

MENOPAUSE

One Woman's Story, Every Woman's Story

A Resource for Making Healthy Choices



National Institute on Aging

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I am a woman approaching middle age. My name might be Carol or Isabella or Arlene or Lily. I might be Hispanic/Latino, African-

American, Asian, Native American, Caucasian, or belong to any other racial or ethnic group. I might be thin, average weight, or overweight. I am any woman, but, perhaps, I am you. **Middle age. It's**

hard to believe. That used to sound so old, but I know I'm not old. I am noticing some changes in my body though. Sometimes at night I



wake, kicking off the covers and sweating, even in the middle of winter. My menstrual cycle, which was always regular, is now irritatingly



unpredictable. I've put on weight, especially around my waist. I never seem to get enough sleep. Could this be menopause?



What is menopause?

Menopause. That's something that happens to your mother. Except my mother never talked to me about it. She says her mother never talked about it either. Now my friends and I are starting to discuss menopause often when we're together...on the sidelines of our kids' soccer games, at parties, during coffee breaks at work. And there are ads for menopause treatments everywhere—my women's magazines, the Internet, television. They even talk about it on the evening news! I'm not sure what to expect, but I feel better knowing I'm not going through this alone.

Menopause, also known as “the change” or “change of life,” occurs at a time in the reproductive life of women when the production of *estrogen* (ES-tro-jen) and *progesterone* (pro-JES-te-rone), two *hormones*, changes dramatically. After menopause, women are no longer able to have children and may become more prone to certain diseases. Women have gone through menopause at around the age of 50 for hundreds, if not thousands of years. According to some experts, even the ancient Greeks described it as occurring around age 50.

Why do we seem to hear so much about menopause now?

Numbers, for one thing. The baby boomers—people born

between 1946 and 1964—are getting older. Almost 2 million women turn 50 each year now. In the year 2000, most of the nearly 42 million American women over the age of 50 were past menopause. That's almost one out of every three American women. And many of the female baby boomers want to understand what is happening to their bodies.

Progress in research to answer their questions keeps menopause in the news. Some of these investigations are conducted or supported by the National Institute on Aging (NIA), part of the National Institutes of Health (NIH). Some studies are examining how estrogen affects different parts of the body; others are evaluating the possible protective effects of this hormone on the heart and brain. Researchers are also exploring the possible risks associated with replacing some of the estrogen the body no longer produces after menopause. Sometimes these investigations stimulate even more questions, but scientists hope that this

decade will be a time when we gain a better understanding of estrogen and its benefits and risks.

But what is menopause, really?

When I hear “menopause,” I think “hot flashes.” Is that what it is? Is it a disease that I need to treat?

Menopause is a part of every woman's reproductive life cycle. It is not an illness that necessitates treatment. To understand menopause, you first need to understand the whole reproductive process and how your body changes from stage to stage. Some of the important times in your reproductive life are:

Puberty is the time in a young girl's life when increased estrogen production begins to cause physical changes in her body, such as the development of breasts. During this time her menstrual cycle begins, and her first “period” occurs, generally around the age of 12-1/2 years. This is known as menarche (me-nar-key).

Premenopause includes the years between puberty and menopause. For many women their production of hormones is regular, so their periods are usually predictable.

Perimenopause, also formerly known as the climacteric, begins before menopause. Again your body begins to experience changes—both physical and hormonal. The symptoms we associate with menopause such as hot flashes and irregular menstrual cycles may start to appear. The average perimenopause lasts for 4 years. It continues, by definition, through the 12 months following your last period.

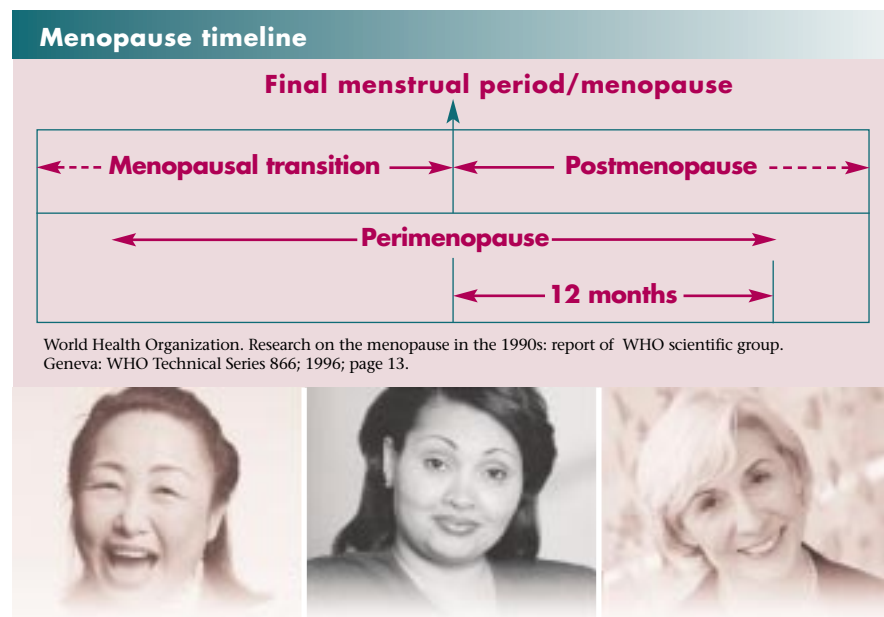
Menopause is a point in time—the time of your last menstrual cycle. However, your doctor cannot know for sure that it was your last period until you have been period-free for 1 year without being pregnant, breastfeeding, or using certain medicines, all of which can also cause menstrual cycles to cease.

► **Natural menopause** usually occurs some time between the age of 45 and 55.

► **Surgical menopause** may occur at any age if you and your physician decide that removal

(“the pill”) or have had children, you might go through menopause just a little later than other women.

Postmenopause is the stage of life after menopause. It begins with your last period and contin-



of your uterus (hysterectomy) and/or both ovaries (bilateral oophorectomy) is medically necessary.

► **Premature menopause** is said to occur before the age of 40.

What factors affect when you have your last period? If you smoke, you could go through menopause about 1-1/2 years earlier than your friends who don't smoke. Some studies indicate that thinner women, and African-American and Hispanic women also tend to go through menopause at an earlier age. Other evidence suggests that if you used oral contraceptives (“the

ues for the rest of your life. One hundred years ago some women associated menopause with the end of life. The average life expectancy for a woman born in 1900 was 50.7 years. Indeed, throughout history many women did not live long enough to go through menopause. It's easy to see why they connected menopause with death. However, advances in medicine and disease prevention have greatly increased life expectancy. A girl born in 1990 can expect to live nearly 79 years. This means that she will probably live a third of her life after menopause.

- Reproductive life stages:**
- ▼ Puberty
 - ▼ Premenopause
 - ▼ Perimenopause
 - ▼ Menopause
 - ▼ Postmenopause

What symptoms should I look for?

A few months ago I started waking up in the middle of the night sweating. I thought it was because our region was experiencing a heat wave. But, now it's almost the end of November and cold outside. Not only do I still wake up hot sometimes during the night, but I also find myself flushed and sweating at times during the day. I would turn the heat down, except the rest of my family think the house is already cold. And I can never predict when my period is coming. Is that perimenopause?

If you are in your forties, all those symptoms could well be an indication that you are approaching menopause, although some women do not report any signs during perimenopause. Some of the things to look for are:

Irregular menstrual cycles or changes in bleeding are often the first sign of perimenopause. Most women experience irregular periods—sometimes longer cycles, other times shorter ones. The actual period may last longer or end more quickly. The flow could be lighter or heavier. There are many ways your cycle can change during perimenopause. If you are concerned about the irregularities, check with your doctor.

