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THEME: MENOPAUSE

Exercise Recommendations for Menopause-Aged Women

by Chris Eschbach, Ph.D.



The symptoms of menopause are numerous, and they can affect the quality of life of women moving through this stage. The good news is that exercise can often help reduce menopause-related symptoms.

Menopause is the term commonly used to refer to the period of time both before and after a woman's last menstrual period. Technically, menopause is a woman's last menstrual period, while the time period immediately prior to menopause is referred to as "peri-menopause" and the time following menopause is referred to as "post-menopause."

This process of changing hormone levels can last for more than 10 years and women may experience widely varying hormone levels, specifically estrogen, progesterone, follicle stimulating hormone, and luteinizing hormone. These hormones alone, and in combination, are responsible for a wide range of processes

within the body. The changes that occur during this stage of life may result in disruptions to normal daily living. These disruptions may include hot flashes, sleep disruption, weight gain, loss of libido, short-term memory impairment or a lack of focus, increased anxiety, fatigue, depression and drastic mood swings, joint/muscle aches and pains, irregular periods, heavy bleeding, dry eyes, vaginal changes, hair loss, osteoporosis, and cardiovascular disease – most of which can be lessened with an effective exercise program. It is important to note that not all women experience the same changes or with similar intensity, which is one reason why menopause can be quite frustrating for many women.

Research has demonstrated the positive effects of exercise and physical activity on reducing menopausal symptoms. Interestingly, the positive changes do not seem to be brought on by "correction" of hormonal concentration but rather from the acute effects of exercise and the long-term positive adaptations that result from exercise training. The positive outcomes resulting from regular exercise and/or physical activity programs include increased cardiovascular fitness, improvements in body composition, decreased anxiety and depression, and enhanced feelings of well-being. Additionally, exercise and/or physical activity has, in some cases, been shown to decrease feelings of fatigue and chronic muscle pain, improve quality and duration of sleep, and increase or minimize loss of bone density.

The exercise recommendations for women in either peri- or post-menopause are very similar to those recommended for all women. Starting an exercise program can be a difficult task, especially during a time when hormonal fluctuations result in a variety of physiological and psychological changes. The key is to remember that the main goal is to boost your health and minimize any symptoms brought about by natural body changes. It is important to choose activities that you enjoy.

Any cardiovascular activity (brisk walking, cycling, water aerobics, mowing the lawn) that causes you to elevate your heart rate and

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Letter from the Editor

by Dixie Thompson, Ph.D., FACSM

Welcome to the Fall 2009 edition of the ACSM Fit Society[®] Page! We recently conducted a survey of all subscribers, and we've utilized your feedback and ideas to bring you the focus of this issue: menopause.

Menopause affects millions of women, and in this edition you'll learn how exercise and good nutrition may ease symptoms and make that stage of life much more manageable. Happy reading!

Dixie L. Thompson, Ph.D., FACSM
Editor, ACSM Fit Society[®] Page
E-mail: dixielee@utk.edu

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break a sweat while still able to carry on a conversation is adequate for meeting the ACSM-recommended 30 minutes a day, five days a week (or 150 minutes per week). Even short bouts of exercise lasting at least 10 minutes can be accumulated toward the 30-minutes-per-day goal. In addition to cardiovascular exercise, twice-a-week bouts of strength training with at least eight exercises of eight to 12 repetitions working the whole body can result in positive outcomes.

For both cardiovascular and strength training exercises, remember to increase the amount of exercise gradually, starting with realistic amounts and moving toward achieving the minimum recommendations. Exceeding the minimum recommendations further reduces the risk of inactivity-related chronic disease and may be helpful in minimizing symptoms of menopause.

Special consideration should be given for those women who are especially affected by hot flashes. Research has shown that a relaxation-based method with paced respiration significantly reduces objectively measured hot flash occurrence. With this in mind, programs that encourage focused relaxation and breathing, such as yoga, may be beneficial for reducing hot flashes. While the benefits of cardiovascular activity are numerous, researchers have not consistently found positive effects specific to hot flashes, although it may work for some women.

