

# 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.

## **Menopause & Hormone Replacement Therapies**

One important aspect to being a competent personal trainer is understanding the systems of the body and the interactions that occur between systems for normal homeostasis. These systems undergo physiological changes throughout life splitting a person's lifespan into specific stages. Each stage is dictated by endocrine activity in which certain hormones and variations in hormonal concentrations manifest changes in physiological characteristics. A personal trainer should have a general idea about the hormone activity during each stage and what effect those hormones have on the body at rest and during activity. This article will address the changes that take place in women after age 40.

For most women, the years following the 40-year milestone are subject to variations in their previously normal menstrual cycle. This stage of life is referred to as menopause. It is split into two subcategories, perimenopause and postmenopause. Perimenopause is characterized by cycle irregularities, as estrogen and progesterone production from the ovaries becomes erratic. This variation in hormone production yields physiological side effects from the surge and plummet of estrogen levels. Although not all women experience all symptoms, hot flashes, vaginal dryness, and sleep disturbances are common discomforts. The length of perimenopause is as unpredictable as its symptoms. It can range from a period of several months to almost a decade. Its conclusion is marked by a loss of any menstrual cycle for a duration of 12 consecutive months<sup>7</sup>. The complete discontinuation of menses is known as postmenopause. For most

women menopause occurs between the ages of 48 to 55 (mean 51), although early menopause (before the age of 40) does occur in 1% of women<sup>10</sup>. Early menopause is linked to smoking, high altitude and poor health.

Following menopause, the production of estrogen by the ovaries drops to near zero. Some estrogen is still produced from the extra glandular conversion of androstenedione and testosterone, but with increasing age estrogen from any source decreases to very low levels<sup>20</sup>. This significant hormonal loss does not go unnoticed by the body. The systems and tissues that once relied partly on estrogen to function properly begin to register its decline and risks increase for disease (osteoporosis, cardiovascular disease and Alzheimer's)<sup>17</sup>.

To combat against the reduction of estrogen, hormone replacement therapy (HRT) has been prescribed to help alleviate symptoms of menopause and to reduce the risks of the diseases associated with it. HRT has shown efficacy in reducing vasomotor symptoms, enhancing bone mineral density and has a desired affect on cardiovascular disease risk by increasing HDL cholesterol and reducing serum LDL cholesterol. It has been shown to improve cognition and prevent dementia, aid in controlling diabetes, as well as reduce the incidence of colon cancer and macular degeneration<sup>23</sup>. Many women believe that it also improves the health and appearance of their skin. For women who have not had a hysterectomy the HRT mix is a combination of estrogen and a synthetic form of progesterone. Without the progesterone the

supplemental estrogen increases risk for cancer of the endometrium, the lining of the uterus<sup>16</sup>.

Even with all the obvious benefits associated with the HRT only about 35% of menopausal women use the therapy, and of them very few stay on it for more than a year<sup>15</sup>. Their rationale for not part taking in the therapy is often a concern for increased risk of breast cancer, gallstones and deep vein blood clots<sup>17</sup>. Although the estrogen-associated risks are not great, they still pose as a deterrent to many would be users. Additionally some women have found that the estrogen itself has unpleasant side effects, such as breast pain, bloating, or headaches.

For this reason many women have turned to a more “natural” approach. The problem with natural products is two fold. The first concern is that the term natural is open for interpretation. Any product that is made primarily from animal, plant, or mineral origin fits the legal definition of natural, even though it may no longer resemble the product in its naturally occurring state. Herbs, for instance have no federally regulated standards and can go through extensive “washing” by treatments of alcohol or acetone before being compressed into tablets. It should also be noted that the FDA pays very limited attention to supplements, often only looking into products that have alerted investigators to a serious problem. There is no guarantee that the products are effective or even safe, as no clinical trials are required before they go to market.

The second concern with natural product use is that limited trials show conflicting data as to their effectiveness. Of the more than 16000 articles on menopause published since 1960 only 47 of them involve herbal treatments, all of which occurred in the last decade. Phytoestrogens have composed the

majority of the compounds reviewed in these trials. They are nonsteroidal plant compounds with estrogen-like biological activity<sup>21</sup>. Phytoestrogen include three classes of compounds: isoflavones, lignans and coumestans. Isoflavones are found in soybeans, lentils, chickpeas and tofu. Lignan is found in oilseeds and flaxseeds of wholegrains, fruits and vegetables. While coumestan comes from bean sprouts and fodder crops such as alfalfa and clover. Limited clinical trials have indicated that soy and black cohosh may provide some relief to common vasomotor symptoms<sup>24,11,1</sup>. But, these trials have had their share of questions, as similarly measured doses in other research efforts have not yielded the same results<sup>3,19</sup>. Of the other products investigated from the phytoestrogen groups none have shown any compelling data to demonstrate their effectiveness. These include red clover, ginseng, evening primrose oil, dong quai and flaxseed oil.