Hot flashes or flushes are one of the most common signs of perimenopause. As many as 75 percent of Caucasian women get them, but in some ethnic groups, they are much less common. A hot flash begins with a feeling of heat in your face and upper body. The skin may appear flushed or red as blood vessels expand. Sometimes heavy sweating and cold shivering follow. Some hot flashes may cause only a slight feeling of warmth or a light blush. Others may drench your clothes. Night sweats are hot flashes that occur during your sleep. Often, they are severe enough to wake you, which can leave you feeling tired during the day. Hot flashes can occur several times an hour, a few times a day, or once or twice a week.

You might wish to try to identify if there is a trigger for your hot flashes—stress, caffeine, spicy foods, hot drinks, and alcohol are a few that seem to bother some women. Avoiding a trigger might help reduce the number of hot flashes that trouble you. Estrogen supplements (page 16) are quite effective in controlling this symptom—70 to 90 percent of women using postmenopausal hormone therapy gain relief this way. However, if you prefer not to take estrogen, early studies of two antidepressants, fluoxetine and paroxetine, suggest that in the future they may prove to be promising possible treatments.

Other steps to relieve hot flashes include:

- ▶ sleeping in a cool room,
- ▶ dressing in layers which can be removed at the start of a hot flash,
- ▶ having a drink of cold water or juice when you feel a hot flash coming on,
- ▶ using sheets and clothing that let your skin “breathe,” and
- ▶ avoiding spicy foods, alcohol, and caffeine.

Once you are past menopause, the frequency of hot flashes should diminish. They usually disappear altogether in a few years.

Changes in the vaginal and urinary tracts result from the loss of the fatty tissue and collagen under your skin and lessened

Signs of the approach of menopause:



- ▼ Irregular menstrual periods,
- ▼ Changes in bleeding patterns during the menstrual cycle,
- ▼ Hot flashes, and
- ▼ Sleep problems and tiredness.

blood flow as we age and as estrogen levels change. The tissues in the vagina become dry and thinner and secrete less mucus. This, in turn, makes them more delicate and susceptible to tearing and infection. Sexual intercourse may become painful, but some experts believe that if you continue to have sexual relations, you might have fewer problems with dryness or tightening of the vagina. A water-based lubricant, but not petroleum jelly, may relieve your vaginal discomfort. Urinary problems such as frequent infections and urine leakage sometimes develop at this time also. While these changes are not unusual, you should still see your doctor who may help you control any problems that result.

Libido, interest in having sex, as well as the ability to become sexually aroused, change for some women. Some lose interest in sex or find it uncomfortable. Other women, however, become more interested in sex after menopause. Pregnancy is no longer a concern and they feel freer and more relaxed in general.

Problems sleeping and the resulting fatigue may bother you. You might wake in the middle of the night because of night sweats or the need to go to the bathroom. Then you may have trouble getting back to sleep. Or,



you could have a problem falling asleep when you go to bed or waking early in the morning. The tiredness that results makes working or performing mental activities during the day difficult.

Physical changes are common at this time of life. These could be related to perimenopause or could simply be a result of getting older. You might experience a thickening around your waist. You could lose muscle mass and gain more fatty tissue. Your skin might become thinner and lose its elasticity. Some women also experience joint and muscle pain and stiffness.

Memory problems, as well as psychological and emotional symptoms, such as depression, mood swings, and irritability, are some complaints of women in

perimenopause. Some of these, especially memory problems, may be associated with growing older. Fatigue and mid-life stresses may contribute to these symptoms. Both middle-age women and men commonly report short-term memory problems. Whether changing estrogen levels cause any of these is not known, but the brain is one of several body organs sensitive to the effects of this hormone.

Changes in your hormones and body are not the only things that women may have to adjust to at this age. There are several potential mid-life issues that could create stress and make menopausal problems more difficult to handle. If you have a family, there are probably changes at home—the “empty



nest," children leaving home for college, work, or marriage. If you waited to start a family, young children are still in need of attention when you are possibly tired from having trouble sleeping. Perhaps there are marital problems; you might even be going through a divorce. If you work, you may be taking a different look at your career, beginning to contemplate retirement, or feeling challenged by younger coworkers. A major stress might be caring for aging parents. As our parents grow older, we are all faced with many related issues—their illnesses, their need for assistance and caregiving, and eventually their loss.

As part of the Study of Women's Health Across the Nation (SWAN) supported by NIH, including the NIA, scientists around the country are studying how women from various ethnic groups in 7 American cities respond during menopause. Early results suggest that there are indeed differences between these groups in the types and severity of their menopausal symptoms. For example, African-American women report more symptoms such as hot flashes and fewer problems like stiffness, headache, or insomnia than other groups. Hispanic women reported urinary leakage more often than

others. Asian-American women had fewer symptoms in general. Women who were less active reported more symptoms. Caucasian women, especially those with more education, were more likely to use postmenopausal hormones to treat their symptoms. These investigators also found that of the ethnic groups studied, African-American women had the most positive attitude about menopause, and foreign-born Asian-American women were the most negative in their feelings about this time of life.

If you have experienced surgical menopause, you may face more severe menopausal symptoms than someone going through natural menopause. Your symptoms may begin soon after surgery. Your hot flashes may be more severe, more frequent, and longer lasting. You may be more likely to develop heart disease and *osteoporosis*. If the surgeon is able to leave your uterus and at least one ovary, menopause should occur naturally. If only your uterus is removed, your menstrual periods will stop. In some of these women who had surgery, symptoms of menopause may then occur immediately; in others they may develop later or not at all.

Why do menopause symptoms develop?

I understand that menopause is a natural stage of life. I'd like to know how it happens. In the 1970s I burned my bra and demonstrated for women's rights. I'm not going to just sit back and suffer hot flashes like my mother did—if I understand menopause, maybe I can do something about it.

Estrogen is produced by the ovaries, and as you age, significant internal changes take place that affect your production of this hormone. Your two ovaries are small oval-shaped organs located on either side of the top of your uterus. At birth they contained about 700,000 sac-like follicles which each enclose an egg. Only about 400 to 500 of these follicles ever mature fully and release an egg during your menstrual cycles. The rest degenerate and disappear over the years.

The maturing follicles are involved in the production of estrogen and in the ripening of an egg.

During your reproductive years, the hypothalamus, a part of your brain, releases gonadotropin-releasing hormone (GnRH). This causes your pituitary gland, located at the base of the brain, to secrete luteinizing hormone (LH) and follicle-stimulating hormone (FSH). LH and FSH in turn stimulate the maturation of the follicles in your ovaries and the release of a new egg from its follicle each month. The follicle also increases production of the sex hormones estrogen and progesterone, which thicken the lining of your uterus. This enriched lining is prepared to receive and nourish a fertilized egg following conception. If fertilization does not occur, estrogen and progesterone levels drop, the lining of your uterus breaks down, and your period starts.

