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Introduction

About the NSCA

The National Strength and Conditioning Association (NSCA) is an international, nonprofit, educational association representing strength training and conditioning professionals, sports science researchers, athletic trainers, sports medicine therapists and physicians, personal trainers, students and others interested in fitness and strength and conditioning activities and their relationship to overall sport and fitness performance.

The NSCA publishes two of the world's premier strength and conditioning journals – *Strength and Conditioning Journal* and the *Journal of Strength and Conditioning Research*. They link what is being learned in the sport science research laboratories to what is being taught by fitness professionals, thereby bridging the gap between theory and practice.

About NSCA Certification

Founded in 1978, the NSCA established its first credential in 1985 in order to administer a certification program for those in the field of strength training and conditioning. The NSCA's original certification program, the Certified Strength and Conditioning Specialist® (CSCS®), continues to be the only nationally-accredited certification that is specifically designed to assess competencies of those who strength train and condition athletes. Accredited in 1993, the CSCS became the first credential in the industry to be accredited.

As the fitness industry continued to grow, the NSCA saw a need for a personal training certification that would earn the same prestige and credibility as the CSCS. Thus, in 1993, the NSCA-Certified Personal Trainer (NSCA-CPT) and in 2012, the Certified Special Population Specialist (CSPS) credentials were established. Today, more than 36,000 CSCS and NSCA-CPT credentials are held by professionals around the world.

The TSAC-F™ Credential

In 2012, the NSCA established the Tactical Strength and Conditioning Facilitator™ (TSAC-F) credential. This credential was created for fitness professionals interested in training tactical operators. The TSAC-F is the result of the increased need for qualified fitness professionals to train this population.

Tactical Strength and Conditioning Facilitator Exam

The TSAC-F credential identifies those individuals who have the knowledge necessary to train military, fire and rescue, law enforcement, protective services, and other emergency personnel to improve performance, promote wellness, and decrease injury risk. The exam is developed by the TSAC-F Exam Development Committee. This is a group of content experts in the fields of tactical strength and conditioning,

research, and education. The committee develops specifications that define the content areas to be covered, the number of questions on the exam and the abilities and skills measured by the exam.

The exam consists of 130 scored questions (plus 10 non-scored questions) which cover the following content areas: exercise sciences; nutrition; exercise technique; program design; and organization, administration, testing, and evaluation. The testing time allowed to take the exam is 3 hours.

The TSAC-F exam is continually monitored for content validity and updated on a regular basis. It is designed to ensure a minimal level (as defined by the Exam Development Committee) of competency among tactical facilitators working with tactical operators and creates a better awareness among the public of the nature and purpose of the profession. A focal point of the exam is to ensure candidates possess appropriate knowledge of industry guidelines to design safe and effective training programs.

Introduction

Scope of Practice

Tactical Strength and Conditioning Facilitators

(TSAC-F) apply scientific knowledge to physically train military, fire and rescue, law enforcement, protective services, and other emergency personnel to improve performance, promote wellness, and decrease injury risk. They conduct needs analyses and physical testing sessions, design and implement safe and effective strength training and conditioning programs, and provide general information regarding nutrition. Recognizing their area of expertise is separate and distinct, TSAC Facilitators consult with and refer those they train to other professionals when appropriate.

Explanation of Non-Scored Exam Questions

The TSAC-F exam contains non-scored questions that are being "pretested" or evaluated for future use. Including these types of questions allows the TSAC-F Exam Development Committee (EDC) to collect meaningful information about items that may appear on future exams.

Pretesting is accomplished by interspersing new ("untried") questions throughout the exam (10 non-scored questions appear in the TSAC-F exam). Only this small number is included so that additional testing time will not be needed by exam candidates. The non-scored questions are scattered throughout the exam so candidates will answer them with the same effort that they give to the actual scored questions. These questions are not scored as part of a candidate's certification exam, and they do not affect an individual's pass/fail status.

The TSAC-F exam reflects current job-related duties and industry practices. As such, new items are continuously introduced and evaluated. Pretesting is an accepted testing practice that creates a statistically sound exam, and allows candidates to receive scores that are based solely on previously verified ("tried") items.

Non-scored pretest questions appear on both paper/pencil and computer-based exam formats. This provides a similar testing experience to all candidates.

Exam Development

The TSAC-F EDC, comprised of individuals whose knowledge and experience in exercise sciences, strength training and conditioning, personal training, and medicine qualifying them as "content experts," develops the exam questions. The committee develops specifications from a job task analysis study that is completed every five years that defines the content areas to be covered, the number of questions on the exam and the abilities and skills measured by the exam.

Testing Agency

The NSCA Certification Committee has the overall responsibility for exam development and policies governing eligibility and administration of the exam. It is also responsible for contracting with a professional testing agency that administers and provides psychometric expertise.

Applied Measurement Professionals, Inc. (AMP) is the testing agency contracted by the NSCA to assist in the development, administration, scoring and analysis of the TSAC-F exam based on the exam specifications developed by the NSCA Certification Committee and the TSAC-F EDC. The testing agency is also responsible for the establishment of test centers and exam security.

Quality Control

Each exam undergoes quality control checks. A thorough item analysis is completed and is used as a part of the statistical review of the performance of the exam. The NSCA, AMP and the EDC review exam data and candidate comments. All of these materials are reviewed during a key validation meeting with the EDC to ensure that the scoring of the questions is appropriate. Candidates can provide written comments about any exam question. However,

those comments do not have a bearing on a candidate's exam score. Rather, they serve a purpose of "requesting attention" of the EDC. All candidate comments are reviewed for relevance and accuracy, but these comments are not taken as statements to argue or challenge the exam (either at the time of the exam or afterward).

