

# 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.

## How to Develop Muscle Mass

When attempting to increase one's lean muscle mass, it is important to realize that several factors play key roles in this process and that the interaction among these components can greatly affect one's success in this endeavor. Focusing too intently on a simple aspect such as resistance training, or neglecting a given component, such as nutrition can have a direct influence on muscle development and the degree to which it occurs. One key factor involved with increased muscular growth is related to body composition.

Body composition, or the relationship between fat mass and fat-free (lean) mass, is an individual factor that is based largely upon genetic predisposition and voluntary activity participation. In fact, it is estimated that approximately 20-40% of an individual's current muscle mass and their ability to alter the amount of muscle mass they maintain can be attributed directly to genetic. Therefore, 60-80% of an individual's muscular make-up is alterable with proper diet and exercise. An individual who genetically is predisposed to have a larger proportion of fast-twitch muscle fibers (Type II) than someone else would have the ability to increase their hypertrophic response to training due to Type II muscle fibers' propensity to increase diameter with progressive overload. These muscles tend to respond very quickly to anabolic hormones heightened during training and, with proper nutrition, these muscles will grow more quickly than slow-twitch muscle fibers. In contrast, having a greater number of slow-twitch muscle fibers negatively effects hypertrophy

training, but can increase one's ability to utilize oxygen during aerobic metabolism and thereby prolong exercise time until exhaustion. This corresponds with an increased ability to perform endurance type activities.

As mentioned above, genetic predisposition accounts for some degree of variability with regard to an individual's muscle mass and their ability to increase that mass. Two components that can be controlled on an individual basis are nutrition and exercise participation. The nutritional component is related directly to the amount of energy-yielding nutrients consumed on a day-to-day basis. The USDA recommends that a healthy, well-balanced diet consist of approximately 55-60% carbohydrates, 10-15% protein, and less than



30% from fats. When examining the makeup of muscle, it is clear that these nutrients play a role in muscular development. The consistency of muscle is approximately 70% water, 22% protein, and 8% carbohydrate and minerals. A safe recommendation for an individual looking to increase their lean mass is an increase of approximately 150-200 calories above the daily need. It is also recommended that the majority of these calories come from protein. Important to note is the fact that additional caloric intake above this range can be associated with increased fat storage. Individual daily increases above 500 calories, even if from primarily protein, will not necessarily result in additional muscle mass. Due to the fact that protein synthesis is closely

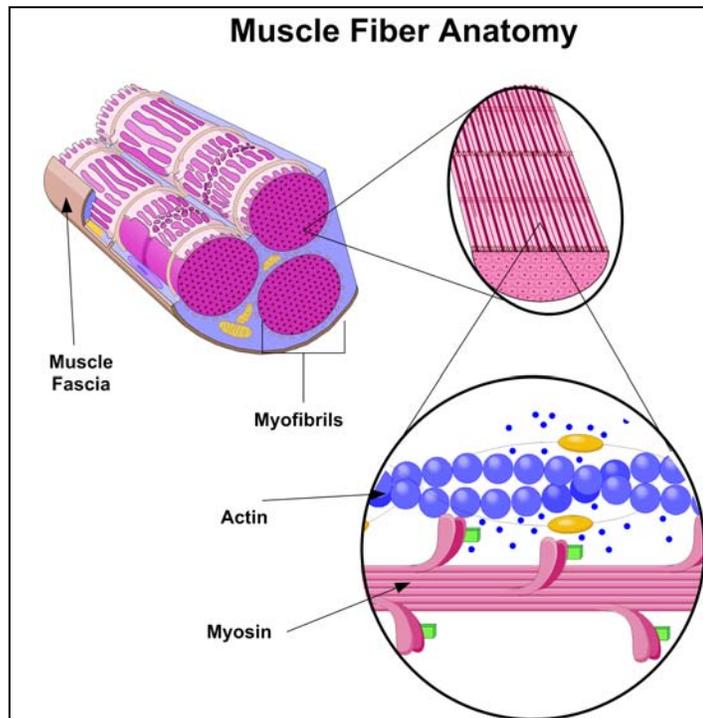
related to the amount of protein consumed, it is important to note that protein synthesis is closely related to the amount of protein consumed. A safe recommendation for an individual looking to increase their lean mass is an increase of approximately 150-200 calories above the daily need. It is also recommended that the majority of these calories come from protein. Important to note is the fact that additional caloric intake above this range can be associated with increased fat storage. Individual daily increases above 500 calories, even if from primarily protein, will not necessarily result in additional muscle mass. Due to the fact that protein synthesis is closely

regulated, adding more protein has the least impact on outcome, when compared with training and the associated hormonal response. In fact excess protein intake without adequate carbohydrates can lead to a dysfunctional protein sparing mechanism. Blood lipid profiles can also be negatively affected by increased caloric intake if fat consumption is above the recommended daily allowance. Whenever the number of calories being consumed exceeds the number of calories expended weight gain will occur. The ideal situation would couple resistance training; specifically hypertrophy training (which will be discussed in detail below) with a moderate increase in calories predominately from protein.

In addition to the required caloric increase, specific training programs geared toward maximizing increases in muscle mass are necessary. A number of factors must be considered when training for hypertrophy. Perhaps one of the most important, and more often overlooked principles, is the muscle experience. Research shows that the greatest increases related to hypertrophy training occurred in individuals who had been training for at least 2 years in a structured resistance program. This most likely relates to the development and increased efficiency of the anaerobic metabolic pathways and hormone receptors. The high volume, moderate-high intensity coupled with short rest periods creates a hormonal environment ideal for muscle growth. The physiological disruption and blood pH causes an increased

release of testosterone and cortisol which act to increase growth hormone, consequently causing the liver to release Insulin-like Growth Factor. Individuals completing resistance training programs must make sure that their increase in training volume coincides with their increased caloric intake so that the anabolic hormones released in response to resistance training will have the caloric support to increase muscle development.