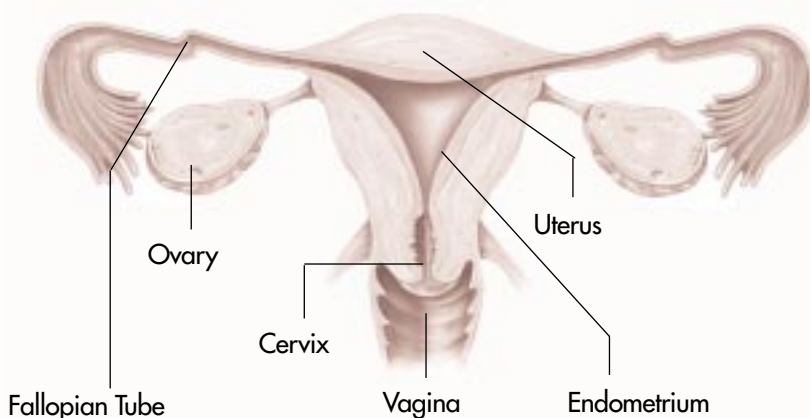
As perimenopause progresses, your ovaries begin to shrink and follicles disappear at an accelerating rate. Hormone levels fluctuate as your ovaries attempt to maintain their former level of hormone production. Your ovaries become resistant to FSH, and the pituitary releases more and more of it trying to keep up estrogen production. This can cause irregular menstrual cycles

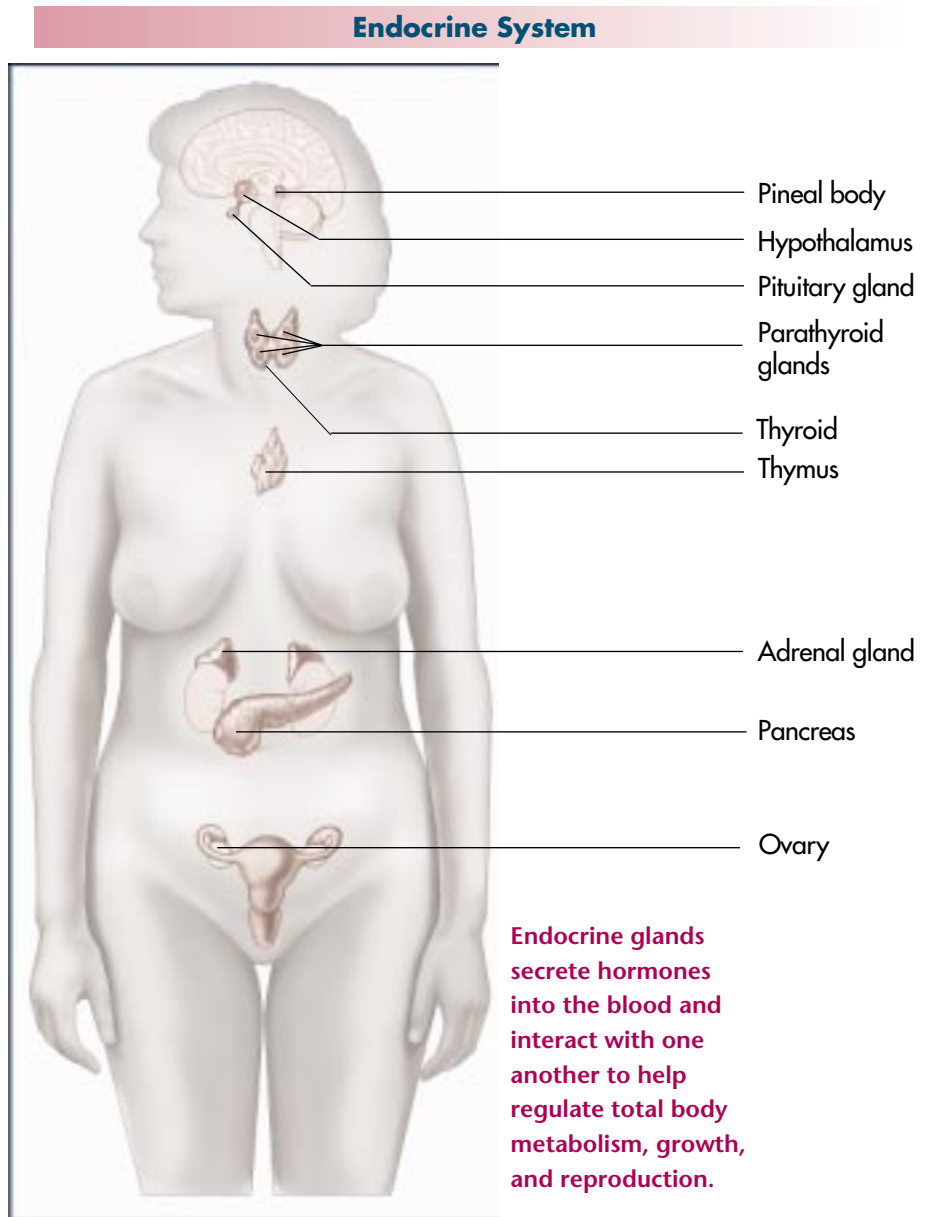
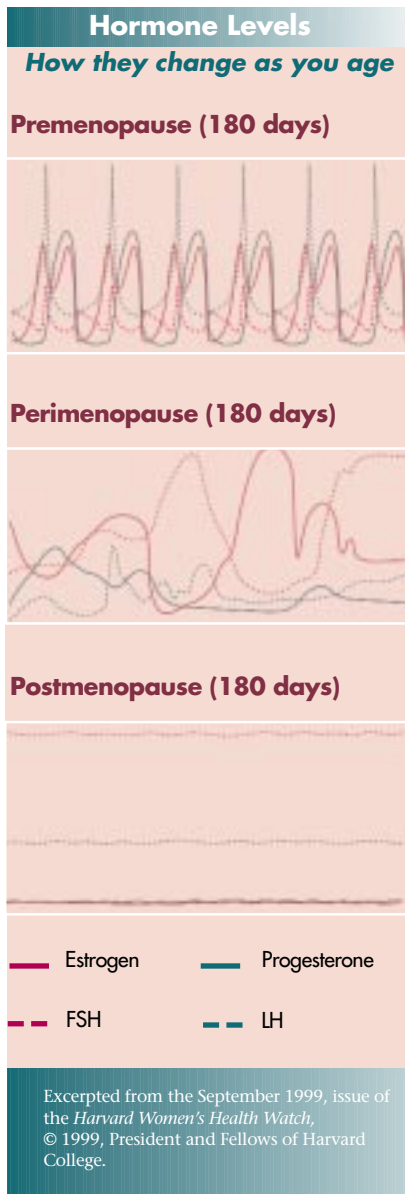
Remember:



- ▼ Levels of estrogen and progesterone can change erratically from month to month as you age and get closer to menopause.
- ▼ Pregnancy is still possible until periods stop for 1 year.
- ▼ Ovaries stop releasing eggs around the time of menopause.

Reproductive System





and unpredictable episodes of heavy bleeding during your period. Your doctor may do a blood test for FSH. When you have been period-free for 1 year and have an elevated FSH level (usually over 30-40 IU, international units), you have reached menopause. FSH levels tend to fluctuate during perimenopause, so these test results alone are not used to diagnose menopause.

Even after menopause, estrogen production by your ovaries does

not always stop completely. Although levels of estradiol, one form of estrogen, drop, a weaker estrogen, estrone, continues to be produced especially in fat tissue with help from the adrenal glands. Although this form of estrogen is weaker than the estradiol produced by your ovaries, it increases with age and with the amount of fat tissue.

Progesterone is another sex hormone also produced by your ovaries. Its job is to help prepare

your uterus for the arrival of a fertilized egg and to shed this lining if an egg is not fertilized. If the ovary does not produce enough progesterone to do this, the lining may continue to grow until a drop in the amount of estrogen brings on a menstrual cycle. Heavy bleeding may then accompany that period as the uterus sheds its unusually full lining.

What about sex, pregnancy, and AIDS?

My husband calls me “red hot mama.” But he’s talking about my hot flashes, not my interest in sex! That seems to have almost disappeared. When we do have sex, do I have to worry about getting pregnant? What should I do?

Sex

Many people think menopause brings a reduced interest in sex. Both men and women may find themselves taking longer to become sexually aroused as they age. However, medications such as antidepressants, tranquilizers, and high blood pressure drugs can alter your sexual desire. Health problems such as heart disease, diabetes, or arthritis, concern about your appearance, and stress in your daily life can also inhibit your sexual response.

