

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.

Advantages of Vitamin D

Vitamin D has gained greater attention over the past few years based on a growing body of evidence that suggests a greater physiological need of the vitamin may exist for optimal health and function. This information has been compounded by an increasing concern of worldwide deficiency. Due to the fact that vitamin D supports a large number of physiological processes the current pandemic (50% of the population) increases international susceptibility to health problems. Early on, the known benefits of vitamin D were essentially limited to calcium homeostasis and the prevention of bone disease. Today it has become clear that vitamin D is actually an emerging super nutrient, serving a role in disease prevention including cancer and heart disease, inducing cellular differentiation, increasing cognitive function, enhancing muscle morphology and of course reducing the risk of osteoporotic fractures.

Since vitamin D deficiency has been associated with chronic health problems including bowel and colon cancer, osteoarthritis, metabolic and cardiovascular disease there is increasing support from medical professionals to raise the current USDA-DRI value of 400 IU to levels that may better serve positive health. Meta-analysis of 18 studies found a reduced risk of disease with individuals who supplemented vitamin D. In fact, according to a study published in *Nutrition Reviews* (Aug. 2007) colon and breast cancers risk is decreased with supplemental values of 1000-2000 IU's (at a minimum) with higher values of 2000-3500 IU's considered optimal to raise blood levels to the recommended 55 ng/ml. The claims go on to suggest that blood levels of >34 ng/ml reduce colon cancer risk by 50% and a value of >52 ng/ml

similarly reduces breast cancer risk. The average American gets about 230 IUs per day and in the winter where less light exposure is common, blood levels are predicted to average between 15-18 ng/ml.

The type of vitamin D is relevant to the body's blood levels. The two main forms of vitamin D are D₂ (ergocalciferol) which is consumed in the diet and formed from the irradiation of ergosterols in plants and vitamin D₃ (cholecalciferol) which is formed in the skin through sunlight (ultraviolet radiation) activation of 7-dehydrocholesterol in the cell membranes. Calcitriol, or 1,25-Dihydroxycholecalciferol, is often referred to as the bioactive form of vitamin D(3) in the body and is predictive of sufficiency. Vitamin D₃ is the more desirable version identifying the importance of adequate sun exposure, but is also available in the diet through cold water fish including cod liver oil, salmon, mackerel and herring. Dietary fortification of vitamin D in milk, orange juice and even many supplements is commonly in the D₂ form which is less potent. Typically there is about 100 IU of vitamin D in an 8 ounce serving of fortified juice or milk and about 200 IU in a 3 ounce serving of tuna. Individuals who do not consume dairy (milk, cheese and yogurt are fortified) and consume little or no fish run a heightened risk of deficiency. This is particularly a concern for individuals who are lactose intolerant or avoid milk for other purposes.

Once vitamin D is ingested or synthesized in the skin it is transported to the liver and metabolized into its primary circulating form which serves as the marker of vitamin D status. The kidneys are primarily responsible for converting circulating D into the active form that syncs with

receptors in the intestine and bone for physiological functions. Non-calcium regulating tissues can also convert circulating D into the active form that may potentially regulate genes to facilitate cell growth and differentiation and possibly reduce the risk of cellular transformation to malignancy. Due to the presence of vitamin D receptors in most tissues and cells in the body, the active form of vitamin D can serve as a potent regulator of cell growth in normal cells as well as cancer cells.

Not unlike bone, muscle tissue requires vitamin D for optimal function and therefore deficiency leads to weakness. In its active form, vitamin D attaches to receptors in skeletal muscle tissue promoting protein synthesis, muscle cell hypertrophy and improved function. In the aging population, a lack of vitamin D is perceived to contribute to sarcopenia (muscle atrophy) and increase risk of postural sway and falls. Interestingly, when older females were provided either vitamin D-only, calcium-only, or placebo those receiving vitamin D-only experienced a 22% reduction in falls. This may hold relevance as neuromuscular dysfunction is blamed for the largest single cause of injury-related deaths in the elderly and accounts for a significant number of nursing home residents. Of further interest, vitamin D intake has been correlated with a direct improvement in neuromuscular function as well as central processing, cognition, and motor response in the elderly which collectively reduce risk for falls and consequent fractures.

This information has not eluded the sports environment where there has been increasing interest as to the impact vitamin D may have on muscle morphology and function. Literary content is still limited in this area but evidence is accumulating to support vitamin D as a potential

ergogenic agent. New studies allude to the functional role vitamin D plays in muscle tissue and identify the mechanistic potential for vitamin D within skeletal muscle and the possible impact vitamin D deficiency may have on reduced performance and increased risk of injury in athletic populations. The evidence suggests that the vitamin D is involved at both the genomic and non-genomic levels as nuclear receptors and cell surface receptors for active D have been identified. The location of these receptors suggests vitamin D is affecting the cell at multiple levels including mRNA. Although further research is needed to identify the exact underlying mechanisms of vitamin D's action on muscle tissue and to determine how these cellular changes translate into improvements in physical performance there are indications that warrant attention to vitamin D intake to ensure optimal neuromuscular performance.

For female athletes there is an even stronger case to ensure adequate vitamin D is routinely consumed. In addition to the possible muscle morphologic factors, females run an increased risk of bone loss, evidenced by a higher number of stress fractures and injuries associated with the female triad. Female athletes and fitness enthusiasts who do not support physical activity with adequate nutritional support and emphasize caloric restriction are at the greatest risk. If vitamin D is in fact involved to a high degree in muscle function and the strength of the muscle tissue acting on the bone is a predictor of bone mineral density, a lack of vitamin D is actually compounding in its effect on potential bone loss.