Prerequisites

1. 18 years of age

To qualify for the TSAC-F exam, you must be at least 18 years old and have a high school diploma or equivalent.

2. Current AED/CPR certification (BLS or equivalent)

Current CPR/AED certification is also a requirement. If candidates do not have current CPR/AED certification, they can still register for and take the TSAC-F exam. The NSCA will not release a candidate's exam scores until we have received documentation of a valid CPR/AED certification. A photo copy of the front and back of the card is acceptable.

Please mail your documentation to:

National Strength and Conditioning Association c/o Certification Department 1885 Bob Johnson Drive Colorado Springs, CO 80906

Registration

Candidates can register by mail, fax or online. All registrations must be received or post marked before midnight of the registration cut-off date. Once registration for an exam has closed, no additional registrations will be accepted.

Candidates will receive an official confirmation notice approximately three weeks after the registration deadline. The confirmation notice will include the exam site and date for which they are registered. One week prior to the exam date, candidates will receive a test center admission letter identifying the exact time and address where candidates should report for the exam. It is very important to review the confirmation notice

and admission letter information and notify the NSCA immediately if there are any errors.

The admission letter serves as authorization to sit for the exam and, if incorrect, could preclude admission to the exam center.

At the testing site, candidates are required to present proof of identity that includes a photograph (valid driver's license, state or military ID card or passport) and a second form of identification with name and signature.

Candidate Ineligibility

A candidate may be determined ineligible for either of the following reasons:

- 1. Insufficient documentation to assess eligibility.
- 2. Documentation provided, or fees submitted, do not meet eligibility requirements for the exam.

The NSCA Certification Committee reserves the right to cancel exam scores if an individual is deemed ineligible to meet the certification requirements. If a candidate is determined to be ineligible, a refund of his/her registration fee will **NOT** be provided. If a candidate has any questions regarding eligibility, contact the NSCA at 800-815-6826 or exams@nsca.com **BEFORE** registering for an exam.

Refund of Fees

Cancellation Policy: Notice of cancellation must be in writing. The NSCA provides a 50 percent refund when we receive the written notice of cancellation at least seven business days before the scheduled exam date. No refunds will be made after that date.

Should fewer than 15 candidates register for a site, the NSCA retains the right to cancel the exam site. Those affected will be notified no later than four weeks after the registration cutoff date and offered the opportunity to transfer to a different date/site at no additional cost. The NSCA is not

responsible for expenses incurred by a candidate due to a cancelled exam (e.g., airfare, hotel).

No-shows: Candidates who do not arrive to take the exam and who do not cancel or transfer their registration will forfeit the registration fee. Should they wish to take the exam at a later date, they would need to register again and provide the full registration fee.

Transfer Policy

If you are unable to take the exam on the date or at the location for which you are registered, you may transfer your registration by contacting the NSCA. Exam registrations cannot be transferred to another person, and the Exam Transfer Form must be completed at least seven days before the exam date. Candidates can provide payment of the appropriate transfer fee via check, money order or credit card. Payment is required to process the transfer.

Call 800-815-6826 and specify the date and site to which you wish to transfer.

- ☐ Candidates cannot transfer into an exam after the registration deadline has passed.
- ☐ Candidates wishing to reschedule their paper/ pencil exam to another paper/pencil exam = \$100 transfer fee.
- ☐ Candidates wishing to transfer from a paper/ pencil exam to a computer-based exam = \$150 transfer fee.
- ☐ There is no limit on the number of paper/pencil transfers.

Special Accommodations

The NSCA is committed to ensuring that no individual with a disability is deprived of the opportunity to take the exam solely by reason of that disability. Candidates may request special accommodations if they have a medical condition that will prevent them from taking the exam as it is typically administered. A request for special accommodations must be made at the time of registration and must be made using the Special Accommodations Form (see pages 22 – 23) available online at www.nsca.com, or by contacting the NSCA office directly.

Prior to the exam, candidates will receive notification from AMP of the accommodations that they will receive.

If no information is provided or if the NSCA and/or AMP determines that the provided information is inadequate to assess special needs requirements, candidates will be asked to provide additional information/documentation and given a deadline by which they need to respond. If the required information is not received by the specified deadline, the request for accommodations will be denied.

(Special language accommodations will not be made for those whose primary language is not English.)

AMP is equipped with Telecommunication Devices for the Deaf (TDD) to assist deaf and hearing-impaired candidates. TDD calling is available 8:30am to 5:00pm (Central time) Monday-Friday at 913-495-4437. This TDD phone option is for individuals equipped with compatible TDD machinery.

Forfeit of Fee

Candidates who do not arrive to take the exam, and who do not cancel or transfer their registration will forfeit the registration fee.

Test Center Locations

The exact location of the testing center in each city may change from exam to exam, depending on the space availability and/or conditions of the facility. Each exam candidate will be notified of the exact exam location with a mailed admission letter (sent by the independent testing agency one week before the exam).

Address Changes

The address provided on a candidate's registration will be used for mailing the exam confirmation notice, admission letter(s) and exam results. If candidates have a change of address, they should notify the NSCA no later than four weeks prior to the exam date. If a candidate moves after this time, he or she should leave a forwarding address at the post office so that the admission letter(s) and exam results will be sent to the new address. Candidates can update their address with the NSCA in one of the following ways:

- Log into your profile at www.nsca.com
- 2. Call 800-815-6826
- 3. Email exams@nsca.com
- 4. Send a fax to 719-632-6367

Mail the information to the NSCA at 1885 Bob Johnson Drive, Colorado Springs, CO 80906

Address Changes

The address provided on a candidate's registration will be used for mailing the exam confirmation notice, admission letter(s) and exam results.