In the year 2000, scientists at the New England Research Institute and the University of Massachusetts Medical School found that some women do experience changes in libido with menopause and that these women also believe that a lessening interest in sex accompanies growing older. Interestingly, the researchers determined that such changes are not related to estrogen loss, but instead to other factors such as attitudes, general

health, and marital status.

Estrogen loss was related only to pain during intercourse.

If you are one of the women who loses interest in sex around this time, talk to your doctor. He or she will consider all possible causes. Women’s bodies also produce some of the male hormone testosterone, and some scientists think that changes in testosterone levels can lead to a drop in libido. There is a little evidence suggesting that some women may benefit from a small amount of testosterone supplement, but the effectiveness of this treatment needs further study. Side effects of testosterone in women include skin problems, extra hair on the face and body, and voice changes.

Talk to your sexual partner also. Let him or her know that you both may need to spend extra time touching and kissing before you become fully aroused. If your intimacies have become routine, try new ways or places—be creative.

Pregnancy

If you do not wish to become pregnant at this age, continue using contraception until your doctor determines that you are indeed past menopause. Since estrogen and other reproductive hormones are still produced by the body during perimenopause, an egg may still be released, and

pregnancy is possible. Irregular menstrual cycles make it more difficult to predict the time of ovulation, when sexual intercourse is more likely to result in pregnancy. If you are currently using “the pill” as contraception, your periods will continue to be regular even after you have passed menopause. An oral contraceptive, even one with a low dose of estrogen, may also help control symptoms such as hot flashes.

Points to remember:



- ▼ Most women do not lose their ability to enjoy sex.
- ▼ Loss of interest in sex is not usually related to lack of estrogen.
- ▼ Use contraception if you do not want to become pregnant.
- ▼ Practice safe sex if you are not in a long-term relationship with one person. Take precautions to protect yourself from HIV/AIDS.



HIV/AIDS

The possibility of pregnancy will disappear once you are a year past your last period. The chance of becoming infected by HIV (human immunodeficiency virus) and developing AIDS (acquired immunodeficiency syndrome) is something you must consider as long as you are sexually active. In fact, about 10 percent, possibly as many as 15 percent of all people diagnosed with AIDS in the United States are age 50 and older—more than 75,000 Americans. And this group is growing at an increasing rate. Women who are recently widowed or divorced but were married for many years have probably never worried about AIDS. Now they may be starting to date again, and many have no idea that HIV is a risk or how it is spread. You can get HIV by having unprotected sex with an infected person, so always use a male latex condom. The virus, found in body fluids such as blood, semen, and vaginal secretions, can enter your body through any opening in the skin. This means postmenopausal women are especially at risk because the tissues of the vulva (the external female genital area around the opening of the vagina) or the lining of the vagina become more fragile and easily torn as estrogen levels fall.

Postmenopausal women having sexual contact with other women must remember that the membranes lining any body opening, including the mouth and vagina, are susceptible to HIV infection. At this time, the Food and Drug Administration has approved two barrier methods for oral sex. The Centers for Disease Control and Prevention has information on preventing HIV transmission in lesbian couples, as well as heterosexual ones.

What could happen **after menopause?**

My last period was 2 years ago, and the hot flashes and night sweats have almost disappeared. Menopause wasn't so bad. I guess there's nothing else to worry about. I'm home free!

Not necessarily. Many tissues in the body are sensitive to the effects of estrogen—breast, bone, heart and arteries, central nervous system, urinary and genital tracts, and parts of the gastrointestinal system. Changing levels of estrogen could cause problems in some of these. For example, as you age and go through menopause, bone loss increases significantly, and osteoporosis can develop. At this age cardiovascular (heart and blood vessel) disease begins to pose a significant threat to the continued health and well being of many women. Researchers are

working to understand osteoporosis and the connection between menopause, aging, and heart disease. Perhaps then they will be able to provide safe and effective protection against these illnesses in later life.

Osteoporosis

Many older women, and some older men also, face the threat of osteoporosis. At present 10 million Americans have this bone-weakening disorder, and another 18 million are at risk of developing this disease because of bone loss. Four out of every five of these older adults at risk are women. One out of every two American women over the age of 50 will experience an osteoporosis-related fracture during her life. For too many of those, the fracture, especially if it is a hip fracture, will end their ability to live independently.

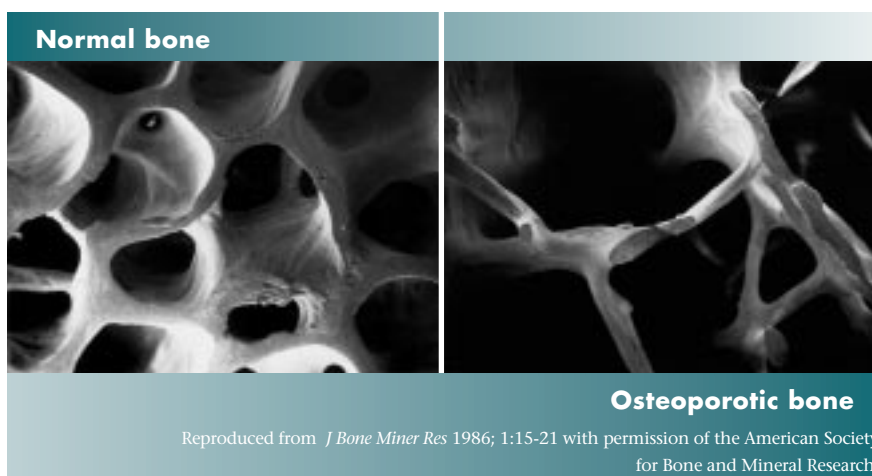
These fractures are costly—both in dollars, but also in personal suffering. Treatment for osteoporotic fractures costs this country an estimated \$13.8 billion per year. Vertebral fractures lead to curvature of the spine, loss of height, and pain. Hip fractures, which require major surgery and hospitalization, are the most expensive. Recovery from hip fractures may necessitate many hours of physical therapy. Worse, between 12 and 20 percent of those who suffer a hip fracture

do not survive for 6 months after the break. At least half of those who do survive require help in performing daily living activities, and 15 to 25 percent will need long-term care. Still, with time and appropriate therapy, many hip-fracture sufferers can return to living independently.

Bone is living tissue that is continuously undergoing two processes—the breakdown of old bone and the formation of new bone in its place. When more bone is broken down than is replaced with new tissue, osteoporosis can eventually result. The bone becomes fragile. Its structure is less dense. Gradually, and without discomfort, bone loss leads to a weakened skeleton incapable of supporting your normal daily activities. Often, the first sign of osteoporosis is a bone that breaks under less stress than would usually be needed to break it, especially a bone in your spine, wrist, or hip.

For osteoporosis, the first step in prevention is achieving maximum “peak” bone density when you are young. This should be done before the age of 30 because after that women (and men) may begin to lose bone strength slowly. Initially, this loss is slow. In women it picks up speed around the time of menopause, slowing again a few years later, but bone loss continues into old age. Building bone density is achieved by eating calcium-rich foods as well as those containing vitamin D, possibly taking calcium and vitamin D supplements (or getting at least 20 minutes of sunlight every day), and doing regular weight-bearing exercise (walking, running, stair climbing, or using weights to exercise).

