Quiz Policies

Eligibility
The NCSF online quizzes are open to any currently certified fitness professional, 18 years or older.

Deadlines
Course completion deadlines correspond with the NCSF Certified Professionals certification expiration date. Students can obtain their expiration dates by reviewing either their certification diploma or certification ID card.

Cancellation/Refund
All NCSF continued education course studies are non-refundable.

General Quiz Rules

- You may not have your quiz back after sending it in.
- Individuals can only take a specific quiz once for continued education units.
- Impersonation of another candidate will result in disqualification from the program without refund.

Disqualification
If disqualified for any of the above-mentioned reasons you may appeal the decision in writing within two weeks of the disqualification date.

Reporting Policy
You will receive your scores within 4 weeks following the quiz. If you do not receive the results after 4 weeks please contact the NCSF Certifying Agency.

Re-testing Procedure
Students who do not successfully pass an online quiz have the option of re-taking. The fees associated with this procedure total $15 (U.S) per request. There are no limits as to the number of times a student may re-test.

Special Needs
If special needs are required to take the quiz please contact the NCSF so that appropriate measures can be taken for your consideration.

Quiz Rules

What Do I Mail Back to the NCSF?
Students are required to submit the quiz answer form.

What do I Need to Score on the Quiz?
In order to gain the .5 NCSF continued education units students need to score 80% (8 out of 10) or greater on the CEU quiz.

Where Do I Mail My Quiz Answer Form?
You will mail your completed answer form to:

NCSF
Attn: Dept. of Continuing Education
5915 Ponce de Leon Blvd., Suite 60
Coral Gables, FL 33146

How Many CEUs Will I Gain?
Professionals who successfully complete the any continuing education quiz will gain .5 NCSF CEUs per quiz.

How Much does each quiz cost?
Each quiz costs the student $15.00.

What Will I Receive When The Course Is Completed?
Students who successfully pass any of the NCSF online quizzes will receive their exam scores, and a confirmation letter.

How Many Times Can I Take The Quizzes For CEUs?
Individuals can take each NCSF quiz once for continuing education credits.

What Should You Eat Before, During, and After Prolonged Training Sessions?

New and experienced exercisers alike are always looking for the most rapid results and the easiest way to attain them. In addition to the role of training most exercise enthusiasts recognize the relevance of proper diet in health and physical fitness goal attainment. This helps explain the extreme proliferation of the supplement industry. Although most supplements have not demonstrated any efficacy during clinical investigations there are strategies that use energy yielding nutrients for optimal returns.

Professionals should recognize that the three energy yielding nutrients (carbohydrates, fats, and proteins) have varying roles and functions in the diet. For instance, proteins serve over 50,000 different functions in the body and interestingly energy metabolism is not a primary role. Carbohydrates function to maintain the central nervous system and fuel work, while fats serve to spare glucose and fuel low level efforts and resting activities. Due to the role carbohydrates, fats, and proteins serve in exercise and recovery, gaining a thoughtful understanding of each will promote the desired outcomes of the training.

Pre-Exercise

The goal of pre-exercise nutrition is to ensure the participant has adequate energy to perform at optimal capacity during an entire training session or competitive event without premature fatigue or catabolic activity. As a generality for resistance training, pre-exercise nutrition should be geared toward proper blood glucose and amino acid levels and the promotion of protein synthesis and recovery. For prolonged endurance training or competition, optimizing energy storage before the event is often most crucial.

Carbohydrate - Prior to prolonged endurance training it is recommended to ingest approximately 140g-330g of carbohydrate (CHO) in a meal 3 to 5 hours beforehand to increase glycogen storage and improve performance; particularly if the training occurs after an overnight fast. This quantity would be the rough equivalent to a large plate of pasta. CHO intake 30-60 minutes before exercise can elicit a phenomenon known as reactive hypoglycemia due to high levels of insulin combined with cellular changes associated with exercise metabolism. This causes rapid fatigue shortly after the onset of exercise; primarily caused by simultaneous hyperinsulinemia (from the CHO ingestion) and rapid glucose uptake stimulated by muscular contraction. Some individuals are more prone to this issue than others, so if a participant feels it is necessary to eat within an hour before training feeding strategies should be based off of personal experience and control for both glycemic index and load. The latter often has more potential for problems.

