B — The platform should be 12-18" high and positioned wider than shoulder width apart.**

Answer: The platform should be 12-18" high and positioned wider than shoulder width apart. The box squat jump is a plyometric exercise that enhances jump performance through rapid concentric and eccentric movements. To perform this movement safely and effectively, ensure the platform is 12-18" in height and placed wider than shoulder width apart. The athlete should begin in a squatting position on the platform with feet wider than shoulder width, then jump off the side and land softly, maintaining torso stiffness and absorbing impact with the lower body.

**18. C — Latissimus dorsi, rhomboids**

Answer: Latissimus dorsi, rhomboids When using a rowing machine, the user pulls the handle towards their chest, involving various muscles in the upper and lower body. Major muscle groups involved in a rowing exercise: Muscle Group Role Latissimus dorsi Primary pulling muscle Rhomboids Stabilizes shoulder blades Middle trapezius Assists in pulling Posterior deltoids Contributes to upper arm movement The quadriceps and gluteus maximus are primarily engaged during the leg drive phase but are not the main focus in upper body pulling.

**19. B — Narrow stance**

The correct answer is Narrow stance. In a standard back squat, the common foot placements include a shoulder-width stance and a wide stance. A Narrow stance is typically not recommended because it can adversely affect stability and muscular engagement during the exercise.

**20. A — At the bar with palms up, close to but not touching the bar**

Answer: At the bar with palms up, close to but not touching the bar When spotting a flat bench press, the spotter should stand behind the lifter's head, placing their hands at the bar with palms up and close to the bar, without touching it. This position allows the spotter to provide assistance quickly and effectively if the lifter requires help during the exercise.

**21. A — Face validity**

Face validity refers to the degree to which test participants recognize a test as accurately measuring what it claims to measure. In this case, soldiers believe that the test reflects the skills and stamina necessary for tactical operations.

**22. B — 300-yard shuttle**

Answer: 300-yard shuttle. The 300-yard shuttle test is a common assessment of anaerobic endurance where participants sprint back and forth between two lines set 25 yards apart, completing the total distance as quickly as possible. The 1.5-mile run is primarily a test of aerobic capacity, and the T-test mainly measures agility. Anaerobic endurance is characterized by the ability to sustain high-intensity efforts, making the 300-yard shuttle an appropriate test.

**23. B — 31-40 pounds**

The recommended 1RM testing protocol for lower body exercises advises adding 31-40 pounds (14-18 kg) upon a successful lift. This increment ensures adequate challenge to establish the maximum limit. For upper body exercises, a smaller increase of 9-20 pounds (4-9 kg) is recommended.

**24. C — 1 coach**

Answer: 1 coach Staff-to-athlete ratios are a key part of organizing training. For those older than high school age, the ratio of staff to athletes is 1:20. With 30 adults, only one coach is required.



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**25. A — Two**

Answer: Two For tactical training, there are recommended supervision ratios to ensure safety and efficiency. The preferred officer-to-trainee ratio is 1:15 for tactical training environments. For 25 first responders, a ratio of 1:15 would necessitate two safety officers to maintain effective supervision.

**26. A — 78-195 mg potassium/liter**

Answer: 78-195 mg potassium/liter According to the Military Dietary Reference Intakes (MDRI), the guidelines are designed to assist in recovery and maintain electrolyte balance after periods of intense physical exertion, including extended training sessions lasting more than three hours. For each liter of fluid consumed, 78-195 mg of potassium is recommended to replenish losses and support physiological functions.

**27. C — 3-5 g/lb body weight**

Answer: 3-5 g/lb body weight. Tactical athletes with vigorous training require substantial carbohydrate intake to support glycogen stores, aid recovery, and sustain energy levels. Guidelines suggest: - Tactical athletes with low to moderate activity: 2-3 g/lb per day - Tactical athletes with vigorous activity: 3-5 g/lb per day - If caloric intake is inadequate, further increase carbohydrate intake to prevent muscle loss.

**28. A — Beta-Alanine**

Answer: Beta-Alanine Beta-Alanine is primarily used for buffering muscle pH and does not directly contribute to energy production. Creatine and ATP are both integral to the process of supplying energy to muscles during high-intensity activities.

**29. B — Hydration needs increase in both desert and arctic environments**

Answer: Hydration needs increase in both desert and arctic environments. In desert environments, due to increased sweating and dry air, the body loses water rapidly, requiring increased fluid intake. In arctic environments, although less sweating occurs, the cold air and higher energy expenditure through shivering also increase hydration needs. Tactical athletes need to adapt their hydration strategies to meet these demands to maintain performance and health.

**30. C — Creatine, Omega-3 Fatty Acids, and Protein Powder**

Creatine, Omega-3 Fatty Acids, and Protein Powder are considered effective supplements with a low risk profile. Creatine is particularly noted for its ability to boost ATP production, which is beneficial for high-intensity workouts. Omega-3 Fatty Acids have been shown to aid in reducing inflammation, and Protein Powder is integral for muscle recovery. These supplements are backed by research to be safe and effective, unlike Growth hormone, which poses a high risk of serious side effects.



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