Preserving bone strength after menopause is the next step toward preventing osteoporosis. The same steps that helped build bone early in life will help slow





**National Academy of Sciences:
Daily calcium and vitamin D recommendations**

Age	Vitamin D	Calcium
51–70	400 IU* (international units)	1,200** mg
70 +	600 IU*	1,200** mg

**not to exceed 2,000 IU, **not to exceed 2,500 mg*

(The NIH recommends 1,000 mg daily if you are a woman over 50 using HRT or 1,500 mg daily if you are a woman over age 50 and not using HRT, or anyone over age 65, with a maximum daily dose of 2,000 mg)

its loss after menopause, but estrogen plays a role in building bone. Falling estrogen levels contribute to the increased bone loss that occurs at menopause.

Replacing estrogen after menopause through hormone replacement therapy is considered the most effective way to control bone loss. However, estrogen effects are not limited to bone. Sometimes it can affect other tissues in the body in a positive or negative way. Researchers are taking a closer look at estrogen to determine the benefits and risks of hormone replacement therapy. They are also exploring ways to improve its use. For example, scientists at the University of California at San Francisco demonstrated that some women whose bodies produce modest amounts of estrogen after menopause have more protection from hip or spine frac-

ture after the age of 65 than women who have undetectable levels of estrogen in their blood. This suggests that older, post-menopausal women may benefit from low-dose estrogen supplements although further research is necessary.

There are several approaches, in addition to estrogen supplementation, to preserving bone after menopause. Drugs available to prevent further bone loss include bisphosphonates like alendronate and risedronate, calcitonin, and the SERM (selective estrogen receptor modulator) raloxifene (page 28). Still others, including fluoride, parathyroid hormone, and newer SERMs, are under investigation.

Cardiovascular Disease

The cardiovascular diseases (CVD), which include heart disease and stroke, are the number

one cause of death in American men. Most of us know that. What many of us don't always realize is that this is true for women, too. Between the ages of 45 and 64 years 1 in 10 American women have some form of heart disease. By age 65 one in four women have heart disease. In fact, more women that age die of heart disease and stroke each year than men do—more than 423,000 deaths in women in 1998. Heart disease kills more than twice as many women as the next biggest cause of death—all forms of cancer combined—and more than 11 times the deaths due to breast cancer.

Disorders of the heart and blood vessel system include atherosclerosis (a narrowing and hardening of the arteries), high blood pressure, angina (chest pain that results from insufficient blood getting to the heart), heart attack, and stroke. Estrogen appears to protect women against heart disease during their reproductive years. After menopause, if you

After menopause be aware of:

- ▼ An increased risk of osteoporosis.
- ▼ Changing cholesterol levels—"bad" cholesterol levels go up.
- ▼ A much greater chance of heart disease and stroke.

have your *cholesterol* checked, you may notice some changes there—and not for the better. Cholesterol and LDL (low-density lipoproteins) levels may go up, and your HDL (high-density lipoproteins—the so-called “good” cholesterol) level may go down slightly. LDLs are the part of cholesterol that enables fats to attach to the walls of arteries, narrowing and, eventually, blocking them. HDLs (think of H as in healthy) help keep the arteries

that there are things you can do to reduce your chance of developing CVD. Early recognition of your risk factors and lifestyle changes can make a difference. For example, in the year 2000, a report from the NIH-funded Nurses’ Health Study supported the idea that diet, exercise, and not smoking help prevent heart disease. Scientists at Brigham and Women’s Hospital in Massachusetts, Harvard Medical School, and Harvard School of

These women:

- ▶ did not smoke,
- ▶ exercised moderately (such as brisk walking) at least 30 minutes a day, and
- ▶ followed a diet that included a lot of fiber, the vitamin folate, and unsaturated fatty acids, but was low in trans fat, foods that increase blood sugar, and saturated fat.

Common causes of death in older women in 1998*		
	45-64 years	65 years and older
Heart Disease and Stroke	36,882	423,564
All Cancers, except Breast Cancer	48,315	159,897
Breast Cancer	13,720	24,495
Chronic Obstructive Pulmonary Diseases	6,253	48,520
Diabetes Mellitus	5,952	28,112
Pneumonia and Influenza	2,434	47,199
Accidents and adverse effects	5,315	16,799
Total deaths (all causes)	148,342	960,608

*Source: National Center for Health Statistics, www.cdc.gov/nchs/datawh/statab/unpubd/mortabs/gmwk250a.htm

clear, so that blood can flow freely. If left untreated, elevated LDL and total cholesterol levels can increase the risk of stroke, heart attack, and death.

Some risk factors for cardiovascular disease such as a family history of heart disease cannot be changed. But, the good news is

Public Health began following more than 84,000 nurses who did not have heart disease, cancer, or diabetes in 1980. After 14 years of observation, the researchers found that certain women were less likely to develop heart disease.



How can I manage the symptoms of menopause?

I've tried unsuccessfully to find a trigger for my hot flashes, and dressing in layers only helps a little. Plus, I'm worried about osteoporosis because my mom has it. I've heard about estrogen supplements. What exactly are they?

There are three types of estrogen produced by the body—estrone (ES-trone), estradiol (es-tra-DYE-ole), and estriol (es-TREE-ol). Estradiol is the strongest and most important before menopause. More than 60 years ago, physicians realized that restoring estrogen to a woman passing through menopause could relieve some of the annoying symptoms of that time and possibly protect her against osteoporosis. In 1942 the Food and Drug Administration (FDA) approved the use of Premarin, conjugated (or mixed) equine estrogens (CEE) that come from the urine of pregnant mares, for treating the symptoms of menopause. Since then, several forms of synthetic estrogens have also become available to treat menopausal symptoms and to prevent osteoporosis. These come in a variety of forms—tablet, patch, cream, and vaginal insert. Treatment with estrogen alone (“*unopposed estrogen*”) is called *estrogen replacement therapy*.

Brand names of some, but not all, postmenopausal hormones

Estrogens

Pills	Cenestin, Estinyl, Estrace, Estratab, Menest, Ogen, Ortho-Est, Premarin
Cream	Estrace, Ogen, Ortho Dienestrol, Premarin
Vaginal Ring	Estring
Patch	Alora, Climara, Esclim, Estraderm, Estradiol, FemPatch, Vivelle
Injection	Delestrogen, dep Gynogen, Depo-Estradiol, Depogen, Estra-L, Gynogen LA, Kestrone 5, Premarin, Valergen

Progestins

Pills/Capsules	Amen, Aygestin, Curretab, Cycrin, Prometrium, Provera
Vaginal Gel	Crinone
Injection	Hylutin

Combinations

Pills	Activella, Estratest, Femhrt, Ortho-Prefest, Premphase, Prempro
Patch	Combipatch
Injection	Depo-Testadiol, Depotestogen, Duo-Cyp, Valertest

October 2000.
Sources: *Physician's Desk Reference 2000, Drug Facts and Comparisons*, www.home.mdconsult.com,
www.druginfo.cc.nih.gov, www.nlm.nih.gov/medlineplus

(ERT), or sometimes postmenopausal estrogen therapy.

Originally, doctors only prescribed estrogen alone. Since estrogen stimulates the growth of the endometrium (the lining of the uterus) in preparation for implanting a fertilized egg, it turned out that giving unopposed estrogen could lead to excessive growth of the cells in the endometrial lining and potentially endometrial cancer. Today the preferred treatment in women who still have their uterus is called *hormone replacement therapy* (HRT), or sometimes *postmenopausal hormone therapy*. In this therapy estrogen is combined with another female sex hormone, progesterone, to prevent uncontrolled growth of the endometrium. *Progestin*, a synthetic progesterone, is usually prescribed. Commonly taken as a pill, progestin is also available as an *IUD* (intrauterine device), vaginal gel, patch, or shot. The progestins most often used are medroxyprogesterone acetate, norethindrone, and micronized progesterone. A woman whose uterus has been removed does not need progesterone and can use estrogen alone.

