CSCS®
Paper/Pencil Exam
Candidate Handbook

Certified Strength and Conditioning Specialist®

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National Strength and Conditioning Association
Bridging the gap between science and application™

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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

In 1985, the certification arm of the NSCA was established in order to administer a certification program for those in the field of strength training and conditioning. 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.

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®) credential was established. In 1996, the NSCA-CPT certification became the first personal training credential to be nationally accredited. Today, more than 36,000 CSCS and NSCA-CPT credentials are held by professionals across the world.

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 professional testing agency contracted by the NSCA to assist in the development, administration, scoring and analysis of the CSCS Exam based on the exam specifications developed by the Certification NSCA Certification Committee. The testing agency is also responsible for the establishment of test centers and exam security.

The CSCS Credential

The CSCS credential continues to be the only nationally-accredited certification that is specifically designed to assess competencies of those who strength train and condition athletes.

Candidates taking the exam for the first time must register to take both sections of the exam.

Administrative Policies

Certified Strength and Conditioning Specialist Exam

After years of development, the CSCS was initiated in 1985. The CSCS credential identifies those individuals who have knowledge in the scientific foundations of strength training and conditioning as well as the skills to apply that knowledge in a practical format. The exam is developed by the CSCS Exam Development Committee, which is comprised of individuals whose knowledge and experience in exercise sciences and strength training and conditioning qualify them as content experts. 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 CSCS Exam consists of a scientific foundations section and a practical/applied section, which are administered on the same day. The actual testing time required to take both sections of the exam is approximately four hours, excluding the lunch break between the exam sections.

Candidates taking the exam for the first time must register and take both sections of the exam. Candidates who achieve passing scores on both exam sections are awarded the CSCS credential. Those who pass one section may become certified after retaking and passing the failed section.

The scientific foundations section, consisting of 80 scored and 10 non-scored multiple-choice questions, covers the content areas of exercise science and nutrition. The scientific foundations section was developed to objectively measure the candidate's academic preparation and to set uniform standards for measuring such knowledge.

The practical/applied section, consisting of 110 scored and 10 non-scored multiple-choice questions, covers the candidate's knowledge of program design, exercise technique, weight room policies/procedures, testing and other practical applications. Additionally, the candidate views a video that shows various exercises and performance tests. There are 40 questions on the practical/applied section related to the exercises/tests shown on the video. Candidates need to respond to multiple-choice questions while viewing the video.

The CSCS Exam is constantly monitored for content validity and updated for timeliness. It is designed to ensure a minimum level of competence among practitioners and to create a better awareness among the public of the nature and purpose of the profession. One focal point of the exam is to ensure candidates possess appropriate knowledge of industry guidelines for the safe and effective strength training and conditioning of athletes.

Explanation of Non-scored Exam Questions

The CSCS Exam contains non-scored questions that are being "pretested," or evaluated for future use. Including this type of question allows the CSCS Exam Development Committee to collect meaningful information about new questions that may appear as real scored questions on future exams.

Pretesting is accomplished by interspersing new ("untried") questions throughout the exam (10 non-scored questions appear in each section of the CSCS Exam). Only this small number is included so that additional testing time will not be needed by exam candidates. 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 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.

To keep the CSCS Exam reflective of current job-related duties, new questions must continuously be introduced and evaluated. Pretesting is an accepted testing practice that creates a statistically sound, standardized exam and allows candidates to receive scores that are based only on previously used ("tried") questions. Non-scored pretest questions also appear on the computer-based exam format to provide the same testing experience to all candidates, regardless of which exam format a candidate chooses.

Administrative Policies

Registration and Admission Policies

Candidates must submit an original, official transcript of their academic work, showing attainment of at least a Bachelor's degree or chiropractic medicine degree granted by an accredited institution.* College seniors can also take the CSCS Exam; however, they must be enrolled in an accredited institution.* For college seniors, the NSCA will not release their exam scores until we receive a transcript verifying graduation and noting the degree earned.**

Candidates must submit an original, official transcript of their academic work, showing attainment of at least a Bachelor's degree or chiropractic medicine degree granted by an accredited institution. The NSCA will not release a candidate's exam scores until we have received an official transcript verifying graduation and degree earned.