It is important to consult your physician on a regular schedule as peri-menopause approaches and work with him or her to balance the changing needs of your body. Be sure to use exercise to help manage complications brought about by this life change.

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Q&A

by Anthony Luke, M.D., FACSM

Q: I'm worried about gaining weight once menopause occurs. I heard weight gain happens, and I'm starting to experience hot flashes. What can I do?

A: Unfortunately, it's estimated that about 90 percent of women gradually gain about 10 to 15 pounds after menopause. Weight changes may be greater and faster when women undergo menopause early. There are several reasons why weight gain can occur with menopause. Changing hormone levels associated with menopause are a big reason, but are not necessarily the only cause of weight gain. It's natural that as you age, your metabolism slows down and you burn fewer calories. Aging also leads to the body having more fat than muscle – and fat burns fewer calories. Many people also eat more and exercise less over time. Doing the same exercise routine and eating the same diet may not be able to keep the pounds off, requiring further lifestyle changes. Of course, eating a healthy, balanced diet is always recommended. Avoid refined sugars, caffeine, nicotine and alcohol. Maintaining or increasing aerobic activities can be useful especially getting to moderate or vigorous activity levels that can burn calories and fat at a higher rate. Reducing stress can be helpful also to avoid excessive stress hormone levels that trigger the body to store more fat. It's important to remember that this is a normal part of life and accepting the transition and living a healthy lifestyle are the best ways to prepare for life's changes.

Q: Is exercise important for reducing breast cancer risk after menopause?

A: Several studies demonstrate that exercise is indeed protective against breast cancer. This effect may be even greater for women who are post-menopausal. For example, a case-control study from Germany published in 2008 showed that the effects of physical activity on lowering breast cancer risk were independent from adult weight gain, body mass index and energy intake. The researchers suggested that physical activity may reduce post-menopausal breast cancer risk at least in part via hormonal pathways and not solely by changing body composition. They encourage inactive post-menopausal women to become physically active, even later in life. An earlier study done in the United States showed a moderate effect for physical activity with the greatest protection seen in women who were consistently active throughout their lifetime. A review published in the *British Journal of Sports Medicine* in 2008 reported that three-quarters of the studies showed a breast cancer risk reduction associated with increased physical activity with an average risk decrease of 25-30 percent. Most studies showed a relationship between the amount of exercise (dose) and the prevention of breast cancer (response). They also found greater risk decreases in specific subgroups of the population, including specifically post-menopausal women, those who participate in lifelong or later-life activity, and/or those who are regularly involved in recreational activity and vigorous activity.

Exercise, Menopause and Osteoporosis

by Kerri Winters-Stone, Ph.D., FACSM



Osteoporosis, a weakening of the bones causing them to fracture easier, is a disease that most women are familiar with because it's long been considered a woman's disease. Even though we now know that men are also vulnerable to osteoporosis, the disease afflicts more women than men largely because women have naturally smaller and lighter skeletons and because women suffer menopause-related bone loss in addition to age-related losses.

Near or at the onset of menopause, typically around age 50, women's bodies lose the ability to produce normal levels of estrogen, thus estrogen's protective effect on the skeleton is lost. During the early menopausal years, loss of estrogen can cause bone to be lost two to five times more quickly than loss caused by age alone. While estrogen and/or hormone-replacement therapy (combination of estrogen and progesterone) has been shown to effectively stop menopause-related bone loss, recent health concerns over the use of hormone replacement therapy have made it less popular. (Read a related article on page 5)

While estrogen levels are one factor that determines the health of the skeleton, many more factors play a role in maintaining bone health. Two of the most important factors are physical activity and nutrition. These factors are no less important after menopause. Physical activity plays a very important role in

keeping our bones strong. Many studies have shown that physically active women have higher bone mass than inactive women and that physically active persons experience fewer fractures even if they have osteoporosis. Studies have also shown that when people engage in a certain types and amounts of physical activity (see below), their bone mass may increase, or at least be protected against severe decreases.

Another important role of physical activity is to prevent falls. While bone health is certainly a strong indicator of a person's fracture risk, falling may be an equally important risk factor for fracture.