Exam Schedule

- Candidates registered for the TSAC-F exam will receive an admission letter for the exam. Candidates will be required to show the appropriate admission letter to the proctor during check-in.
- Candidates must provide two forms of identification to gain admission to the test center, one of which must be photo-bearing. The photo-bearing identification must be one of the following: a valid driver's license, state or military ID card or passport. Candidates must have proper identification to gain entry to the test center. Candidates are required to sign the registration list prior to entry to the test center.

Rules for Exam

- 1. Our testing service provides pencils at the testing site.
- Candidates may wish to bring a watch to help pace themselves on the exam; however, NO stopwatches, cell phones or other timing devices may be used. The test center supervisor will keep the official time and ensure that candidates are given the allotted amount of time for the exam.
- No cell phones, recording devices, books, slide rules, calculators, papers, dictionaries or other reference materials may be taken into the exam room.
- 4. Backpacks and/or purses may be placed at the front or back of the exam room, away from candidates.
- 5. No test materials, documents or memoranda of any kind are to be taken from the exam room.



Exam candidates must provide two forms of identification, one of which must be photo-bearing.

- No questions concerning the content of the exam may be asked during the exam. Listen carefully to the instructions given by the proctor and read all directions in the test booklet thoroughly.
- 7. Candidates may comment on any question if they believe it is misleading or deficient in accuracy or content. A form for this purpose is included on the back of the answer sheet. Be specific when commenting on any item. Each comment is reviewed by the exam committee. Individual responses to question comments, however, are not provided and such comments do not affect exam scores.
- Candidates must have the test center supervisor's permission to leave the room during the exam. Candidates will not be allowed additional time to make up for time lost.
- 9. The test center supervisor may dismiss a candidate from the exam for any of the following reasons: if the candidate's admission to the exam is unauthorized; if a candidate creates a disturbance, is abusive or is otherwise uncooperative; if a candidate gives or receives help, or is suspected of doing so; if a candidate attempts to remove exam materials or notes from the test center or if a candidate attempts to take the exam for someone else.
- 10. Eating, drinking, or smoking is not permitted in the exam room.

Copyrighted Exam Questions

All exam questions are the copyrighted property of the NSCA. It is forbidden under federal copyright law to copy, reproduce, record, distribute or display these exam questions by any means, in whole or in part. Doing so may subject you to severe civil and criminal penalties.

Inclement Weather, Power Failure or Emergency

In the event of inclement weather or unforeseen emergencies on the day of an exam, AMP will determine whether circumstances warrant the cancellation, and subsequent rescheduling of an exam. Candidates may contact AMP's Weather Hotline at 913-495-4418 (24 hours/day) prior to the exam to determine if AMP has been advised that any assessment centers are closed.

Typically, the exam is NOT rescheduled if the assessment center personnel are able to open the assessment center. If power to an assessment center is interrupted temporarily during an administration, AMP will restart the exam from the time it left off so that candidates may continue the exam.

Every attempt is made to administer the exam as scheduled; however, should an exam be cancelled at an assessment center, all scheduled candidates will receive information about rescheduling procedures.

Release of Information

Both the NSCA and its testing agency are committed to protecting the confidentiality of candidate records. For this reason, exam scores are never released by telephone, even to candidates. Also, information regarding candidate scores is never released to any third party. Verification of the certified status of an individual, however, is provided upon receipt of a written request.

Neither the NSCA, nor the NSCA Certification Committee members, or their respective staff are involved with the handling or scoring of any exam in any way. This is the testing agency's responsibility.

Privacy Policy

The NSCA is committed to the right of privacy for certificate holders (Certified Strength and Conditioning Specialist, Certified Special Population Specialist, NSCA-Certified Personal Trainer, and Tactical Strength and Conditioning Facilitator) and exam candidates. The NSCA will exercise care with customer property and personal information while it is under our control or used by the NSCA. The NSCA will handle and protect exam candidate property/information as is done with all NSCA property. Only authorized employees will have access to exam candidate files. The designated employees are responsible for maintaining the confidentiality of the information in those files.

The NSCA staff will not discuss, disclose or release any information submitted for certification purposes to any third party without the certificate holder's or candidate's written consent.

- The official exam candidate needs to make all inquiries pertaining to material submitted for certification exams and/or information related to the exam administration.
- With the exception of verification of certification, written consent from the certificate holder or exam candidate is required prior to the release of any information from the individual's record.

To complete and submit the "Authorization to Release Information Form," please visit our certification section at www.nsca.com, or contact the NSCA at exams@nsca.com to receive a faxed or mailed copy of this release form.

The NSCA reserves the right to modify its Privacy Policy without prior notification. In the event that we make a material change to our policy, we will post a notice of the change at www.nsca.com.

Reporting of Results

The testing agency will mail score reports to the candidate three to five weeks following the exam. The total scaled score will determine whether the candidate passed. This scaled score is statistically derived from the raw score and can range from 1 through 99. The passing scaled score is 70 for the exam. The passing score reflects the amount of knowledge that a committee of experts has determined to be appropriate for credentialing. A criterion-referenced standard-setting procedure and expert judgment were used to evaluate each item on the exam in order to identify the passing point.

A candidate's ability to pass the exam depends on the amount of knowledge displayed and is not based upon the performance of others taking the exam (i.e., the exam is not based on a "curve").

The reason for calculating scaled scores is that different forms (or versions) of the exam may vary in difficulty. As new forms of the exam are introduced, a certain number of questions in each content area are replaced by new questions. These changes may cause one form of the exam to be slightly easier or more difficult than another form. To adjust for these differences in difficulty, a procedure called "equating" is used. The goal of equating is to ensure fairness to all candidates.