Consuming adequate carbohydrates prior to exercise with an appropriate processing time aids in performance. CHO-loading strategies have also been shown to be effective. Research has indicated CHO-loading over time can increase time to exhaustion in prolonged events by an average of 20%, and reduce times to finish a race by 2%-3%. A moderately aggressive format for CHO-loading would involve a reduction in training over the 6-day period before competition (with complete rest on the last

day before) while simultaneously increasing CHO in the diet over the same 6-day period from 50% to 70% of total calories consumed.

Protein – Prior to resistance training, ingestion of a complete protein source and CHO approximately 1 hour before the session has been shown to promote enhanced protein synthesis. Ingesting about 6g of essential amino acids with 35g of CHO appears to be optimal within research studies. This would be roughly the equivalent of an average-sized bagel with cream cheese or a single serving of cereal with a half a cup of milk.

Fat – Focusing on fat intake prior to training does not offer improvements to performance in most cases. Chronic high-fat diets do increase fatty acid utilization during training, but little evidence illustrates that this provides significant performance benefits.

During Exercise

The primary goal of food intake during an exercise session is to maintain optimal blood glucose (approximately 1g/L) to limit central fatigue. Ingestion of calories is primarily beneficial during prolonged activities; shorter-duration, high-intensity training does not usually require caloric intake during the event to maximize performance.

Carbohydrate – During prolonged endurance training (≥45 min) it is recommended to ingest 70g of CHO every hour (1.2g/min) to improve endurance capacity and thwart the progression of hypoglycemia. Potential sources to provide this quantity that could be easily ingested on an hourly basis include:

- 1 liter of a well-designed sports drink (e.g. Gatorade)
- 600 ml cola drink, 1.5 Power bars
- 3 medium bananas
- Approximately 3 energy gels

Protein – Protein ingestion during prolonged endurance or resistance training does not offer significant improvements to performance in most cases. Note that protein use during exercise usually contributes to only around 5% of energy expenditure unless the participant is in a relative state of starvation.

Fat – Fat ingestion during training does not offer significant improvements to performance as commonly ingested fats can only serve as a minimal fuel source due to a slow digestion rate and the transporter by which they enter circulation. Medium-chain triglycerides (MCTs) however (a lipid not commonly found in natural food sources but commonly sold as a supplement with protein) digest very quickly and enter circulation in the same manner as CHOs - which may allow them to contribute as a significant fuel source during exercise.

Post-Exercise

The primary goal of post-exercise nutrition is to optimize recovery and re-establish energy stores depleted during the training segment or competitive event.

Carbohydrate – CHO intake should be the primary focus after any form of training as CHOs are the chief fuel source for all mechanical work. Intake after prolonged endurance or resistance training should occur immediately after the event, optimally within 45 minutes, as active tissues are particularly receptive to nutrient absorption during that window of time. Immediately following exercise a high glycemic food

containing 60 g of CHO should be consumed. In total around 1.0-1.2 g/kg of body weight should be consumed in a few frequent meals (again preferably high-glycemic sources) after prolonged endurance training; the quantity ingested post-resistance training should reflect the total calories expended. This timing and quantity can optimize recovery and re-synthesis of fuel storage. A small quantity of protein in the feeding appears to optimize absorption by acting as a permissive with insulin when at a 3:1 CHO:Pro ratio. The following recommendations can help to provide for optimal daily glycogen maintenance:

- Daily recovery from moderate duration, low intensity training: 5-7 g/kg of BW
- Daily recovery from moderate to heavy endurance training: 7-10 g/kg of BW
- Daily recovery from an extreme training program: 10-12 g/kg of BW

Protein – As previously mentioned, post-exercise protein should be consumed with a CHO source (e.g. chicken and rice) in a 3:1 CHO:Pro ratio for optimal absorption. Research suggests around 20-25g of essential amino acids (Whey protein preferred) should be ingested within 1-3 hours after training to ensure protein synthesis is enhanced. The following recommendations can aid in promoting optimal recovery from intense training:

- Daily protein intake for endurance athletes: 1.2-1.8 g/kg of BW based on training volume; up to 2.5 g/kg of BW in extreme cases (Tour de France)
- Daily protein intake for strength athletes: 1.6-1.7 g/kg of BW; up to 2.0 g/kg of BW with extreme bodybuilding

Fat – Ingesting a specific quantity of fat intake after training is not a primary concern as CHOs and proteins are the macronutrients used for recovery. Fat is the primary fuel source during resting conditions or low-intensity training (~60% VO_2max), but its rate of metabolism or ingestion is not usually the limiting factor to training duration, energy storage, or recovery unless intake is below normal healthy ranges.