There are two methods for taking postmenopausal hormones—cyclic (or sequential) and continuous combined. Often in the cyclic or sequential method a

Common generic forms of estrogen and progesterone

Estrogens	
Conjugated estrogens	Pill, cream, injection
Estradiol	Pill, patch, injection, cream, vaginal ring insert
Esterified estrogens	Pill
Estopipate (estrone)	Pill, cream
Progesterones	
Medroxyprogesterone acetate	Pill, injection
Norethindrone acetate	Pill, patch (in combination with estradiol)
Micronized progesterone	Pill, vaginal gel, suppositories
Combination	
Conjugated estrogens and medroxyprogesterone	Pill
Estradiol and norethindrone acetate	Patch

pill containing 0.625 mg of conjugated estrogens is taken daily, with 5 or 10 mg of progestin added for 10-14 days each month. This regimen may cause bleeding similar to menstrual periods in most women. Another approach is the continuous combined regimen in which 2.5 or 5 mg of progestin is taken every day with the estrogen. With this approach there is irregular spotting and bleeding that appears to diminish within a year in most women. If the light period or spotting is too annoying, your physician might consider altering the progestin dose.

The patch is another way to administer postmenopausal hormones. A patch is an adhesive material containing hormones that is placed on the lower abdomen or buttocks and changed once or twice a week.

Sometimes the patch contains estrogen and a progestin pill is used to supplement it, if needed. A combination patch containing both hormones is now available. The patch method can be better for some women because hormones are absorbed slowly and directly into the bloodstream from the patch. When a pill is taken, the medication goes first from the stomach and intestines into the liver where it is *metabolized* or broken down. This pass through the liver leads to higher levels of triglycerides and blood clotting factors and an increased incidence of gallbladder disease in menopausal women, as well as the positive effects estrogen has on cholesterol, LDL, and HDL levels. Some women have a bit of irritation at the site where the patch is placed.

If your symptoms are limited to vaginal dryness, urinary leakage, or vaginal or urinary infections, you could use a vaginal estrogen ring or cream instead of the oral or patch form. The vaginal ring is a flexible ring placed in the upper part of the vagina. It contains such a low dose of estrogen that it may not protect against osteoporosis. It needs to be changed every 3 months.

Besides monthly bleeding, there are a few other possible side effects from taking estrogen and progesterone. Breast tenderness or enlargement, nausea, abdominal bloating, and headache are some of the more common complaints associated with using estrogen supplements. The addition of progesterone could lead to irritability and mood changes—almost like PMS, premenstrual syndrome, which troubles some young premenopausal women.

Postmenopausal hormones:

- ▼ May use estrogen alone (ERT) or with progesterone (HRT),
- ▼ Reduce hot flashes and vaginal dryness,
- ▼ Prevent bone loss,
- ▼ Use estrogen as pill, patch, cream or gel, or estrogen vaginal ring,
- ▼ Use progesterone as pill, vaginal gel, patch, IUD, or shot, and
- ▼ Have potential side effects.

What are the benefits and risks of using hormones after menopause?

Now I understand better how estrogen works and how it can help me, but I've heard it may not protect me from heart disease and that it might even cause breast cancer. Are there risks involved in using unopposed estrogen or estrogen and progestin? What are they?

Estrogen and estrogen with progestin appear to be effective and relatively safe, particularly if used for less than 5 years to control your menopausal symptoms. However, there are still many unanswered questions about menopause and the benefits and risks of long-term hormone replacement therapy. For example:

- ▶ Who will benefit from estrogen supplements, and who will be at increased risk of disease?
- ▶ Does estrogen prevent heart disease? Does it prevent heart attacks? What about estrogen in women who already have heart disease?
- ▶ Does estrogen or progesterone cause cancer?
- ▶ Is estrogen the best way to prevent osteoporosis?
- ▶ Will estrogen protect a woman's memory? Does it prevent *Alzheimer's disease*?

- ▶ What is the best method of providing estrogen and progesterone?

Several long-term studies are underway. They should answer many of these questions and help you and your doctor evaluate your needs as you go through menopause and in the years following. But here's what we know now:

Does estrogen prevent heart disease?

Since heart disease in women only becomes a major health problem after the age of menopause, doctors have long suspected that estrogen protects women from heart disease. Beginning in 1987 the National Institutes of Health sponsored PEPI, the Postmenopausal Estrogen/Progestin Interventions Trial, to try to find out the effect of estrogen on risk factors for heart disease. The investigators gave 875 postmenopausal women either estrogen alone, estrogen with synthetic progestin cyclically, estrogen with natural progesterone cyclically, estrogen with synthetic progestin continuously, or a *placebo*. They then looked at what effect, if any, these forms of hormone replacement would have on risk factors for heart disease. They found that there was a beneficial effect on HDL and LDL levels, but an unfavorable effect on triglycerides for all the forms of oral



The pros and cons for hormone replacement therapy

This is what scientists know to date.

PRO	CON
<p>HRT and ERT reduce the risk of osteoporosis.</p> <p>HRT and ERT relieve hot flashes and night sweats.</p> <p>HRT and ERT relieve vaginal dryness.</p> <p>HRT and ERT improve cholesterol levels.</p> <p>HRT and ERT may reduce the risk of heart disease.</p> <p>HRT and ERT may improve mood and psychological well-being.</p> <p>HRT and ERT may prevent the decline of mental abilities with age.</p>	<p>ERT, without the use of a progestin, modestly increases the low risk of cancer of the uterus (endometrial cancer).</p> <p>HRT and ERT can have unpleasant side effects, such as bloating or breast tenderness.</p> <p>HRT and ERT may increase risk of breast cancer while they are being used; long-term use may pose the greatest risk. When hormones are discontinued, risk gradually returns to almost normal.</p> <p>HRT may increase cardiovascular events such as heart attack and stroke at first, but this increased risk appears to grow smaller over time.</p> <p>HRT and ERT increases the risk for blood clots.</p> <p>HRT and ERT in pill form may raise triglyceride levels and might contribute to gallbladder disease.</p>

hormone replacement studied. The hormone therapy did not increase blood pressure or cause weight gain. The therapy also seemed to decrease levels of a substance known as fibrinogen which has a role in blood clotting. Increased fibrinogen levels can contribute to heart disease and stroke. The study also reinforced the importance of using progesterone in women with a

by postmenopausal hormones or what was the breast cancer risk associated with long-term use of hormone therapy. It also didn't look at the effects of other methods of giving hormones, such as the patch or cream, on the risk factors for heart disease. However, the changes documented as a consequence of taking HRT have been shown in a variety of studies to correlate

scientists found that participants using hormones had a greater chance of having a heart attack during the first year of their treatment despite the positive effects of this therapy on their blood lipid levels. Their risk of heart disease declined each year after that. One suggested explanation for this is that at first the effects of the hormones may lead to the loosening of fatty *plaques* in the walls of the blood vessels. These plaques might then develop into clots that could block the flow of blood from the heart. Other experts suggest that the form of continuous progestin used in this study, medroxyprogesterone acetate (MPA), reduced the heart protective effects of estrogen.

Other studies now under way like the Women's Health Initiative (WHI) (page 23) will help determine if postmenopausal hormones have a significant role in preventing heart disease. Early results from WHI have found a small increase in heart attack, stroke, and blood clots in the participants using hormones, not placebo pills, during the first 2 years of the study. Since then, this increased risk seems to be getting smaller, and the research is continuing in order to find out whether there will be beneficial effects by the end of the study. Because the WHI study will last for up to 12 years, it should provide useful

uterus to reduce the risk of endometrial cancer. Lastly, it showed that HRT slowed menopausal bone loss and even increased bone mass.