Evidence-based guidelines specific to reducing fracture and falling risks have been developed by a group of experts convened to write the American College of Sports Medicine's Position Stand on Physical Activity and Bone Health¹. These current exercise recommendations from this publication are as follows.

For preserving bone health in adulthood:

- **Mode:** Weight-bearing endurance activities (tennis; stair climbing; jogging, at least intermittently during walking), activities that involve jumping (volleyball, basketball), and resistance exercise (weight lifting)
- **Intensity:** Moderate to high
- **Frequency:** Weight-bearing endurance activities 3-5 times per week; resistance exercise 2-3 times per week
- **Duration:** 30-60 minutes/day of a combination of weight-bearing endurance activities, activities that involve jumping, and resistance exercise that targets all major muscle groups

For Elderly Women and Men:

Exercise programs for elderly women and men should include not only weight-bearing endurance and resistance activities aimed at preserving bone mass, but also activities designed to maintain balance and prevent falls.

The most effective fall prevention exercise programs in older adults are those that include both moderate to vigorous resistance exercise targeting the lower body and balance exercises. Alternative forms of exercise that focus on dynamic strength and balance, such as Tai Chi, are also effective at reducing falls in older adults.

For individuals with diagnosed osteoporosis, the ACSM Resource Manual² suggests the following guidelines for physical activity and resistance training aimed to prevent falls:

- One to three sets with five to eight repetitions of four to six weight-bearing, lower-body strength exercises using body weight as resistance
- Activities performed two to three days/week
- Additional resistance may be applied gradually and conservatively (up to 10 lbs.) with weighted vest
- Therapy bands & rubber tubing may be used to facilitate range-of-motion exercises
- Avoid impact exercise, spinal flexion against resistance, spinal extension, high compressive forces on the spine, quick trunk rotation

When it comes to bone health, a sensible diet is the perfect complement to a physically active lifestyle. The two most important nutrients for the skeleton are calcium and vitamin D. If dietary intake of calcium is chronically inadequate, bone will be lost from the skeleton and it can weaken. Vitamin D keeps bone strong because it facilitates calcium absorption. More recently, research has shown this nutrient is also important for maintaining strong muscles and can help prevent falls. The Food and Nutrition Board of the Institute of Medicine of the National Academies (<http://dietary-supplements.info.nih.gov/>) recommends the following intake levels for post-menopausal women:

- Calcium: 1200 milligrams/day
- Vitamin D: 10 micrograms/day (400 International Units/day) from ages 51 to 70 (Increase to 15 micrograms/day [600 International Units/day] after age 70)

Menopause marks an important time for women to evaluate their risk of osteoporosis. For women who are concerned about their risk of fracture, physical activity and good nutrition are important strategies to adopt. Following dietary guidelines and practicing a specific exercise program based on ACSM recommendations are bone-smart habits that will help women stay fracture free. We know that bone benefits from exercise are lost when someone stops training, so exercise done to target the bones must be a lifelong commitment. An ACSM-certified fitness professional has the background and training to help develop a comprehensive program that is enjoyable, safe and effective.

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Stages of Menopause

by Jan Schroeder, Ph.D.



By the year 2025, the World Health Organization estimates that 1.1 billion women will be age 50 or over, all of whom are or will soon be experiencing menopause. In fact, menopause affects so many women that the International Menopause Society, in collaboration with the World Health Organization, has designated Oct. 18 as World Menopause Day.

Menopause literally means “the permanent ‘pause’ of menses,” which signifies the end of a woman’s ability to have children. Typically, menopause is a natural and gradual process in which the ovaries reduce their production of the female sex hormones – estrogen and progesterone. These hormones allow a woman to become pregnant, cause menstruation, and affect many other functions in the body, such as the circulatory system, urogenital system (urinary and vaginal) and the bones. When the production of these hormones drops, menopausal symptoms may occur. While some women experience no menopausal symptoms, approximately 75 percent will experience some type of symptoms varying in degree of severity.

Most women experience natural menopause between the ages of 40 and 58, with the average age of onset around 51 years of age. It is interesting to note that while the average life expectancy of women has increased, the average age of menopause onset has remained the same for centuries.