Since the biological actions of these compounds are extremely complex, their effect on cellular action are determined by many factors. This may explain the inconsistencies in the results of similar trials. Likewise the diverse mix of coactivators and corepressors are subject to cell receptor (Alpha and Beta) interaction and how it ultimately affects the estrogen regulated gene<sup>22</sup>. Anyone considering using alternative medicine supplements should consult their physician.

A third type of intervention has come to light as pharmaceutical companies search for the ideal remedy for menopausal symptoms and to reduce the health risks associated with the reduction of estrogen during and following menopause. Now that women are spending more than a third of their lives past fifty and due to the fact that so few women use HRT, even with the possibility of prolonged lifespan

and improved quality of life, other avenues must be found to provide a safe and effective alternative. Designer estrogens have come to the forefront of research as an alternative approach to HRT. They are termed selective estrogen receptor modulators (SERMs). SERMs have a high-affinity interaction with the estrogen receptor and provide similar benefits to HRT without all the side effects<sup>20</sup>. SERMs produce estrogen agonist and antagonist -like effects in the respective Alpha and Beta receptor sites. The FDA has approved Raloxifene (Evista) which shows promise for preventative treatment in postmenopausal women without the stimulation of breast and uterine tissue<sup>9</sup>. This suggests an increase in bone mineral density, a reduced risk for cardiovascular disease from an improved lipid profile and lower chance of breast cancer. It does have its drawbacks though, SERMs do not show relief of menopausal symptoms and actually increase hot flashes. They do have a positive effect on lowering LDL cholesterol but do not affect serum HDL<sup>26</sup>. Likewise they show **no effect** on macular degeneration, cognition and dementia, reduce of risk for colon cancer, and only hold a limited reduction of risk of cardiovascular disease compared to HRT. Of major concern is the effect that Raloxifene has on vascular health. The risk of venous thrombosis of the leg veins, pulmonary embolism, and retinal vein

thrombosis increases three times with the supplementation<sup>9</sup>. This is also true for the HRT. In both cases this equates to about two or three cases in 10,000 women.

Based on the evidence, HRT (estrogen and progesterone) still seems to be the best choice for postmenopausal women from a benefit to risk comparison. But until more research can provide answers and something can be done to reduce the risks of breast cancer, venous thrombosis, and increased risk of uterine cancer (estrogen w/o progesterone), many women will continue to go without the therapy. Personal trainers should be aware of the hormonal changes that are taking place in their female clients and provide education so they can make intelligent decisions about their health. This means informing clients of the risks and benefits associated with each proposed mechanism of relief and staying abreast of to the claims of new and old supplemental treatments. This is not to suggest that a personal trainer should make recommendations as to a course of action, leave that to the doctors, but rather that one may provide research based information about the claims of supplement companies and inform the client as to the interventions (risks and benefits) analyzed by research. The more education a personal trainer can provide their clientele the more likely they will find success in making people healthier

## Statistical Summary

HRT prevents bone loss and can result in a 5% increase in bone density at the spine over a 3-3.5 year span<sup>5</sup>, and enhances bone mass in women into their 80's.

To prevent the 10-15% bone loss associated with menopausal deprivation of estrogen HRT should begin before the last menstrual period. Decreases in bone mass

can occur two years before postmenopause<sup>4</sup>.

Hot flashes can indicate the initiation of bone loss<sup>4</sup>.

Cardiovascular disease is the leading cause of mortality for postmenopausal women

1 in 2 women will die from heart disease or stroke – only 1 out of 25 women die from breast cancer<sup>2</sup>.

Protection against heart disease is the number one reason for HRT – the magnitude of the benefit is considerable (40-60% reduction of risk)<sup>14</sup>.

HRT has a direct anti-atherosclerotic effect in arteries and increases vasodilatation and antiplatelet aggregation factors<sup>25</sup>.