What PEPI didn't do was to study a large enough group of women or follow the group long enough to determine whether heart attacks and heart disease-related deaths would actually be reduced

with a lower death rate from heart disease.

What about estrogen in women who already have heart disease?

Heart and Estrogen/ Progestin Replacement Study (HERS) followed 2,763 women with heart disease for 4 years beginning in 1993. Half received estrogen and progestin, and half did not. The





information about the long-term effects of hormone replacement therapy.

Do estrogen or progesterone supplements contribute to breast cancer?

In 1997 the Collaborative Group on Hormonal Factors in Breast Cancer reviewed information collected on more than 53,000 postmenopausal women during 51 studies in 21 countries, representing about 90 percent of the data on this subject. They determined that using hormone replacement therapy, mostly unopposed estrogen, led to a small increased risk of localized breast cancer—an increase of 2.3 percent for each year hormones were used. This increased risk, which was greater in lean women than heavy women, returned almost to normal within 5 years of stopping therapy. The researchers were unable to resolve whether the risk associated with estrogen and progestin differed from the risk from using estrogen alone. The Collaborative Group observed that in North America and Europe they would usually expect 45 cases of breast cancer per 1,000 women, ages 50 to 70, who had never used HRT. They suggest that the increased risk from hormone therapy would lead to an extra two cases per 1,000 women using HRT for 5 years, six cases per 1,000 using it for 10 years, and

12 cases per 1,000 for those using it for 15 years.

Several recent studies have examined whether the addition of progestin to hormone therapy changes the risk of developing breast cancer. In the year 2000 scientists at the NIH's National Cancer Institute (NCI) reported on a review of medical histories of more than 46,000 postmenopausal women between 1980 and 1995; 2,082 of whom had breast cancer. The NCI report showed that both estrogen and estrogen/progestin therapy led to a small increase in the risk of breast cancer, but the increase was greater with estrogen and progestin than with estrogen alone. Their analysis suggested that estrogen/progestin therapy over a 4-year period increased a woman's risk of developing breast cancer by about 30 percent—a result similar to that reported by the Collaborative Group for hormone

use for 5 years or longer. Lean women also appeared to be at greater risk than heavier women. That same year a study at the University of Southern California reported similar results in a group of 3,534 women, 1,897 of whom had breast cancer. The long-term nationwide WHI study may provide further information about the possible role of postmenopausal estrogen and estrogen/progestin therapy in breast cancer.

Will estrogen supplements help your memory and perhaps even prevent Alzheimer's disease?

The brain is sensitive to the effects of estrogen, and because men and women may experience memory problems as they age, some scientists have thought that giving estrogen supplements to women might protect their memory and might even be used to treat, delay, or prevent Alzheimer's disease (AD). Studies so far have been promising in some areas in animals but inconclusive in humans.

For example, recently researchers at Duke University, Utah State University at Logan, and The Johns Hopkins University looked at the effect of estrogen use on mental abilities in a group of 2,338 women over the age of 65 in Utah. They found that women currently using estrogen



performed better on cognitive (mental abilities) tests than did women who used estrogen in the past or had never used it.

In addition, in 1997 scientists at NIA's Gerontology Research Center and The Johns Hopkins Bayview Medical Center, both in Baltimore, Maryland, reported on 472 women they had followed for 16 years. The women who had a history of estrogen therapy after menopause had a 50 percent reduction in their risk of developing Alzheimer's disease.

Both of these studies were observational, only looking at the effects of estrogen on mental abilities or Alzheimer's disease without controlling for other factors that could influence the findings. A rigorously controlled clinical trial can more effectively look at the cause and effect of a potential therapy by randomly assigning the drug being tested or a placebo to a controlled group of people. For example, a clinical trial reported in the year 2000 by scientists taking part in the multi-center Alzheimer's Disease Cooperative Study found that estrogen did not slow the progression of AD in patients who already had the disease. Further study is needed to determine whether estrogen can be used to prevent or delay the development of AD, even if it might not be used to treat this debilitating disease.

Are there any other risks from using postmenopausal hormones?

There are two other notable risks—blood clots and gallbladder disease—that accompany the use of estrogen during or after menopause. A third risk—endometrial cancer—is a problem only in women with a uterus who receive no or insufficient progestin along with the estrogen.

Estrogen and some of the designer estrogens or SERMs (page 28) carry an increased risk of blood clots in your blood vessels. A blood clot can be life-threatening if it comes loose and travels to your lungs or brain. If you have a history of venous thromboembolism (blood clots in the veins), are very overweight, or are often unable to move about for health reasons, you need to seriously consider this risk associated with using estrogen. The average menopausal woman has a risk for blood clots of one in 10,000 women per year, but the use of estrogen increases this to almost three in 10,000 women. This is slightly less than your risk of accidental death, for example, dying from a motor vehicle accident, an allergic reaction to a drug, or a medical or surgical procedure. Some women, such as those with heart disease, are at much higher risk for blood clots if they take hormones—as many

as one in every 250 women per year may get blood clots as a result of the therapy.

Using oral estrogen increases your chance of developing gallbladder disease because the estrogen first passes through your liver (page 17). Gallstones might be produced as a result, and you might then need surgery to remove your gallbladder. Thus, if you have a history of gallbladder disease, liver disease, or high triglyceride levels, but want to try estrogen, you might consider using estrogen in a skin patch, thus bypassing breakdown in the liver.

How will experts ever know what an individual woman should do?

Answering such questions about the effect of estrogen on the heart, memory, bone, and breast cancer requires a long-term, multi-faceted study using thousands of participants. These questions may be at least better understood later this decade when the Women's Health Initiative study is completed after 2005. This NIH-sponsored study of more than 161,000 women is gathering information on ways to prevent and reduce heart disease, breast and colorectal (colon and rectum) cancer, and osteoporosis in postmenopausal women, as well as identifying the benefits and risks of using hormones. More than 27,000 of

these women are taking part in the hormone portion of this study. Approximately half of these take oral estrogen or estrogen and progestin (if they have a uterus); the other half takes a placebo. Participants are being followed for 8 to 12 years. This is important because postmenopausal hormones would need to be taken for many years in order to be effective in preventing heart disease and osteoporosis.

Estrogen or estrogen with progestin:



- ▼ **May prevent heart disease,**
- ▼ **May increase risk of breast cancer while using the hormones,**
- ▼ **May protect memory and mental abilities and possibly delay development of Alzheimer's disease,**
- ▼ **Can increase chance of blood clots in some women, and**
- ▼ **Can cause gallbladder disease.**

What can I do now?

This is getting confusing. Like many women I'm afraid of developing breast cancer, but now you tell me that I am much more likely to die of heart disease. Last year, my doctor told me hormones would help prevent heart disease, but now you're not so sure. And I certainly don't want to end up in a bed in a nursing home after a hip fracture like my mom's mother. How do I decide what to do?

Talk to your doctor about your medical history and that of your family, especially any relatives with osteoporosis, heart disease, stroke, and cancer. Also, discuss the potential benefits and risks of postmenopausal hormones and whether there are other treatments that could be used instead. Discuss your health concerns. If you are bothered a lot by symptoms such as hot flashes, you might wish to use estrogen in the short term, maybe for 5 years or less. Most studies indicate that any increased risk of breast cancer that might be associated with the use of estrogen does not become significant until you have used it for at least 5 years. Even then, after you stop, the risk appears to return almost to normal.

If hot flashes or other symptoms are not particularly bothersome now, you could wait and begin hormone therapy when you are

in your sixties. Some studies have indicated that this will still provide significant protection against osteoporosis and bone fractures, while avoiding the risks possibly associated with being on such therapy for many years.