In the equating process, the minimum raw score (number of correctly answered questions) required to equal the passing scaled score of 70 is statistically adjusted (or equated). Non-scored questions will not affect the candidate's overall scaled score or pass/fail status.

For instance, if the exam is determined to be more difficult than the base form of the exam, then the minimum raw score required to pass will be slightly lower than the original passing raw score. If the exam is easier, the passing raw score will be higher. Equating helps to ensure that the passing scaled score of 70 represents the same level of knowledge, regardless of which form of the exam a candidate takes.

If a candidate has a "hold" placed on his/ her registration, he/she will NOT receive the results; instead he/she will receive a notice that indicates additional documentation is needed and information on how to contact the NSCA.

Scores will be sent out within 10 business days after the NSCA receives the required documentation. If a candidate indicates that he/she is an NSCA Member but his/her membership status cannot be verified, he/she will receive a notice that indicates additional documentation is needed and information on how to contact the NSCA. The exam results will not be sent until proof of membership is provided.

Score reports will be held for one calendar year from the date of the exam. If the hold has NOT been cleared in that time (i.e., the candidate has NOT provided the required documentation), the exam results become void. If a candidate wants to become certified after that point, he/ she is required to submit a registration with the appropriate fee and retake the exam.

Scores Cancelled by the Certification Committee

The testing agency is obligated to the NSCA to report scores that accurately reflect the performance of each candidate. For this reason, the testing agency maintains exam administration and exam security standards that are designed to ensure that all candidates are provided the same opportunity to demonstrate their abilities and to prevent some candidates from gaining an unfair advantage over others due to testing irregularities or misconduct. The testing agency routinely reviews irregularities and exam scores suspected of resulting from unusual or nonstandard circumstances and reports such to the NSCA.

The NSCA Certification Committee reserves the right to withhold or cancel exam scores if, in its opinion, there is reason to question their validity. Scores considered for cancellation by the Certification Committee may be grouped into two categories:

- 1. Suspected candidate misconduct: In such cases, the NSCA may initially withhold exam scores and notify the candidates so that they have the opportunity to provide additional information as requested by the Certification Committee. The Certification Committee may also undertake a confidential review of the circumstances giving rise to questionable score validity. If it is determined that there is sufficient cause to question score validity, the Certification Committee may cancel the score(s) and inform the involved parties.
- 2. Irregularities: Scores may be withheld and/or cancelled because of circumstances beyond the candidate's control, such as defective exam materials or mistiming of the exam. In such cases, candidates will be informed and offered an opportunity to retake the exam if the NSCA determines that scores must be cancelled.

In addition to the reasons listed, the NSCA may withhold or cancel exam results if, upon investigation, a violation of policies as outlined in this publication is found to have been committed.

Exam Scoring Appeals

Candidates receiving failing scores may request their answer sheet be scored by hand. A request for hand scoring should be submitted in writing with a \$25 hand scoring fee to the NSCA. Upon receipt of a written request and hand scoring fee, the candidate's answer sheet will be inspected and hand scored by the testing agency. This process ensures that no stray pencil marks, multiple responses or other conditions interfered with computer scoring. Requests for hand scoring answer sheets must be received no later than 60 days following the release of exam results. Requests received after that date will not be honored.

To ensure correct reporting of results, the testing agency selects a random sampling of answer sheets of candidates who score within one unit

of passing. These answer sheets are manually rescored before results are mailed as a quality control measure.

Therefore, the NSCA does not encourage candidates to request verification of their scores as it is extremely doubtful that any exam results will be changed from "fail" to "pass."

Receiving the Certificate

When candidates pass the TSAC-F exam, they will receive a certificate acknowledging their achievement approximately two weeks after receiving the exam results. Scores will remain valid for one year from the date of the exam.

Recertification Requirements

Candidates who pass the exam will receive information concerning the NSCA's Recertification Program requirements. It is important that this information be thoroughly read and understood. Tactical Strength and Conditioning Facilitators are required to earn 6.0 Continuing Education Units (CEUs) (typically 1 contact hour equals 0.1 CEU) over specific three-year periods (2009 – 2011, 2012 – 2014, etc.) to maintain their certification. Those certified within an existing three-year period will have their initial CEU requirement prorated to the end of the reporting period.

A recertification fee for each certification is assessed for each three-year period. Those holding more than one certification (CSCS, CSPS, NSCA-CPT, and/or TSAC-F) may not need to acquire separate CEUs for each certification, as CEUs acquired will apply to each certification in most cases. No CEUs will be awarded for activities completed prior to becoming certified. If you earn certification, be sure to review the *Recertification Policies and Procedures*.

Confidentiality

Information about candidates for testing and their exam results are considered confidential. Studies and reports concerning candidates will contain no information identifiable with any candidate, unless authorized by the candidate.

Certification Verification

To request verification of a TSAC-F certification, the Certification Verification Form located in the certification section at www.nsca.com must be submitted to the NSCA.

Reasons for Disciplinary Action

The NSCA Certification Committee has approved the following items as reasons why candidates for the TSAC-F exam may be refused or for which exam candidates or credentialed individuals may be disciplined, up to and including the revocation of their certified status:

- Obtaining or attempting to obtain certification by fraud, deception or artifice.
- Knowingly assisting another person or other persons in obtaining or attempting to obtain certification by fraud, deception or artifice.
- 3. Illegal use or falsification of certification certificates, credentials or any other TSAC-F documents.
- Unauthorized possession and/or distribution of any official TSAC-F testing materials to include copying and/or reproduction of any part of the TSAC-F exam questions or scenarios.
- Unauthorized use of any of the registered trademarks owned by the NSCA. These include the association and certification logos.

