

# 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.

## A Closer Look at the Warm-up

Fitness professionals, sport coaches and physical education teachers have been recommending and implementing warm-ups prior to exercise for a variety of reasons including psychological preparation for game/activity focus, injury prevention, and physiological preparation. Research has demonstrated some equivocal evidence related to the use of warm-ups on certain measures, including injury prevention. Yet despite the relatively limited scientific evidence supporting their effectiveness, pre-exercise warm-up activities are well-accepted and commonly employed in fitness/performance environments.

The term warm-up speaks to the fact that the benefits of the activity are attributed to temperature-related mechanisms that promote physiological preparedness of the body's systems. When the tissue temperature increases, the muscle stiffness (resistance) decreases, nerve-conduction rate increases, force-velocity relationship improves, there is an increase in anaerobic enzyme activation and energy provision and an increase in thermoregulatory strain. In addition, it is proposed that non-temperature-related mechanisms also affect subsequent activity including elevation of baseline oxygen consumption, increased post-activation potentiation as well as a number of psychological effects like mental preparedness, focus and motivation.

While implementing a warm-up is considered by most to be essential for optimum performance, there is little scientific evidence supporting its

effectiveness in many situations. These inconsistencies and the lack of evidence-based guidelines have led to the development of warm-up protocols based on trial and error or duplication from a prior instructional experience by athletes and coaches. A meta-analysis of the data from historical trials provides limited conclusiveness, due to the variability among trials (e.g. passive vs. active, static vs. dynamic), lack of statistical data and poorly controlled studies using a small sample size of participants as well as a lack statistical analysis. More recently, research related to warm-ups has demonstrated improvements in the investigation protocols, strictness in quantifiable measures, and has contained better categorical emphasis.

One of the predominant debates regarding warm-ups is the effect the actions have on injury prevention. Common sense would suggest that if the tissue is more pliable, the nervous system is more responsive, the blood flow dynamics are heightened, and a person is likely more focused on the task then risk associated with tension based activity should be reduced. According to the *Journal of Sports Medicine (2008)* injuries to skeletal muscle represent >30% of the injuries seen in sports medicine clinics. Based on the published review of research findings related to the relationship of warm-up and injury prevention, when conflicting definitions were categorized and research on muscular injury and physical adaptations to muscular injury and training were examined, warm-ups demonstrate a positive outcome at deterring injuries. The article suggests that a

warm-up and stretching protocol should be implemented within 15 minutes prior to physical activity for these effects to occur.

While few knowledgeable professionals would argue that an active warm-up improves performance and reduces risk of injury, there exists substantial evidence that static stretching incorporated in the warm-up may inhibit performance in strength and power. This seems more common when performed prior to exercise or competition using lower body, closed chain efforts. While this seems to be true, most of the research trials supporting reductions in force and velocity with stretching “utilized routines that are dissimilar to those practiced by athletes.” In an article published in the *Journal of Science Medicine and Sport (2008)* investigators evaluated whether the decline in performance that is normally associated with static stretching pervades when the static stretching is conducted prior to a sport specific warm-up. Researchers implemented two warm-up designs on two different days and tested the athletes on measures of anaerobic burst power (vertical jump and 20 meter sprints).

**Day 1** Warm-up 1: General warm-up and 15 min of static stretching - TEST

Warm-up 2: Skill specific warm-up - TEST

**Day 2** Warm-up 1: General warm-up and 15 min dynamic warm-up – TEST

Warm-up 2: Skill specific warm-up - TEST

The athletes performed a countermovement vertical jump and 20m sprint after the first warm-up intervention (static or dynamic) and again after the second skill specific warm-up on each day. The measures following the static stretching condition resulted in significantly worse performance than the dynamic warm-up in vertical jump height and 20m sprint time. Interestingly, no significant differences were found in the vertical jump or sprint performances when the skill-based warm-up was preceded by static stretching or a dynamic warm-up routine. Researchers concluded that the practice of a subsequent high-intensity skill based warm-up restored the performance affected by the static stretch component of the warm-up likely due to neural adjustments. Practically, if static stretching is justified as part of the warm-up period, it is recommended that a period of higher-intensity, sport-specific activities are included prior to the athletic event or subsequent training.