****In the United States:*** The accrediting institutions are Middle State Association, New England Association, North Central Association, Northwest Association, Southern Association and Western Association. ***Outside the United States:*** The college/university must be recognized by the ministry of education in that particular country, as a degree-granting institution on the same level as other universities recognized with campuses in that country and be recognized as equivalent to a Bachelor's degree in the United States.

*****Individuals enrolled as seniors at colleges or universities are eligible to sit for the CSCS Exam***. College seniors will be sent by mail a pass/fail notification approximately five to seven weeks after the exam administration. However, college seniors who pass the CSCS Exam do not become CSCS certified until: (1) they have graduated from college and (2) the NSCA receives their original, official transcript verifying graduation and degree earned. Once the NSCA receives the required documentation (original, official transcript verifying graduation and degree earned), the NSCA will release the actual score reports and issue the certificate (if passed).

Current CPR and AED certification is also a requirement. If candidates do not have current CPR and AED certification, they can still register for and take the CSCS Exam. The NSCA will not release a candidate's exam scores until we have received documentation of a valid CPR and AED certification.

The NSCA will accept any adult CPR and AED certification obtained by attending a CPR and AED course that meets the following criteria:

- Must have a hands-on training component (certification through a course completed entirely online will not be accepted)
- Must include a skills performance evaluation

Examples of approved CPR and AED providers include:

- American Heart Association
- American Red Cross
- National Safety Council
- St. John Ambulance

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 (one for each section) 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.

Administrative Policies

Please mail your documentation to:
National Strength and Conditioning Association
c/o Certification Department
1885 Bob Johnson Drive
Colorado Springs, CO 80906

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 take the exam. If a candidate is determined to be ineligible, a refund of his/her registration fee will not be provided.

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 Certification Committee 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 Exam Department. 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.

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.

Administrative Policies

Special Accommodations

The NSCA Certification Committee 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 21 – 22) available online at www.nsca-lift.org/nscapdf/view.asp, or by contacting the NSCA office directly.

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

If no information is provided or if the NSCA Certification Committee 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.)

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:

1. Visit www.nsca-cc.org and submit the Change of Address Form online
2. Call 800-815-6826
3. Email exams@nsca-lift.org
4. Send a fax to 719-632-6367
5. 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.

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

Administrative Policies

Exam Schedule

1. Candidates registered for the CSCS Exam will receive an admission letter for the exam. First-time candidates must take both sections of the exam. Be sure to take both admission letters to the test center address shown on the letters; candidates will be required to show the appropriate admission letter to the proctor.

2. 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.

2. 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.

3. 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.

6. 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 before test scoring. Individual responses to question comments, however, are not provided and such comments do not affect exam scores.

Customary CSCS Exam Reporting Times*

SCIENTIFIC FOUNDATIONS SECTION

8:30am Check-In

9:00am Distribution of test materials and instructions for taking the exam

10:30am Scientific Foundations section concludes (total time allowed: 1.5 hours)

Break (10:30am – Noon)

PRACTICAL/APPLIED SECTION

Noon Check-in

12:30pm Distribution of test materials and instructions for taking the exam

3:30pm Practical/Applied section concludes (total time allowed: 2.5 hours)

**Please note the following:*

- *Anyone arriving after testing begins will not be admitted.*
- *Reporting times may vary somewhat from site to site (e.g., NSCA National Conference and certain alternative sites); please check the admission letter(s).*
- *If candidates complete the exam early, they may request permission to leave.*
- *Additional time, beyond that stated above, for completion of the exam will not be allowed.*

Administrative Policies

8. 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.