Even with increased caloric intake and intense resistance training everyone will still reach a point where their muscle development will plateau. This is a result of an individual's body becoming less prone to release the anabolic hormones in response to the training. At this point, there may be an unrelenting sense of frustration that sets in upon the individual when results are not as prevalent. However, a program known as periodization training is essentially a training technique that



cycles through different programs (hypertrophy, strength, endurance, etc.) that consistently place a new stress on the muscle. By progressively overloading the muscle and ensuring that adaptation responses continue to occur by altering training regimens, an individual is able to maximize muscular development and the increase in lean mass.

Periodization training is a technique where you vary the intensity of training cycles (or periods) which will, among other things, alter the levels of the anabolic hormones released by the body. By changing concentrations of anabolic substances released by the body in response to training, it in effect, will help an individual maintain their sensitivity to these hormones to better facilitate muscle development. Very specific set, rep, and rest interval schemes are established for each training regimen. They are outlined in the chart below. Typical periods last between 5-8 weeks. The important concept to keep in mind with hypertrophy training is the rest intervals. The majority of individuals who participate in resistance

training on a regular basis will only partially complete a hypertrophy cycle. They complete between 8-12 repetitions of an exercise at 70%-85% of their 1-RM. The reason most individuals don't see the increased muscle mass they strive for is a result of incorrect rest periods. Muscular hypertrophy is maximized when rest intervals are between 30 – 90 seconds. Longer rest periods reduce growth hormone release.

From a personal training standpoint, understanding periodization training will be a key concept that can greatly effect the goal attainment of your client base. Incorrect programming will prevent clients from achieving their goals. While a large majority of a trainer's clients' primary goal will be weight loss, a handful of clients will be looking to add lean mass. When factors such as nutrition and proper resistance training programming are used cooperatively, an individual can safely and effectively add muscle mass while not compromising body fat percentage or blood lipid profiles

<b>Muscular Hypertrophy</b>			
<b>Sets</b>	<b>Reps</b>	<b>Rest Interval</b>	<b>Percentage of 1 RM</b>
3-6	8-15	:30-1:30 min	70%-85%
<b>Muscular Endurance</b>			
<b>Sets</b>	<b>Reps</b>	<b>Rest Interval</b>	<b>Percentage of 1 RM</b>
2-3	15-20	:30-1:00 min	50-70%

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<b>Muscular Strength</b>			
<b>Sets</b>	<b>Reps</b>	<b>Rest Interval</b>	<b>Percentage of 1 RM</b>
3-6	3-6	2:00-3:00 min	75%-95%
<b>Muscular Power</b>			
<b>Sets</b>	<b>Reps</b>	<b>Rest Interval</b>	<b>Percentage of 1 RM</b>
4-8	2-5	>3:00 min	80%-95%

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## CEU QUIZ

1. Which of the following factors influences an individual's ability to increase their lean mass?
    - A. Resistance Training
    - B. Nutrition
    - C. Genetic Predisposition
    - D. All of the Above.
  2. Approximately \_\_\_\_\_ of an individual's current muscle mass and their ability to alter that muscle mass is attributed to genetic predisposition.
    - A. 10%-20%
    - B. 20%-40%
    - C. 30%-55%
    - D. 60%-80%
  3. Having a high concentration of \_\_\_\_\_ muscle fibers in a particular area, negatively effects hypertrophic response to training, but does increases one's ability to utilize oxygen aerobically.
    - A. Type I
    - B. Type IIa
    - C. Type IIb
    - D. Type III
  4. As part of a well-balanced diet, the USDA recommends that between 10%-15% of an individual's daily energy needs be met by which of the following energy yielding nutrients?
    - A. Carbohydrates
    - B. Fats
    - C. Proteins
    - D. Vitamins
  5. Choose the correct distribution of components that comprise a muscle.
    - A. 50% water; 25% carbohydrates and minerals; 25% protein
    - B. 70% water; 22% protein; 8 % carbohydrates and minerals
    - C. 35% water; 18% protein; 47% carbohydrates and minerals
    - D. 60% water; 22% carbohydrates and minerals; 18% protein
  6. If the addition of lean mass is your goal, an additional \_\_\_\_\_ calories is recommended above what is normally consumed. These additional calories should preferentially be from protein.
    - A. 50 – 100
    - B. 300- 500
    - C. 150 – 200
    - D. 500 – 750
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7. Two distinguishing characteristics of hypertrophy training include:
- A. high volume, moderate-high intensity
  - B. low volume, moderate intensity
  - C. low volume, low intensity
  - D. high volume, low intensity
8. Hypertrophic response of a muscle is maximized in individuals who have been weight training for \_\_\_\_\_.
- A. 6-12 weeks
  - B. 6-12 months
  - C. 1-2 years
  - D. Muscle experience is not an integral factor.
9. Choose the most appropriate repetition and rest interval scheme that would maximize muscle development.
- A. 3-5 repetitions; 30-60 seconds of rest
  - B. 6-8 repetitions; >3 minutes of rest
  - C. 12-20 repetitions; 1-2 minutes of rest
  - D. 8-12 repetitions; 30-90 seconds of rest
10. Utilization of \_\_\_\_\_ training can help alleviate plateaus in training and ensure that the muscle continues to be progressively overloaded.
- A. periodization
  - B. plyometric
  - C. endurance
  - D. power
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# 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