The elderly population will also have similar concerns. Vitamin D intake is responsible for the calcium-phosphorus product in bone and

when inadequate vitamin D is consumed limitations to this product reduce mineralization. It is estimated that 1 in 2 women and 1 in 12 men over age 50 will experience an osteoporotic fracture and researchers suggest that vitamin D intake may be the best predictor of fracture risk. Clinical evidence suggests that vitamin D sufficiency may reduce osteoporotic fractures by 50-60% in these populations. Due to the reduction of the active form of vitamin D in the elderly, D₃ supplementation is considered necessary. Older adults suffer from reduced circulating active D due to a reduction in calcium absorption and reduced production of vitamin D in the skin and in some cases lower absorption rates in general with aging. One research trial demonstrated improvements in the aforementioned population using 800 IU per day in patients over 65 (to 85) with a reduction in fractures of 33% over a 4 year period. These reduced risks may be additionally related to the known improvements in motor response with adequate vitamin D in the blood.

Supplementation with vitamin D to sufficiency has also gained support by physicians for disease prevention. In studies analyzing risk of autoimmune disease those with inadequate vitamin D ran an increased risk for diabetes, rheumatoid arthritis, lupus, and multiple sclerosis whereas those with sufficient vitamin D in the blood experienced notable risk reduction. In fact it is suggested that adequate vitamin D, up top levels of 2000 IU, have improved insulin sensitivity and beta-cell function leading to a significant reduction of diabetes in evaluated populations including children. Blood vitamin D at levels less than 20 ng/ml were associated with reduced beta cell activity suggesting deficiency adds to risk.

The added vitamin D benefit seems to lend itself to a reduction in cancer and cardiovascular

disease risk as well. A 60% decrease in all cancer risk was found among post-menopausal women consuming additional calcium plus 1000 IU of vitamin D compared to placebo. According to data collected from the Health Professional Follow-up Study, adequate vitamin D in the blood was associated with 17% reduction in all-cancer, 29% reduction in all-cancer mortality rates and a greater than 40% reduction in both digestive cancer incidence and mortality. Similar findings supported the need for adequate vitamin D to also reduce the risk of heart disease and related mortality. Low levels of vitamin D are considered an independent risk factor for heart attack, whereas in studied populations, blood levels of vitamin D higher than 30 ng/ml decreased risk of myocardial infarction by more than 50%. Clinical findings suggest that vitamin D deficiency promotes hypertension whereas vitamin D sufficiency enhances endothelial function and serves to be cardioprotective. In fact, the third National Health and Nutrition Examination Survey (NHANES) demonstrated a link between low levels of vitamin D and cardiovascular risk with the probable mechanism of vascular calcification.

Based on this information clinicians are reviewing the role of vitamin D as a mechanism for improved health and reduced risk for illness. Although new DRI-RDA values have not been assigned, many believe the government will increase the recommended daily value to promote vitamin sufficiency. Individuals who do not consume adequate vitamin D from food sources and/or do not get enough sunlight exposure may be at an increased risk for disease and experience physical consequences associated with the deficiency. Nutritionists strongly recommend vitamin D in D₃ form when considering supplementation. Whenever considering

supplementing a nutrient, always consult your physician. This is particularly important for dietary adjustments for children

Advantages of Vitamin D Quiz

- Which of the following is NOT a benefit link with adequate Vitamin D intake:
 - Increased cognitive function
 - increased lipolysis
 - Reduced risk of osteoporotic fractures
 - Decreased risk of certain cancers
- Currently, the USDA-RDI value for Vitamin D is _____.
 - 200 IUs
 - 400 IUs
 - 600 IUs
 - 1,000 IUs
- It is estimated that the average adult in the United States gets approximately _____ IUs of Vitamin D per day.
 - 150
 - 230
 - 400
 - 800
- The D₃ form of Vitamin D _____
 - Is consumed in the diet and formed from the irradiation of ergosterols in plants.
 - Is formed in the skin through sunlight activation of 7-dehydrocholesterol in the cell membranes
 - Is thought to be the more desirable form of Vitamin D
 - Both b and c are correct
- The D₂ form of Vitamin D is found in _____ while the D₃ form can be consumed in _____.
 - Fortified milk or juice; cold water fish such as salmon
 - Supplemental vitamins; fortified juice or milk
 - Cold water fish such as salmon; supplemental vitamins
 - Fruits and vegetables; fortified juice or milk

6. The _____ is primarily responsible for converting circulating Vitamin D into the active form that syncs with receptors in the intestines and bones.
- Stomach
 - Kidneys
 - Gall bladder
 - Pancreas
7. In the older adult population, adequate Vitamin D intake is imperative due to its potential link with _____ if a deficiency exists.
- Sarcopenia (muscle atrophy)
 - Hypertrophy
 - A reduction in cholesterol
 - Improved balance and coordination
8. Female athletes should monitor their Vitamin D intake and ensure adequate levels due to their increased risk of _____.
- Stress fractures
 - Bone loss
 - Muscle gains
 - Both A & B are correct
9. Clinical research shows that osteoporotic fractures may be reduced by _____ in the adult population over the age of 50 if Vitamin D intake is sufficiently consumed.
- 20%-30%
 - 35%-45%
 - 50%-60%
 - 80%-90%
10. Inadequate Vitamin D intake has been associated with an increased risk of which of the following diseases?
- Diabetes
 - Rheumatoid arthritis
 - Lupus
 - All of the above

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