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, fax or email, 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 and NSCA-Certified Personal Trainer) 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 download web page at www.nsca-lift.org/nscapdf/view.asp, or contact the NSCA at exams@nsca-lift.org 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-cc.org.

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 passed one section of the exam and failed the other, the passing score will be valid for one calendar year from the date the passing score was achieved. If the failed section has not been retaken and passed by that date, the candidate must retake BOTH sections of the exam.

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 Certification Committee 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 Certification Committee.

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.

Administrative Policies

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 Certification Committee determines that scores must be cancelled.

In addition to the reasons listed, the Certification Committee 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

Hand Scoring

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 Certification Committee 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 CSCS Exam, they will receive a certificate acknowledging their achievement approximately two weeks after receiving the exam results. Exception: If candidates take and pass the CSCS Exam as a college senior, they will not be awarded the CSCS credential until after they graduate and the NSCA receives an original, official transcript verifying graduation and degree earned.

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. Certified Strength and Conditioning Specialists are required to earn 6.0 Continuing Education Units (CEUs) (typically 1 contact hour equals 0.1 CEU) over specific three-year periods (2006 – 2008, 2009 – 2011, 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 both certifications (CSCS and NSCA-CPT) may not need to acquire separate CEUs for each certification, as CEUs acquired will apply to both certifications 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*.

Certification Verification

To request verification of a CSCS or NSCA-CPT certification, the Certification Verification Form located at www.nsca-cc.org/contact/certification_verification.html must be submitted to the NSCA.

Administrative Policies

Reasons for Disciplinary Action

The NSCA Certification Committee has approved the following items as reasons why candidates for the NSCA-CPT 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:

1. Obtaining or attempting to obtain certification by fraud, deception or artifice.
2. 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 NSCA-CPT documents.
4. Unauthorized possession and/or distribution of any official NSCA-CPT testing materials to include copying and/or reproduction of any part of the NSCA-CPT exam questions or scenarios.
5. Unauthorized use of any of the registered trademarks owned by the NSCA. These include the association and certification logos.
6. 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 Certification Committee 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.

Code of Ethics

With the credibility possessed by the CSCS and NSCA-CPT exams 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 www.nsca-lift.org/nscapdf/download/Code_of_Ethics_for_Certified_Individuals.pdf.

CSCS Exam Content

CSCS Scientific Foundations Section Outline

Domain	Percent of Exam Section	Number of Scored Questions
Exercise Sciences	71%	57
Nutrition	29%	23
Total	**100%**	**80**

1. Exercise Sciences (57 scored questions)

A. Understand muscle anatomy and physiology:
   1. Muscle anatomy (muscle group names, specific muscle names, muscle fiber/cell structures, etc.)
   2. Muscular dynamics involved during movement patterns (e.g., sliding filament theory, type of muscle action)

B. Understand neuromuscular anatomy and physiology:
   1. Neuromuscular anatomy (e.g., motor unit, Type I and II fibers, muscle spindle, Golgi tendon organ)
   2. Neuromuscular responses to exercise (motor unit recruitment patterns, nerve conduction, summation, etc.)

C. Understand the basic principles of biomechanics regarding exercise selection, execution and sport performance:
   1. Kinetic laws and principles of movement (lever systems, momentum, torque, power, work, force, center of gravity, impulse, center of pressure, force-velocity curve, force-time curve, etc.)
   2. Kinematic laws and principles of movement (anatomical planes of movement, joint angles, isometric/isotonic/isokinetic, velocity, etc.)
   3. Role of muscles in movement (e.g., agonist, antagonist, synergist, neutralizer, stabilizer)

D. Understand bone and connective tissue (tendons and ligaments) anatomy and physiology:
   1. Bone and connective tissue anatomy
   2. Bone and connective tissue responses to exercise

E. Understand bioenergetics and metabolism:
   1. Characteristics of the energy systems
   2. Effects of manipulating training variables (i.e., mode, intensity, duration, volume and work:rest ratio) to target specific energy systems