 Not accumulating and/or reporting the required number of CEUs or not paying the recertification fee within the applicable time period.

Appeals

Any action taken by the NSCA Certification Committee affecting the status of a certified individual may be appealed. Appeals must be in writing and received within 90 days after receipt of such notice.

Statement of Nondiscrimination

The NSCA does not discriminate among exam candidates on the basis of age, gender, race, religion, national origin, disability or marital status.

Exam Content

To begin preparing in an informed and organized manner, candidates should be aware of what they are expected to know for the exam.

The following exam outline describes the content covered on the exam. The outline provides a general impression of the exam and, with closer inspection, gives candidates specific direction for studying. By comparing the number of items in each category, candidates can determine the relative importance given to each category on the exam.

DOMAIN	PERCENT OF EXAM	NUMBER OF QUESTIONS*
1. Exercise Sciences	20%	26
2. Nutrition	10%	13
3. Exercise Technique	20%	26
4. Program Design	35%	46
5. Organization, Administration, Testing, Evaluation	15%	19
Total	100%	130

^{*}NOTE: There are an additional 10 non-scored questions on each exam.

I. EXERCISE SCIENCES (26 scored questions)

- A. Apply General Concepts of Anatomy and Physiology
 - 1. Muscle anatomy (e.g., muscle group names, specific muscle names)
 - 2. Muscular dynamics involved during movement patterns (e.g., types of muscle action)
 - 3. Bone and connective tissue anatomy
 - 4. Bone and connective tissue responses to exercise
 - 5. Cardiopulmonary anatomy (e.g., heart and vascular structure, lungs and respiratory system structure)
 - 6. Cardiopulmonary responses to exercise
- B. Apply Basic Concepts of Neuromuscular Anatomy and Physiology
 - 1. Neuromuscular anatomy (e.g., motor unit, Type I and II fibers, muscle spindles, Golgi tendon organs)
 - 2. Neuromuscular responses to exercise (e.g., chronic neuromuscular adaptations, motor unit recruitment patterns, nerve conduction, summation)
- C. Apply the Basic Principles of Biomechanics Regarding Exercise Selection, Execution, and Operation/Mission Performance
 - 1. Kinetic laws and principles of movement (e.g., lever systems, momentum, work, isometric/isotonic/isokinetic)
 - 2. Kinematic laws and principles of movement (e.g., velocity, anatomical planes of movement, joint angles)
 - 3. Various types of muscle action (isometric, concentric, and eccentric) and the force-velocity and torque-velocity relationships
 - 4. Role of muscles in movement (e.g., agonist, antagonist, synergist, stabilizer)
- D. Describe Bioenergetics and Metabolism (e.g., names and characteristics of energy systems, effects of manipulating training variables)
- E. Describe Physiological Adaptations to Exercise Designed to Improve...
 - 1. Aerobic endurance
 - 2. Muscular endurance
 - 3. Strength
 - 4. Speed
 - 5. Power

- F. Explain Detraining and Retraining
 - 1. The usual time course of detraining and retraining
 - 2. Minimum training requirements to maintain training adaptations
- G. Explain the Expected Anatomical, Physiological, and Biomechanical Differences of Trainees (e.g., age, gender, training status, position responsibilities, specific operation/mission or activity)
- H. Correlate Phases of Rehab (e.g., protection, controlled motion, return to function) with Tissue Healing Phases (e.g., inflammation, repair, remodel)
- I. Identify Environmental Concerns (e.g., heat, cold, altitude, smoke, uneven terrain) for Trainees
 - 1. Physiological response to exercise in adverse conditions
 - 2. Environmental illnesses (e.g., heat stroke, hypothermia) and their predisposing factors
 - 3. Effects on physical performance and work capacity
 - 4. Process and time course of acclimatization/adjustment
 - 5. Recommended limitations to physical exercise in adverse conditions
 - 6. Impact of body composition on tolerance
 - 7. Apparel for exercise
 - 8. Manipulation of training programs when training in adverse conditions

II. NUTRITION (13 scored questions)

- A. Explain Nutritional Factors Affecting Health and Performance
 - 1. Health-related and performance-related application of food (e.g., food groups, food exchanges, ChooseMyPlate.gov, nutrient density, glycemic load)
 - 2. Basic nutritional needs of individuals and the unique nutritional needs of conventional military and special operations and emergency personnel (e.g., proteins, carbohydrates, vitamins, minerals)
 - 3. Caloric expenditure during various forms of exercise
 - 4. Coronary artery disease risk factors associated with dietary choices and obesity (e.g., cholesterol, triglycerides, saturated fat)
 - 5. Effects of fluid and electrolyte balance/imbalance on health and performance
- B. Explain Nutritional Strategies for Optimizing Body Composition and Maximizing Physical Performance and Recovery
 - 1. Nutritional strategies for fat loss and gain and lean body mass increase
 - 2. Timing and composition of nutrient and fluid intake before, during, and after an exercise session or operation/mission
 - 3. Nutritional factors that affect muscular endurance, hypertrophy, strength, and aerobic endurance
 - 4. Nutrition requirements during deployment and shift work
 - a. effects of prolonged periods operating on a caloric deficit (deployment or prolonged emergency response)
 - b. nutritional strategies for coping with unpredictability of access to food and water
- C. Describe Signs, Symptoms, Behaviors, and Performance Variations Associated with Obesity, and Altered Eating Habits and Disorders
- D. Explain the Effects, Risks, and Alternative of Common Performance-Enhancing Substances, Supplements, and their Methods of Use (e.g., creatine, protein, anabolic steroids, blood doping, caffeine, supplemental oxygen)
 - 1. Effects of ergogenic aids on performance

- 2. Side effects of ergogenic aids
- 3. Signs and symptoms of ergogenic aid abuse

III.EXERCISE TECHNIQUE (26 scored questions)

Teach safe and effective techniques including preparatory body and limb position (stance, posture, alignment), execution of technique (body and limb positions, movement mechanics, breathing), correction of improper exercise technique, and spotting for...