Vasomotor Changes	Emotional Changes	Urogenital Changes
changes in your period	loss of confidence	vaginal dryness or itching
abnormal bleeding or “spotting”	irritability	urinary tract infections
hot flashes and night sweats	nervousness or anxiety	frequent desire to pass urine
weight fluctuation	reduced libido (reduced interest in sex)	discomfort during sexual intercourse
dizziness	insomnia (difficulties sleeping)	leaking of urine when coughing or laughing (stress incontinence)
skin - dryness/sensations (crawling or itching)	fatigue, tiredness or exhaustion	
muscle/joint pain	problems with memory and staying focused	
hair loss or thinning	headaches	
palpitations (rapid heart beat)		

Stages of menopause

The misuse of terminology in the field of menopause can cause confusion and spread misinformation. The stages of menopause are not distinct, but rather overlap. Menopause is only one of several stages in the reproductive life of a woman. The World Health Organization defines the stages of menopause as:

- **Pre-menopause** – The entire reproductive period up to the final menstrual cycle. It is best defined as a time of “normal” reproductive function in a woman.
- **Peri-menopause** – Includes the time immediately prior to menopause and the first year after menopause. This is the time when a woman’s body slowly makes less of the hormones estrogen and progesterone, resulting in menopause symptoms (see Table 1). The onset of peri-menopause is typically between 45 and 60 years old and can span a two- to six-year period. There is no way to tell in advance how long this stage will take.
- **Menopause** – The permanent cessation of menstruation and fertility resulting from the loss of ovarian follicular activity. This stage can only be confirmed a year or more after the final menstrual cycle. Most women will experience natural menopause; however, in a few cases, premature or induced menopause is experienced (see sidebar). Menopause can be confirmed by 12 consecutive months without a menstrual period.
- **Post-menopause** – The period of time after the final menstrual period. Post-menopause can bring up new health issues due to the reduced production of the female hormones estrogen and progesterone. Two possible health concerns in post-menopausal women are osteoporosis and heart disease.

While some women view menopause as a nuisance, it can actually be a very enjoyable time of life for many women. Understanding the stages of menopause, as well as how

exercise, nutrition, and treatment aid in symptom relief and may reduce menopausal health concerns, may assist you through this natural process.

Menopause Terms

- **Natural menopause** is a gradual process in which the ovaries reduce their production of the female sex hormones.
- **Induced menopause** occurs when both ovaries are surgically removed (with or without a hysterectomy) or when the ovaries are damaged by medical treatment such as radiation, chemotherapy or medications. Induced menopause causes an immediate discontinuation of ovarian hormones, which may lead to more severe menopausal symptoms. Hot flashes may be more severe, more frequent and last longer and the female has a greater risk of heart disease, osteoporosis and depression.
- **Premature menopause** is when a female enters menopause before the age of 40, whether natural or induced. Unfortunately, these women spend a greater portion of their lives without the protective benefits of their own estrogen, which puts them at an even greater risk for menopause-related health problems.

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Controversy in Hormone Therapy

by Barbara Bushman, Ph.D., FACSM



Research and media attention on hormone therapy (HT) within the past decade has resulted in many questions. The reported number of prescriptions for HT declined following the release of certain clinical research study results.¹ The decision to utilize HT is one that must include consideration of the risks and benefits for the individual woman.

Although a blanket recommendation might be desired, it would not be appropriate. Rather, this article will provide the typical indications for HT use as well as the background related to HT use with regard to heart disease. For the purposes of this article, HT refers to both estrogen therapy as well as combined estrogen-progestogen therapy (as would be prescribed for women with an intact uterus in order to avoid increased risk of endometrial cancer from unopposed estrogen therapy). HT is not recommended for women with a history of hormone-sensitive cancers, liver disease, blood-clotting disorders, or confirmed cardiovascular disease.²

The primary indication for use of HT is for treatment of menopause-related vasomotor symptoms (i.e., hot flashes, night sweats). HT is very effective for women experiencing troublesome vasomotor symptoms. Treatment of vaginal symptoms (e.g., vaginal dryness) is another indication for HT prescriptions with regulatory agency approval in place for many systemic products as well as local vaginal estrogen therapy products.