F. Understand neuroendocrine physiology:
   1. Functions of hormones (testosterone, growth hormone, etc.)
   2. Neuroendocrine responses to exercise

G. Understand cardiopulmonary anatomy and physiology:
   1. Cardiopulmonary anatomy (structure of the heart, vascular system, lungs, etc.)
   2. Cardiopulmonary responses to exercise

H. Understand physiological adaptations to exercise:
   1. Adaptations to aerobic exercise and training
   2. Adaptations to anaerobic exercise and training
   3. Causes, signs, symptoms and effects of overtraining and detraining

I. Understand the anatomical, physiological and biomechanical differences of athletes (based on age, gender, training status, specific sport or activity, etc.):
   1. Anatomical, physiological and biomechanical differences among athletes
   2. Effects of age and developmental status on performance
   3. Implications of training status (i.e., untrained versus trained) on designing a training program

J. Understand the psychological techniques used to enhance training and performance:
   1. Motivational techniques (reward system, mental imagery techniques, reinforcement strategies, visualization, etc.)
   2. Methods that enhance motor learning and skill acquisition (instruction, feedback, whole versus part practice, etc.)

2. Nutrition (23 scored questions)

A. Explain nutritional factors affecting health and performance:
   1. Health-related and performance-related application of nutrition concepts (food groups, food exchanges, "MyPyramid," glycemic index, etc.)
   2. Basic nutritional needs of individuals and the unique nutritional needs of athletes for carbohydrate, protein, fat, vitamins and minerals
   3. Caloric expenditure based on exercise intensity (e.g., VO_2, Kcals/min, METs)
   4. Coronary artery disease risk factors associated with dietary choices (e.g., a high intake of cholesterol, triglycerides and/or saturated fat)
   5. Effects of hydration status and electrolyte balance/imbalance on health and performance
   6. Nutritional density (i.e., foods with a large amount of a given nutrient)

B. Explain the strategies and results of manipulating food choices and training methods to maximize performance:
   1. Training/nutritional programs that produce specific changes in body composition (i.e., fat loss or lean body mass increase)
   2. Composition and timing of nutrient and fluid intake before, during and after an exercise session or a sport event (i.e., when to consume and how much to consume)
   3. Nutritional factors that affect muscular endurance, hypertrophy, strength and aerobic endurance

C. Recognize signs, symptoms and behaviors associated with eating disorders and altered eating habits:
   1. Signs and symptoms associated with disordered eating, bulimia and anorexia
   2. Body composition changes and performance variations associated with eating disorders
   3. Recognize the nature of an athlete's nutritional status and determine the appropriateness of a referral to a qualified health care professional

D. Explain the effects, risks and alternatives of common performance-enhancing substances and methods:
   1. Ergogenic aids and dietary supplements (creatine, carbohydrate loading, anabolic steroids, blood doping, etc.)
   2. Signs and symptoms of ergogenic aid abuse

CSCS Exam Content

CSCS Practical/Applied Section Outline

Domain	Percent of Exam Section	Number of Scored Questions
Exercise Technique	36%	39
Program Design	36%	40
Organization and Administration	10%	11
Testing and Evaluation	18%	20
Total	**100%**	**110**

1. Exercise Technique (39 scored questions)

A. Describe, teach and evaluate proper resistance training exercise technique:
   1. Free weight training equipment:
      a. Teach proper preparatory body and limb position (e.g., grip, stance, alignment)
      b. Teach the execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
      c. Identify and correct improper exercise technique
   2. Resistance machines (pulley, cam, hydraulic, friction, air, tubing, etc.):
      a. Teach proper preparatory body and limb position (e.g., grip, stance, alignment)
      b. Teach execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
      c. Identify and correct improper exercise technique
   3. Alternative modes (core, stability, balance, calisthenic, body weight only, functional, etc.):
      a. Teach the proper preparatory body and limb position (e.g., grip, stance, alignment)
      b. Teach the execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
      c. Identify and correct improper exercise technique