Active warm-ups have demonstrated improvements in performance in burst activities (phosphagen energy system) like sprints above passive or no warm-up. Likewise, active warm-ups have demonstrated improvements in the performance of activities lasting > 5 minutes and intermediate performances driven by the glycolytic pathway (those that are performed for durations >10 seconds but less than 5 minutes) likely due to an elevated baseline oxygen consumption (VO<sub>2</sub>). When the warm-ups cause the body to raise oxygen consumption prior to higher intensity efforts, the aerobic cells aid in managing hydrogen produced from anaerobic metabolism. This

suggests that active warm-ups should be used prior to any events predominated by anaerobic metabolism (higher intensity) including weightlifting and sprinting as the benefits include faster recovery between sets.

The intensity of the warm-up is of particular relevance. While active warm-up activities have been reported to improve endurance performance, too high an intensity may be detrimental due to significant increases in thermoregulatory strain. Anaerobic actions are also affected by too high a warm-up

intensity but the mechanism is due to recovery demands from metabolism rather than temperature. Following the active warm-up, the addition of a brief, sport or task-specific burst of activity has been reported to provide further ergogenic benefits for some tasks via neural means. Professionals can use a variety of warm-up techniques by manipulating intensity, duration, and recovery for improvements in physiological and performance outcomes but must pay attention to the physiological aspects that support the benefits

### A Closer Look at the Warm-up CEU Quiz

1. Which of the following is a commonly expected outcome of a warm-up?
  - a. Injury prevention
  - b. Physiological preparation
  - c. Activity focus
  - d. All of the above
  
2. As a result of a proper warm-up, muscle stiffness will \_\_\_\_\_ while nerve conduction rate will \_\_\_\_\_.
  - a. Decrease; decrease
  - b. Increase; increase
  - c. Increase; decrease
  - d. Decrease; increase
  
3. \_\_\_\_\_ is one example of a non-temperature related effect of a proper warm-up.
  - a. Decreased post-activation potentiation
  - b. Increase in muscle stiffness
  - c. Elevation of baseline oxygen consumption
  - d. Loss of mental focus
  
4. Past research that contained variability among trials, lacked statistical data, and were poorly controlled have resulted in \_\_\_\_\_.
  - a. Conclusive evidence about the benefits of a warm-up
  - b. Limited conclusiveness about the benefits of a warm-up
  - c. Conclusive evidence about the lack of any benefits of a warm-up
  - d. All of the above
  
5. According to the Journal of Sports Medicine \_\_\_\_\_ of injuries seen in sports medicine clinics are to skeletal muscle.
  - a. <10%
  - b. <25%
  - c. >30%
  - d. >40%

6. Research that has examined stretching routines that are dissimilar to those practiced by athletes has shown that static stretching prior to an event can \_\_\_\_\_
  - a. Inhibit performance
  - b. Enhance performance
  - c. Not effect performance
  - d. Result in stronger muscles
  
7. Substantial evidence exists that demonstrates a reduction in performance and power when \_\_\_\_\_ stretching is performed prior to an event.
  - a. Dynamic
  - b. Static
  - c. Yoga
  - d. Ballistic
  
8. The study reported in the Journal of Science, Medicine and Sport demonstrates that if a \_\_\_\_\_ movement is performed after static stretching, performance in the event is not effected negatively.
  - a. Sport-specific
  - b. Strength training
  - c. Plyometric
  - d. Aerobic
  
9. When the warm-up activity results in an increased oxygen consumption, improvements in activities that utilize the \_\_\_\_\_ pathway are observed.
  - a. Aerobic
  - b. Phosphagen
  - c. Glycolytic
  - d. ATP
  
10. Warm-ups should precede weightlifting and sprinting (anaerobic activities) to assist with faster recovery between sets.
  - a. True
  - b. False

# 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	



Discover



Visa



Mastercard



Amex



Check/Money Order

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