- A. Warming Up Prior to Endurance Exercise, Resistance Training, Plyometric Exercise, and Speed Work
- B. Resistance Training Exercise Technique
 - 1. Free weight training equipment
 - 2. Resistance machines
- C. Alternative Modes (e.g., proximal stability, stability balance, calisthenics under load, bodyweight-only, functional), Alternative Implements (e.g., truck tires, sledge hammers, heavy ropes, logs, suspension straps, sand bags), and Alternative Environments (e.g., off camber, uneven terrain) for Physical Training
- D. Plyometric Exercise Technique Including Recommendation of Type, Frequency, and Volume of Exercise Based on Training Status and Goals
- E. Speed/Sprint Technique (e.g., resisted and assisted sprinting, speed-strength) Both With and Without Operational Equipment (e.g., firefighting equipment, protective vests, weapons, rucksack) Including Training Needs of Specific Conventional Military and Special Operations and Emergency Personnel
- F. General Agility Technique (e.g., forward, backward, lateral, turn, transition, change of direction) Including Training Needs of Specific Conventional Military and Special Operations and Emergency Personnel
- G. Aerobic Endurance Exercise Technique
 - 1. Cardiovascular equipment including machine programming and set-up
 - 2. Functional endurance activities
- H. Flexibility Exercise Technique
 - 1. Static stretching exercises
 - 2. Proprioceptive neuromuscular facilitation (PNF) stretching exercises
 - 3. Dynamic and ballistic stretching exercises
 - 4. Myofascial release (e.g., foam rolling)

IV.PROGRAM DESIGN (46 scored questions)

- A. Based on a Trainee's Health Status, Strength and Conditioning Level, Work Demands, and Individual Training Goals, Design Training Programs that Maximize Performance, Reduce Injury Risk, and Increase Long-Term Wellness by Selecting Exercises Based on Muscle Groups, Movement Pattern, and Job Specificity...
 - 1. Targeting specific energy systems by manipulating training variables (e.g., mode, intensity, duration, volume, work:rest ratio)
 - 2. Incorporating various training methods and modes (e.g., resistance, plyometric, speed/sprint, agility, aerobic, flexibility, anaerobic threshold)
 - 3. Utilizing the concept of specificity

- 4. Maximizing muscle balance
- 5. Applying the principles of exercise order
 - a. selection of the order of exercises based on the training goal (e.g., muscular endurance, hypertrophy, strength, power, aerobic endurance)
 - b. application of various exercise orders (e.g., large to small muscle groups, alternating push with pull, warm-up/workout/cool-down)
- 6. Determining and assigning appropriate exercise intensities
 - a. based on exercise or predicted heart rate
 - b. based on training goal
- 7. Determining and assigning appropriate training volumes
 - a. identification of outcomes associated with the manipulation of training volume
 - b. determination of volume based on the training goal
- 8. Determining and assigning appropriate work periods/duration, rest periods, and training frequencies
 - a. determination of duration, intensity, and work/rest patterns based on micro-, meso-, and macrocycles and training goals
 - b. identification of a training load based on work schedule and optimization of recovery
- 9. Determining and assigning appropriate exercise progression
 - a. determination of exercise mode, intensity, duration, and frequency progression to avoid stagnation and overtraining (on or off-shift)
 - b. determination of an exercise progression based on the training goal
- 10. Applying the principles of periodization
 - a. selection of training variations based on operation/mission/season
 - b. design of a periodized training program specific to the demands of a operation/ mission or occupation
 - c. design of a periodized training program specific to an operator's training level
 - d. selection of linear (traditional) and non-linear periodization (non-traditional, concurrent training), and Block training
- 11. Implementation of flexibility training
 - a. proper timing during a training session
 - b. selection of type
- B. Design Training Programs for an Injured Trainee to Maintain Training Status During the Rehabilitation and Reconditioning Period (e.g., assign safe and appropriate exercises for a given injury or condition under the direction of an athletic trainer, physical therapist, physician)
 - 1. Identification of training objectives for each phase of rehabilitation (e.g., protection, controlled motion, return to function)
 - 2. Modification of exercises to allow injured trainee to continue training as appropriate (e.g., unilateral lifts
 - 3. Monitoring progress of injured trainees through functional assessment
- C. Population Specific Considerations (E.G., firefighters, first responders, law enforcement, SWAT)
 - 1. Describe Effects of Body Composition on Occupation-Related Tasks
 - 2. Identify Methods by Which Force Output of Muscle Can Be Increased for Occupation-Related Specific Tasks
 - 3. Describe Impacts of Equipment Load on Biomechanical Demands and Movement Patterns, and the Development of Functional Training Choices
 - 4. Identify Anaerobic Training Methods Specific to Occupation-Specific Tasks
 - 5. Identify Aerobic Training Methods Specific to Occupation-Specific Tasks
 - 6. Describe Effects of Environmental Concerns on Physical Work Capacity