B. Describe, teach and evaluate proper plyometric exercise technique:
   1. Teach the proper preparatory body and limb position (e.g., stance, posture, alignment)
   2. Teach execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
   3. Identify and correct improper exercise technique

C. Describe, teach and evaluate proper speed/sprint technique (resisted and assisted sprinting, speed-strength, etc.):
   1. Teach proper preparatory body and limb position (e.g., stance, posture, alignment)
   2. Teach execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
   3. Identify and correct improper exercise technique

D. Describe, teach and evaluate proper agility technique (forward, backward and lateral movements; turn, transition and stop-and-go maneuvers, etc.):
   1. Teach proper preparatory body and limb position (e.g., stance, posture, alignment)
   2. Teach execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
   3. Identify and correct improper exercise technique

E. Describe, teach and evaluate proper aerobic endurance exercise technique:
   1. Cardiovascular equipment (treadmill, stationary bike, rowing machine, stair-stepper, elliptical trainer, etc.):

a. Explain machine programming and setup
b. Teach the proper preparatory body and limb position (e.g., grip, stance, alignment)
c. Teach the execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
d. Identify and correct improper exercise technique

2. General body-only activities (walking, jogging, running, swimming, etc.):
   a. Teach the execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
   b. Identify and correct improper exercise technique

F. Describe, teach and evaluate proper flexibility exercise technique:
1. Static stretching exercises:
   a. Teach the proper preparatory body and limb position (e.g., stance, posture, alignment)
   b. Teach the execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
   c. Identify and correct improper exercise technique
2. Proprioceptive neuromuscular facilitation (PNF) stretching exercises:
   a. Teach the proper preparatory body and limb position (e.g., stance, posture, alignment)
   b. Identify proper body mechanics to perform PNF-stretching on an athlete
   c. Teach the execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
   d. Identify and correct improper exercise technique
3. Dynamic and ballistic stretching exercises:
   a. Teach the proper preparatory body and limb position (e.g., stance, posture, alignment)
   b. Teach the execution of proper technique (e.g., body and limb positions, movement mechanics, breathing)
   c. Identify and correct improper exercise technique

G. Describe and teach effective spotting procedures and techniques:
1. Identify the number of spotters needed for a given situation or exercise
2. Teach correct spotter location (i.e., the physical placement of the spotter or spotters in relation to the lifter)
3. Teach proper body and limb placement required when spotting the lifter (once in the correct position)

2. Program Design (40 scored questions)

A. Design training programs that maximize performance by incorporating various training methods and modes based upon an athlete's health status, strength and conditioning levels and training goals:
1. Describe different types of training methods and modes (resistance, plyometric, speed/sprint, interval, agility, aerobic, flexibility, etc.)
2. Manipulate and combine various training methods and modes to reach a certain goal or outcome (muscular endurance, hypertrophy, strength, power, aerobic endurance, etc.)

B. Design training programs that maximize performance and muscle balance by selecting exercises based upon an athlete's health status, strength and conditioning levels and training goals:
1. Identify exercises that are specific to movement patterns of a particular sport (e.g., an exercise and its application and effectiveness for a sport, an exercise and movements involved in a sport, an exercise and muscles used in sport)

2. Classify exercises (as power, core, assistance, structural, etc.) based upon the type or number of the involved muscle group or groups (e.g., what exercise trains certain muscle(s); how to change an exercise to change the involved muscles)
3. Classify exercises based upon type of kinetic chain movement (i.e., open or closed)
4. Choose exercises to promote muscular balance (hamstring versus quadriceps, upper body versus lower body, etc.)

C. Design training programs that maximize performance by applying the principles of exercise order based upon an athlete's health status, strength and conditioning levels and training goals:
   1. Select the order of exercises based on the training goal
   2. Differentiate between various exercise orders (large to small muscle groups, alternating push with pull, alternating upper body exercises with lower body exercises, warm-up/workout/cool-down, plyometric then aerobic exercise, etc.)