Consuming adequate nutrients throughout the day has demonstrated much better results in recovery than most other supplementation. Athletes and fitness enthusiasts who train at higher volumes need to manage their energy yielding nutrients for optimal recovery and energy stores for subsequent bouts of training or competition. An individual engaging in weight loss using lower levels of exercise intensity do not need to completely replace all calories expended but may benefit from smaller quantities of similar ratios for recovery. Whey protein is recommended due to its high absorption rates and high bioavailability. If protein is consumed before sleep, casein is a better choice due to its prolong digestive process. As many athletes are aware low-fat chocolate milk is likely the best choice following exercise as it contains 27 g CHO to 9 g protein at a cost of approximately $0.99.

CEU Quiz

1. True or False. Most supplements have demonstrated a good amount of efficacy during clinical investigations.

    a. True
    b. False

2. Which of the following nutrients serves as a primary fuel source during low level efforts and resting activities?

    a. Carbohydrates
    b. Fats
    c. Proteins
    d. Amino acids

3. The main function(s) of carbohydrates include:

    a. Fuel for low level activity
    b. Maintenance of central nervous system and fuel for activity
    c. Synthesis of new muscle fibers during rest
    d. All of the above

4. The pre-exercise recommendation for carbohydrate intake is _____ of carbohydrates approximately _____ before training.

    a. 50g-100g; 30-60 minutes
    b. 120g-250g; 1-2 hours
    c. 140g-330g; 3-5 hours
    d. 200g-400g; 8 hours

5. CHO-loading strategies have been documented to improve time to exhaustion during endurance events by as much as ____.

    a. 20%
    b. 30%
    c. 45%
    d. 60%

6. Research supports ingesting approximately ___ of essential amino acids along with 35g CHO approximately one (1) hour before exercise in order to optimize enhancement of protein synthesis.

    a. 2g
    b. 6g
    c. 12g
    d. 20g

7. True or False. High-intensity short duration resistance training usually requires caloric intake during the training session to maximize performance.

    a. True
    b. False

8. During prolonged endurance exercise, research supports ingesting ___ of CHO every one (1) hour to improve endurance capacity and prevent the progression of hypoglycemia.

    a. 25g
    b. 50g
    c. 70g
    d. 100g

9. Intake of carbohydrates after either prolonged endurance or resistance training should occur within _____ of exercise cessation.

    a. 45 minutes
    b. 90 minutes
    c. 2 hours
    d. 4-6 hours

10. Post-exercise, the research supported amount of protein intake is _____, ingested within _____ after training to ensure maximal protein synthesis.

    a. 5g-15g; 30 minutes
    b. 40g-50g; 60 minutes
    c. 20g-25g; 1-3 hours
    d. 60g; 6 hours

Quiz Answer Form

FIRST NAME_____ **LAST NAME**_____ **M.I.**_____

TITLE_____

ADDRESS_____ **APT.**_____

ADDRESS _____

CITY_____ **STATE**_____ **ZIP**_____

COUNTRY_____ **POSTAL CODE**_____

CERTIFICATION NO. _____ **CERTIFICATION EXP.** ____/____/____

MEMBERSHIP NO. _____ **MEMBERSHIP EXP.** ____/____/____

Quiz Name	Member Price	Total
	$15	



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_____ _____ _____
Account No. Exp. Date Security Code

_____ _____
Signature Date

Quiz Answers

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

Fill in each blank with the correct choice on the answer sheet. To receive 0.5 CEUs, you must answer 8 of the 10 questions correctly.

Please mail this Quiz answer form along with the proper enclosed payment to:

NCSF
5915 Ponce de Leon Blvd., Suite 60
Coral Gables, FL 33146

Questions? 800-772-NCSF