- 7. Recognize Common Injury Prevalence and Risk Factors Across Different Disciplines (e.g., wildland, police) and Sub-Disciplines (e.g., engine crews, trunk crews, hotshot crews, SWAT)
- 8. Explain Responses of Bone, Muscle, and Connective Tissue to Occupation-Related Job Tasks Under Load
- 9. Explain Acute Responses and Chronic Adaptations of the Endocrine and Cardiovascular Systems to Occupation-Related Job Tasks in High Stress Situations
- 10. Recognize the Causes, Signs, Symptoms, and Effects of Overtraining Caused by Occupation-Related Work Environments
- 11. Describe Advantages and Disadvantages of Performing Physical Training While On- and Off-Duty
- 12. Describe Common Chronic Injuries/Diseases
- 13. Select Wellness Strategies to Decrease Risk of Heart Disease Considering Nutritional Intake, Physical Activity, Stress Reduction, Smoking Cessation, Sleep Deprivation, etc.
- 14. Task Analysis for Fire/Emergency, Law Enforcement, and Conventional Military and Special Operations
 - a. Identify critical job tasks
 - b. Discuss physiological, movement, and injury analyses as they apply to each critical task
 - c. Design a periodized program based on the job task analysis
- 15. Design Physical Training Programs to Optimize Load Carriage
 - a. Improvement of short duration, high intensity load bearing
 - b. Improvement of long duration, low intensity load bearing
 - c. Improvement of mission-related heavy lifting
 - d. Improvement of mission-related submaximal lifting and carrying

V. ORGANIZATION, ADMINISTRATION, TESTING, EVALUATION (19 scored questions)

- A. Organization and Administration
 - 1. Design, Layout, and Organization of the Training Facility
 - a. Identify specific space and equipment needs of the population(s) (e.g., conventional military, special operations, emergency personnel) that will use the facility
 - b. Apply strategies to arrange and space the equipment within/without the facility
 - 2. Policies and Procedures of the Training Facility
 - a. Identify the primary duties and responsibilities of the various personnel of the training facility
 - b. Establish rules for using the facility
 - 3. Safe Training Environment
 - a. Establish pre-participation screening requirements for the target population
 - b. Establish checklists and schedules for equipment maintenance and cleaning
 - c. Identify common litigation issues and methods for reducing and/or minimizing the risk of liability within the facility
 - d. Obtain insurance coverage
 - e. Establish procedures to respond to emergencies in the training environment
 - f. Recognize symptoms related to overuse and acute training injuries, and overtraining

- g. Recognize when to refer a trainee to another professional (e.g., athletic trainer, physical therapist, physician, registered dietitian)
- h. Establish procedures for recording the type, severity, and mechanism of injuries that occur during physical training
- i. Modify the facility or program to enhance training safety
- 4. Establish Policies with the Department or Agency Supervisors Regarding the Type of Data Generated from the Program and the Frequency with which It Is Collected (e.g., improvements in physical fitness, participation rates)
- 5. Create a Training Log
- 6. Describe the Dynamics/Logistical Considerations of Training Large Groups (e.g., limited equipment, on "heavy days", circuit training, inexperienced trainees)

B. Testing and Evaluation

- 1. Test Administration
 - a. Describe tests used by tactical organizations (e.g., Army Combat Readiness Test)
 - b. Select tests based upon the unique aspects of the trainee's work demands and training status
 - c. Develop alternative tests for injured/restricted individuals
 - d. Organize testing procedures to efficiently use equipment, personnel, and time
 - e. Establish a plan for testing frequency integrated within the overall periodized program
 - f. Explain testing equipment and procedures to trainees
 - g. Administer testing protocols and procedures to ensure reliable data collection

2. Evaluation of Results

- a. Discuss criteria for rating test performance
- b. Use test results to design or modify training programs
- c. Coach a trainee who is not performing to departmental physical performance standards
- d. Use psychological and motivational techniques to enhance training and performance
- e. Discuss pass/fail rates

Sample Exam Questions

during a kipping pull-up is A. higher. B. lower. C. equal. 2. Which of the following pairs of exercises will BEST help a Firefighter develop the type of strength needed when walking downhill while carrying heavy pack loads? A. half-squats, slow lunges B. power cleans, depth jumps C. deadlift, bench press **3.** Which of the following will improve bone density the MOST? A. bicycle B. treadmill C. elliptical 4. Which of the following actions can lead to hyponatremia during exercise in the heat? A. drinking too much water B. drinking too little water C. consuming salt tablets 5. Which of the following activities would benefit the most from erythropoietin (EPO) use? A. 200 m sprint B. 15 box jumps

1. Compared to a standard pull-up, the concentric force generated by the latissimus dorsi muscle

Yuswers: (1) B (2) A (3) B (4) A (5)C

C. 15 mile bike ride

Study Tips

Tips for taking the TSAC-F Exam

Below are some general preparation tips that might be helpful to you—please note that these tips do not guarantee success on the exam.

General Study Tips

- ☐ Examine the content outline (page 14).

 Concentrate on areas you feel would be most beneficial to you and locate these areas in the study materials. The content outline can also be found in the certification section at www.nsca.com.
- □ Review for the exam anywhere from three to nine months, depending on your educational and professional background.

Tips for Taking the Exam

- ☐ Read every question and all of the choices carefully before choosing an answer.
- □ Do not read too much into the questions. Use common sense in tandem with your expertise when reviewing the question/answers. Remember that the answers are based on the reference information and not individual practices dictated by physicians, facilities where you work, etc.
- ☐ You are allowed only one piece of scratch paper at a time. If you need a second piece, you will need to ask the proctor for another piece of paper and turn in the used one.
- During the exam, comments may be provided for any question by completing the comments section located on the back of the answer sheet. Comments are reviewed, but individual responses are NOT provided or considered in the grading process.
- ☐ Please note that you are not allowed to take purses or other personal belongings, including cell phones, into the exam room.
- ☐ You are allowed to take restroom breaks; however, you will only have the designated time to complete the exam.
- ☐ Use of a calculator, Personal Digital Assistant (PDA), etc. are not permitted.
- ☐ Exam room sizes and climates vary, so dress in layers to ensure personal comfort.