D. Design training programs that maximize performance by determining and assigning appropriate exercise intensities (load, resistance, heart rate, etc.) based upon an athlete's health status, strength and conditioning levels and training goals:
   1. Describe commonly accepted methods for assigning an exercise load (a percent of the 1RM or the athlete's body weight, RM loads, etc.) or exercise heart rate (i.e., a percent of maximum heart rate or functional capacity, the Karvonen method)
   2. Assign a load or exercise heart rate based on the training goal (muscular endurance, hypertrophy, strength, power, aerobic endurance, etc.)

E. Design training programs that maximize performance by determining and assigning appropriate training volumes (defined as sets x reps) based upon an athlete's health status, strength and conditioning levels and training goals:
   1. Explain the outcomes associated with the manipulation of training volume
   2. Assign a volume based on the training goal (muscular endurance, hypertrophy, strength, power, aerobic endurance, etc.)

F. Design training programs that maximize performance by determining and assigning appropriate work periods/duration and rest periods, recovery methods and training frequencies based upon an athlete's health status, strength and conditioning levels and training goals:
   1. Assign a work period/duration, a rest period and recovery methods based on the training goal (muscular endurance, hypertrophy, strength, power, aerobic endurance, etc.)
   2. Assign a training frequency based on the training goal (muscular endurance, hypertrophy, strength, power, aerobic endurance, etc.)

G. Design training programs that maximize performance by determining and assigning appropriate exercise progression based upon an athlete's health status, strength and conditioning levels and training goals:
   1. Describe when and how to progress exercise mode, intensity, duration and frequency
   2. Assign an exercise progression based on the training goal (muscular endurance, hypertrophy, strength, power, aerobic endurance, etc.)

H. Design training programs that maximize performance by applying the principles of periodization:
   1. Explain periodization (the periods/phases/cycles, the types of training programs associated with the phases/periods/cycles, etc.)
   2. Describe training variations based on a sport season (i.e., a certain training period, phase, or cycle for a specific sport season)
   3. Design a periodized program specific to the demands of a sport or sport position
   4. Design a periodized program specific to an athlete's training level

I. Design training programs for an injured athlete during the reconditioning period (i.e., assigning safe and appropriate exercises for a given injury or condition under the direction of an athletic trainer, physical therapist or physician)

3. Organization and Administration (11 scored questions)

A. Determine how to design, layout and organize the strength and conditioning facility:
   1. Understand the optimal physical design considerations when constructing the facility (flooring, ceiling height, mirror placement, ventilation, lighting, etc.)
   2. Recognize the characteristics of the equipment within the facility
   3. Apply strategies to efficiently arrange and properly space the equipment within the facility
   4. Identify the specific space and equipment needs of the athletic groups that use the facility

B. Identify the primary duties and responsibilities of the members of the strength and conditioning staff

C. Determine the policies and procedures associated with the operation of the strength and conditioning facility:
   1. Establish criteria that defines access to the facility
   2. Establish the rules individuals must follow when using the facility
   3. Apply strategies to organize and effectively schedule the athletic groups that use the facility

D. Create a safe training environment within the strength and conditioning facility:
   1. Establish checklists and schedules for facility maintenance and cleaning
   2. Establish checklists and schedules for equipment maintenance and cleaning
   3. Identify common litigation issues and ways to reduce or minimize the risk of liability within the facility
   4. Establish procedures to respond to an emergency in the training environment
   5. Recognize symptoms relating to overuse, overtraining and temperature-induced illness
   6. Recognize when to refer an athlete to and/or seek input from an appropriate health care professional (athletic trainer, physical therapist, physician, registered dietitian, etc.)