Bone health may also benefit from extended HT use, although regulatory agency approval is not in place for all products (for a list of government-approved post-menopausal osteoporosis drugs see <http://www.menopause.org/edumaterials/otcharts.pdf>). HT is currently not recommended as a primary method for protection of heart health for women of any age. This is an area of research focus and at the center of media attention.

Reductions in coronary heart disease for HT users compared with non-users have been noted in observational studies (i.e. those studies that simply “observe” or track women who are already using HT over a given period of time). This benefit was not noted with recent randomized controlled trials (RCT). RCT are typically considered to be a more rigorous type of research since women are randomly assigned to either HT or a placebo (non-active pill), thus removing potential bias of self-selection.

The issue of “safety” regarding HT use came to the attention of the media and thus the American consumer when a number of the RCT associated with the Women’s Health Initiative (WHI) were prematurely stopped due to risks exceeding benefits based on specific criteria. Why did the RCT result in such different results compared with the observational studies? Selection of the subjects as well as timing of HT likely played a role. Subjects in the RCT were older and had started on HT at a later point following menopause (10+ years compared to less than two to six years).³ For women in the WHI who initiated HT closer to menopause, the risk of coronary heart disease was reduced compared to those who initiated HT later. Some researchers now suggest that early initiation of HT (within six years of menopause or by age 60) continued for six years or more following menopause is associated with heart disease risk reduction.⁴ There are a number of clinical trials currently underway that should help clarify the influence of the timing of HT initiation and age of the woman.

Until more details become available, the individual woman should consult with her physician to determine if HT is the best decision when considering personal health history. In general, HT use is recommended at the lowest dose for the shortest duration to reach treatment goals. Hormone therapy is still considered a viable short-term option for management of moderate to severe vasomotor symptoms for recently menopausal women in good health.⁵ However, at this time, HT is not considered appropriate for the single purpose of preventing cardiovascular disease.⁵

Although not the focus of this article, exercise is one intervention without side effects that is beneficial for bone, cardiovascular health, and, for some women, menopausal symptoms. ACSM is committed to encouraging and providing guidance for women with regard to exercise (please see ACSM’s *Action Plan for Menopause* published by Human Kinetics, 2005, at www.humankinetics.com).

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THE ATHLETE’S KITCHEN:

Calcium Concerns: Boning Up On Nutrition

by Nancy Clark, M.S., R.D., FACSM



“I’m 44. Should I start taking calcium pills?”

“A bone density test indicated I have the bones of a 70 year old — and I’m only 34. I guess I should have had more milk and less soda as a kid?”

“Will drinking more milk help my stress fracture heal faster?” ➤

Questions and confusion abound about the role of calcium in athletes' diets. If you are like most active people, you may think that "milk is for kids" and quench your thirst at lunch and dinner with (diet) soda or water. As a result, you can easily end up consuming a calcium-deficient diet (that is, unless you consume yogurt and cheese instead of milk).

Weight-conscious women, in particular, are known to have calcium-deficient diets out of (an unjustified) fear that milk's calories will add to undesired weight gain. Many men also have calcium-poor diets. If they are not milk drinkers, men's main sources of calcium are from the cheese on cheeseburgers and pizza. Not very health-enhancing...

Given the average American lives for 77.7 years, maintaining bone health throughout the lifespan should be a priority for all athletes, starting as youngsters and continuing as master's athletes. A calcium-rich diet, weight-bearing exercise (such as running, as opposed to biking and swimming) and strength-training to have strong muscles tugging on bones are all important factors for optimizing the bone density of both growing children and active adults.

Bones are alive and require a life-long calcium intake. If your family has a history of osteoporosis, your risk for "shrinking" (losing height) as you get older is high and you should pay special attention to maintaining your bone density. Female athletes with a history of amenorrhea also have a high risk for weak bones and should get their bone density tested so they know where they stand and if they need to take extra steps to try to enhance bone density. Continue reading to learn more information about calcium and bone health to help you enjoy lifelong health – no bones about it.

Q: Can I take a calcium supplement instead of drink milk?