REQUEST FOR SPECIAL EXAMINATION ACCOMMODATIONS

If you have a disability covered by the Americans with Disabilities Act, please complete this form and the Documentation of Disability-Related Needs on the reverse side and submit it with your application at least 45 days prior to your requested examination date. The information you provide and any documentation regarding your disability and your need for accommodation in testing will be treated with strict confidentiality.

Candidate Information	Requested Location	
Social Security # or ID #	Requested Examination Date:	
Name (Last, First, Middle Initial, Former Name)		
Mailing Address		
City	State	Zip Code
Daytime Telephone Number		
Special Accommodations		
I request special accommodations for the following examination:	□ CSCS □ CPT	
Examination delivery method: $\ \square$ Computer-based Testing	☐ Paper-and-pencil Testing	
Please provide (check all that apply): Reader Extended testing time (time and a half) Reduced distraction environment Please specify below if other special ac	commodations are needed.	
Comments:		
PLEASE READ AND SIGN: I give my permission for my diagnosing professional to discuss requested accommodation.	-	
Signature:	Date:	

Return this form to:

Examination Services, AMP, 18000 W. 105th Street, Olathe, KS 66061-7543, Fax 913/895-4650. If you have questions, call the Candidate Support Center at 888/519-9901.



DOCUMENTATION OF DISABILITY-RELATED NEEDS

Please have this section completed by an appropriate professional (physician, psychologist, psychiatrist) to ensure that AMP is able to provide the required examination accommodations.

Professional Documentation				
I have knownCandidate Name	since / in my capacity as a			
Caldidate Name	Date			
Professional Title				
The candidate discussed with me the nature of the examination to be administered. It is my opinion that, because of this candidate's disability described below, he/she should be accommodated by providing the special arrangements listed on the reverse side.				
Description of Disability:				
Signed:	Title:			
Printed Name:				
Telephone Number:	Email Address:			
Date:	License # (if applicable):			

Return this form to:

Examination Services, AMP, 18000 W. 105th Street, Olathe, KS 66061-7543, Fax 913/895-4650. If you have questions, call the Candidate Support Center at 888/519-9901.

Helpful Tips

Helpful Pre-Exam Information Helpful Post-Exam

Exam Hours: The customary exam hours are 8:30am to 11:30am (except for the exam held in conjunction with the NSCA National Conference and at certain alternative sites).

Hotel Information: The best source for hotel information is a travel agency in the candidate's area or the Internet.

Admission Letter: Candidates will receive the admission letter one week prior to the exam. If a map of the area is available, it will be provided.

Bring with You: Bring two forms of ID, one of which is photo-bearing, and the admission letter to the exam.

Questions? Contact the NSCA toll-free at 800-815-6826 or email exams@nsca.com.

Helpful Post-Exam Information

Exam Scores: Candidates will receive their exam scores three to five weeks after the exam administration.

Certificates: Individuals who pass the TSAC-F exam will receive their TSAC-F certificate two weeks after receiving the exam scores. Additional certificates are available for a nominal fee.

Certified Merchandise: TSAC-F credential holders may purchase a variety of materials that communicate their certified status. Visit www.nsca.com to order.

Retakes: There is no limit to the amount of times a candidate may retake the exam.

Recertification Requirements: Each TSAC-F certified professional must fulfill all recertification requirements to retain TSAC-F certification through the next reporting period. Important recertification materials will be included with the TSAC-F certificate that is mailed to each newly certified individual.

Continuing Education Opportunities: Individuals who become TSAC-F certified have many opportunities to earn continuing education units. Some of the opportunities include online CEU quizzes, webinars, and pre-approved courses/ events listed on the CEU Activity Calendar. All of these CEU options are available at www.nsca. com.

Code of Ethics



With the credibility possessed by the TSAC-F exam comes the responsibility to ensure the integrity of the credentials awarded. The Code of Ethics of the NSCA was established to make our certified individuals aware of the standards of ethical behavior that should be followed in the practice of their profession (strength training and conditioning and personal training). The Code presents fundamental standards of behavior that all certified individuals should strive to achieve. It serves to increase ethical sensitivity and judgement, strengthen support for certified individuals' moral courage and sharpen their sense of identity as an integral part of the NSCA and its continued success. To review the entire Code of Ethics for Certified Individuals, visit the certification section at www.nsca.com.

Certified individuals shall:

- 1. Respect the rights, welfare and dignity of all individuals.
- 2. Strive to provide equal and fair treatment to all individuals and not discriminate against anyone.

- 3. Provide and maintain a safe and effective training environment.
- 4. Comply with all general laws of the land including, but not limited to, applicable business, employment and copyright laws.
- 5. Accept responsibility for the use of sound judgment when working with their clientele.
- 6. Respect the confidentiality of their clientele while remaining accountable.
- 7. Refer their clientele to more qualified fitness, medical or health professionals when appropriate.
- 8. Remain current on practical and theoretical foundations through continuing education activities.
- Avoid engaging in any behavior or form of conduct that would constitute a conflict of interest or actions that adversely reflect on the profession or the National Strength and Conditioning Association.
- 10. Strive to safeguard the public by reporting violations of this Code of Ethics.

Notes		

Notes



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Colorado Springs, CO 80906
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