4. Testing and Evaluation (20 scored questions)

A. Select and administer appropriate tests to maximize test reliability and validity:
   1. Select a valid test or tests based upon the unique aspects of a sport, sport position and training status
   2. Develop the test administration procedures that use equipment, personnel and time efficiently

B. Administer testing protocols and procedures properly to ensure reliable data collection:
   1. Describe testing equipment and its proper use
   2. Explain the testing procedures (warm-up, how to test, test order, proper rest between trials, etc.)
   3. Administer the tests to assess physical characteristics (body weight, girth, body fat, height, etc.) and evaluate performance (muscular strength, power, anaerobic capacity, muscular endurance, aerobic endurance, agility, speed, flexibility, etc.)

C. Evaluate and interpret test results:
   1. Recognize typical and atypical test results based on a sport or sport position (i.e., determine if the test result was good or poor)
   2. Determine how the test results should influence the design or modification of the training program (i.e., determine which outcome of training needs to be improved in a future program)

Sample Exam Questions

1. Which of the following shoulder movements and planes of action are associated with the upward movement phase of the side lateral shoulder raise exercise?

   A. adduction/sagittal
   B. abduction/sagittal
   C. abduction/frontal
   D. adduction/frontal

2. An untrained college-aged athlete begins a resistance training program. After training for three weeks, her strength increases dramatically. Which of the following is the most influential factor responsible for this improvement?

   A. increased cross-sectional area of Type I fibers
   B. increased number of muscle fibers
   C. improved ratio of muscle to fat components
   D. improved neuromuscular efficiency

3. What is the MINIMUM amount of carbohydrates that a 132-pound (60 kg) competitive Olympic triathlete should consume on a daily basis?

   A. 120 grams
   B. 480 grams
   C. 960 grams
   D. 1,920 grams

4. When running, which of the following contributes the most to minimizing the braking effect of a heel -foot strike?

   A. eccentric hip extension
   B. concentric hip extension
   C. eccentric hip adduction
   D. concentric hip adduction

5. Which of the following components of mechanical load is the LEAST important for stimulating new bone formation?

   A. rest period
   B. magnitude
   C. rate of loading
   D. direction of force

Answers: (1) C (2) D (3) B (4) B (5) A

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 so your accommodations for testing can be processed efficiently. 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

Social Security # _____ – _____ – _____ Requested Assessment Center:_____

Name (Last, First, Middle Initial, Former Name)

Mailing Address

City State Zip Code

Daytime Telephone Number

Special Accommodations

I request special accommodations for the _____ examination.

Please provide (check all that apply):

_____ Special seating or other physical accommodations

_____ Reader

_____ Extended testing time (time and a half)

_____ Distraction-free room

_____ Other special accommodations (Please specify.)

_____

_____

_____

Comments: _____

_____

Signed: _____ **Date:** _____

Submit this form to:

AMP
18000 W. 105th Street
Olathe, KS 66061-7543
Fax: 913/895-4650

If you have questions, call AMP's Candidate Support Center at 913/895-4600.

DOCUMENTATION OF DISABILITY-RELATED NEEDS

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

Professional Documentation

I have known _____ since _____ / _____ / _____ in my capacity as a
Examination Candidate — Date

_____.
Professional Title

The candidate discussed with me the nature of the test 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: _____

Address:_____

_____

Telephone Number:_____ E-mail Address:_____

Date: _____ License # (if applicable): _____

Submit this form to:

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If you have questions, call AMP's Candidate Support Center at 913/895-4600.

Helpful Tips

Helpful Pre-Exam Information

Visit www.nsca-cc.org: Many exam candidates find the "CSCS Exam Preparation Suggestions" located in the "Downloads" section of the "Resource Center" on the website to be helpful in their preparation for the exam.

Exam Hours: The customary exam hours are 8:30am to noon (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(s) 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(s) to the exam.

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

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 CSCS Exam will receive their CSCS certificate two weeks after receiving the exam scores. Additional certificates are available for a nominal fee.

Certified Merchandise: CSCS credential holders may purchase a variety of materials, including posters, business cards and clipboards that communicate their certified status. Visit www.nsca-cc.org to order.

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

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

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

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