A: While any calcium is better than none, taking a calcium pill does not compensate for a calcium-poor diet. A supplement offers calcium, but it does not offer the high-quality protein found in milk or soy milk, nor the numerous other health-enhancing nutrients. Little babies thrive on milk, not calcium pills. Do you really think a pill can replace a whole food?

Q: I like to save calories by taking a calcium pill instead of drinking milk. Is that ok?

A: Not really. Although a calcium pill offers a low-calorie alternative to consuming the recommended three (eight-ounce) servings of

milk or yogurt each day, research indicates milk drinkers tend to be leaner than milk avoiders. I encourage my clients to embrace milk as a "liquid food" that is satiating and curbs one's appetite. That is, milk can be more filling than the same number of calories from soda or juice.

Most of my active female clients reduce weight on 1,800 calories; men on 2,100+ calories. That breaks down to 500 to 600 calories per meal (breakfast, lunch, dinner) and 300 calories for a snack. Enjoying low-fat (or soy) milk on cereal, a mid-morning latte and a yogurt for a snack seems like a powerful way to spend 300 of those calories and approach the recommended intake of 1,000 milligrams of calcium per for adults 19-50 years old; 1,200 mg for adults older than 50 years; and 1,300 mg for kids 9-18 years old. If you are a parent, be a role model and drink milk at dinner to encourage a calcium-rich intake for your kids. Building strong bones during the ages of 10 to 18 is a wise investment for the future.

Q: I'm lactose intolerant. Can I get enough calcium from non-dairy foods like soy milk, spinach, broccoli and almonds?

A: You certainly can get calcium from non-dairy sources. Soy milk is calcium-fortified and offers around 300 mg of calcium in eight ounces — similar to cows' milk. Other convenient non-dairy calcium sources include fortified orange juice (350 mg per eight ounces) and fortified breakfast cereal, such as Total Cereal (1,000 mg per 3/4 cup).

If you do not consume dairy products or fortified soy products, you will have to work hard to consume adequate calcium. For example, to get the recommended intake from plant sources, you'd need to eat 10 cups of spinach salad, 3.5 cups of broccoli, and four ounces of almonds (about 88 almonds at 675 calories) per day. That's a lot of eating...

What you do NOT get from those plant sources of calcium is Vitamin D. Vitamin D enhances the absorption of calcium and is needed to not only protect bone health but also to reduce the risk of high blood pressure, diabetes, and heart disease, and to enhance immune function and reduce inflammation. Vitamin D is added to milk and some brands of yogurt, but is hard to find naturally in foods other than oily fish. Hence, non-milk drinkers have a high risk for both calcium and vitamin D deficiencies.

Q: I live in Boston and spend lots of time outdoors in the sun. Should I take additional Vitamin D even though I drink milk?

A: Yes, especially between Thanksgiving and Easter. Vitamin D deficiency is surprisingly common in people who live in northern latitudes (north of Atlanta, Ga.), where the sun's ultraviolet rays do not effectively convert the body's inactive form of D (just under the skin) into an active form. And even Southerners need to be mindful. A study of southern distance runners indicates 40 percent of them were D-deficient. Indoor athletes (dancers, swimmers, hockey players, figure skaters, basketball players, gym rats, etc.) should ask their doctors about getting their blood tested to determine their level of vitamin D, and if it is low, take steps to correct the problem.

Q: Does the fat in milk contribute to heart disease?

A: Controversial. A study that tracked the health and dairy intake of 4,374 children for 56 years (between 1948 and 2006) reports there was no increased risk of heart disease or stroke among the 34 percent who died during that time — even though as kids the subjects in the study drank whole milk. In fact, the children who consumed the most milk and cheese lived longer.

This study conflicts with the prevalent message to reduce the risk of heart disease by limiting the intake of milk's saturated fat. Until more research clarifies this confusion, I recommend you enjoy low-fat dairy/calcium-rich foods to help reduce excessive fat and calorie intake while maintaining a strong calcium intake.

Q: Will drinking extra milk help a broken bone heal faster?

A: Doubtful. Bones need time to heal — about six to eight weeks. But perhaps you can reduce the risk of breaking a bone by building it stronger in the first place.

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