Estrogen has direct inotropic actions on the heart and improves peripheral glucose metabolism with a subsequent decrease in circulating insulin levels<sup>25</sup>.

Estrogen reduces central adiposity and related comorbidities<sup>20</sup>.

HRT stimulates the regeneration of axons and synapses, maintains viability and survival of neurons, increases regional cerebral blood flow, stimulates the production of the neurotransmitters

acetylcholine and serotonin and protects against b-amyloid toxicity (Alzheimers disease)<sup>20</sup>.

HRT reduces the risk of colon disease by 30-50%<sup>6</sup>.

HRT reduces the risk of diabetes and incidence of macular degeneration of the eye<sup>23</sup>.

Prolonged HRT use (over five) years increase risk of breast cancer by 35%<sup>8</sup>.

Premarin (estrogen alone) is the second most prescribed medication in the US<sup>27</sup>.

Unopposed estrogen replacement promotes endometrial hyperplasia which leads to uterine carcinoma<sup>12</sup>.

Progestin combined with estrogen (Prempo) places women at a higher risk for CV disease, stroke, and breast cancer than no intervention (placebo), estrogen and progesterone<sup>27</sup>

### \*\*\*\*\* Special Note \*\*\*\*\*

A recent large federal study was halted after five years because the study concluded the HRT mix of Estrogen and Progestin (Prempo) increased the risk for heart disease(29%), stroke(41%) and breast cancer(26%). This is consistent with oral high doses of estrogen and progestin as well as therapies lasting longer than five years. Although this study got national attention it has not changed the mind of many doctors as to the benefits of some HRT's (estrogen and progesterone). What many people will not realize from the poorly presented newscasts is the risk expressed from the study was for estrogen and progestin only and according to the

study it is predicted that only 1 out of 100 women will suffer negative consequences<sup>27</sup>. Again the HRT in question was a combination of unnaturally occurring progestin and estrogen taken orally, not estrogen and progesterone. The study did not look at short-term benefits nor mention the reduced risk for colorectal cancers and hip fractures. As mentioned earlier in the article any HRT taken for more than 5 years can increase the risk for the aforementioned diseases. Women should consult their physicians about the different interventions and what course is right for them.

# Quiz

1. The average age of natural menopause is:
  - a. 48 years.
  - b. 51 years.
  - c. 55 years.
  - d. 61 years.
2. Perimenopause is the interval:
  - a. from menarche to menopause.
  - b. during which menstrual periods become irregular.
  - c. after which menstruation stops.
  - d. more than one year after the last menstrual period.
3. Estrogen levels of postmenopausal women can remain elevated for a period of time because:
  - a. the ovaries can produce estrogen indefinitely.
  - b. the adrenal glands produce additional estrogen after the ovaries stop functioning.
  - c. many body tissues can convert androgens to estrogen.
  - d. adipose tissue produces estrogen.
4. Mrs. Smith is 70 years old and is seeking advice about HRT. She wonders if it is too late to start HRT due to her age. Which of the following statements is true about HRT and older women?
  - a. HRT would still be effective for enhancing bone density.
  - b. HRT would not be effective at this point.
  - c. HRT must be started within 10 years of the onset of menopause to be effective.
  - d. HRT is not effective for bone loss if not started during perimenopause.
5. Which of the following supplements has shown efficacy as a substitute to HRT?
  - a. Evening primrose.
  - b. Red clover.
  - c. gingseng.
  - d. Flaxseed oil.
  - e. none have shown conclusive data.
6. For maximum bone health benefits, HRT should be:
  - a. taken in doses of at least 0.62 mg.
  - b. started before the last menstrual period.
  - c. discontinued after 5 years postmenopause.
  - d. taken with progesterone.
7. The leading cause of death for postmenopausal women is:
  - a. breast cancer.
  - b. cardiovascular disease.
  - c. colon cancer.
  - d. lung cancer.

8. A potential side effect of HRT is:
  - a. weight gain.
  - b. venous thrombosis.
  - c. constipation.
  - d. bone pain.
  
9. The greatest benefit of SERMs compared to HRT is:
  - a. decreased risk of osteoporotic fracture by 50%.
  - b. decreased risk of breast cancer.
  - c. decreased risk of thromboembolism.
  - d. no increased risk of uterine cancer.
  
10. Unlike SERMs, HRT:
  - a. increases the risk of deep vein thrombosis.
  - b. relieves menopausal symptoms.
  - c. reduces libido.
  - d. lowers LDL cholesterol.

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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