Always remember that you can discontinue the hormone supplements at any time. Also, you should review your case with your doctor at least once a year. Then you and your physician can make any changes necessary as more information is reported from hormone studies.

When making this decision, you should talk with your doctor about other ways you could prevent or treat the more disabling conditions that often accompany aging. For example:

Heart Disease—First of all, if you smoke, stop; if you don't, do not start. Healthier cholesterol levels can be achieved by watching fats in your diet and regular aerobic exercise such as walking, running, swimming, or bike riding. If you are overweight, this combination of diet and exercise may also help you lose weight, which would relieve some of the strain on your heart. A variety of medicines are also available to control high blood pressure and to lower total cholesterol, triglycerides, and LDLs and to raise HDLs.

Osteoporosis—A diet rich in calcium and vitamin D and weight-bearing exercise will help keep your bones healthy. After menopause, if you are at high risk of developing osteoporosis, it may be necessary to supplement this with one of the drugs currently available to build bone or prevent loss of the bone you have (page 14).

Breast Cancer—Routine visits to your doctor for regular breast examinations, and mammograms every 1 or 2 years after you are in your forties, according to the National Cancer Institute, are

If not postmenopausal hormones, then what?

- ▼ **Talk to your doctor about which option is best for YOU.**
- ▼ **Exercising.**
- ▼ **Watching your diet.**
- ▼ **Not smoking.**
- ▼ **Trying medications available for cholesterol problems and osteoporosis.**
- ▼ **Remember that taking hormones for up to 5 years probably does not increase most women's risk of breast cancer.**
- ▼ **Remember that stopping the use of postmenopausal hormones, however, will put you at risk for osteoporosis again.**



the best way we have to detect breast cancer as early as possible. Your risk of breast cancer increases as you age, so breast cancer screening continues to be important. Hormones can increase breast density, which can make reading your mammogram more difficult. One study has suggested that discontinuing the hormones 2 weeks before your mammogram will eliminate some of that increased density, but more research is needed to prove this.

Urinary Problems—If you suffer from urinary leakage or urinary *incontinence*, such as an inability to get to the toilet in time or losing control when you sneeze, laugh, or step off a curb,

be sure to consult your doctor. There are a variety of causes for loss of bladder control, including lower levels of estrogen, infections, diabetes, and medication side effects. Your doctor might prescribe specific drugs designed for this problem. You could try *Kegel exercises*, which are designed to strengthen certain pelvic muscles, giving more support to the bladder. In addition, your doctor might suggest that you use estrogen cream applied locally or insert a vaginal ring containing estrogen. Some experts believe caffeine can irritate the bladder and should be avoided if you have urinary control problems.

Would plant estrogens help my symptoms?

What about using “natural substances” to treat hot flashes? Dietary supplements are being sold everywhere to treat a variety of health problems. The nutrition store in the mall, a section in my grocery store, and lots of websites on the Internet sell them. They are even advertised on TV. Makes sense. Isn’t something made from a plant safer than the chemicals in a pill?

Not necessarily. Right now there is a lot of discussion about *phytoestrogens*, estrogen-like substances from some plants, such as soy products. Phytoestrogens

are also found in other plant materials such as legumes, vegetables, cereals, and some herbs. These “plant estrogens” work like a weak form of estrogen. The fact that Asian women eat a lot of foods containing soy and seem to report fewer hot flashes increased the interest of researchers in this subject. Eating soy can improve cholesterol levels. It has also been suggested to increase bone density and even to protect against breast cancer, but solid evidence is lacking.

Remember:

- ▼ **Phytoestrogens come from plant-based foods.**
- ▼ **Soy may help cholesterol levels and perhaps protect against bone loss.**
- ▼ **Dietary supplements are not regulated by the Food and Drug Administration.**
- ▼ **There are no assurances with regard to the exact dosage, efficacy, or purity of a given batch of a supplement.**
- ▼ **Some supplements can have serious side effects.**
- ▼ **Talk to your doctor before starting any dietary supplement.**
- ▼ **If you are already using dietary supplements, tell your doctor.**

Today some women use soy and herbal products such as black cohosh, wild yams, dong quai, and valerian root which claim to relieve menopausal symptoms like hot flashes. There is little, if any, proof for these claims. However, since these products are considered *dietary supplements*, they are covered by less stringent regulations than those involving prescription medicines and can be sold without the supervision or approval of the FDA. The manufacturers are supposed to make sure these substances are safe. The FDA can only step in if there are many serious reports of adverse effects, but there is no way of insuring the quality of these products.

Soy contains plant estrogens currently under study. Researchers hope to determine whether such products can have the same therapeutic effects as estrogen. But, also, they want to know whether using plant estrogens brings risks, especially risks similar to those of estrogen, such as endometrial cancer. The NIH has established an Office of Dietary Supplements and the National Center for Complementary and Alternative Medicine to support research on this subject and others. NIA is also conducting research on phytoestrogens and black cohosh.

Until there is a better understanding of these substances, you should proceed cautiously.

Always tell your doctor about any dietary supplement you take. There may be dangerous side effects. If you do decide to increase the amount of foods with phytoestrogens you eat, let your doctor know. If this does cause an increase in the level of estrogens in your body, this could interfere with other prescription medications you are using or could even cause an overdose.

Are there other things I should do to stay healthy?

When I think about getting older, I think of my dad's parents, and I don't know what to expect. My grandfather seemed so weak and frail and forgetful. My grandmother, however, was busy and active her whole life. Once I talk to my doctor and decide how to handle my menopause symptoms, what else do I need to do to stay healthy?

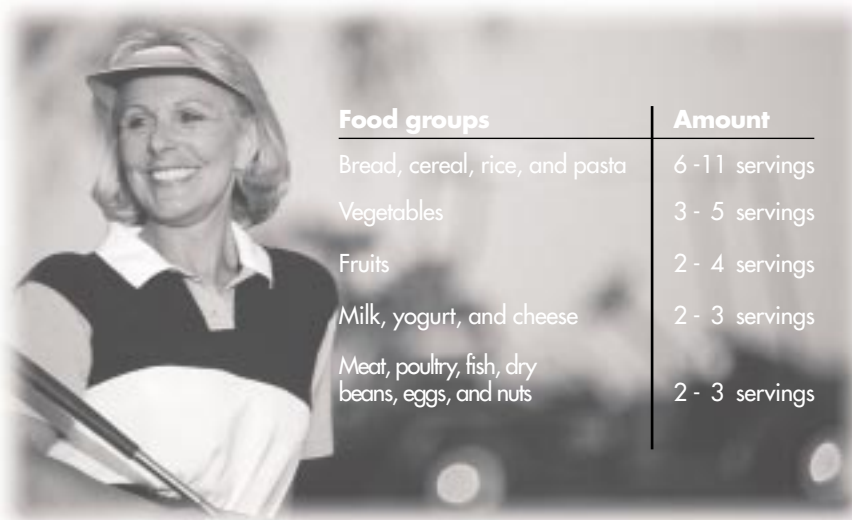
Certainly there are things that I can do to ensure good health as I get older.

Just remember that menopause and aging in general do not necessarily lead to illnesses that demand treatment; they are normal steps in any woman's life. You will not necessarily get sick and have to take a lot of medicine as you age. Also, aging does not have to mean disability and years in a nursing home. In fact, in 1997 investigators at

Duke University reported that even though the number of older people in this country is growing, the rate of disability in the elderly is falling at an ever-increasing pace. They found that in 1994 approximately 1.2 million fewer older people were disabled than would have been predicted based on the rates in 1982.

There are things everyone can do to maintain their health and mental abilities as they age:

- ▶ Stop smoking.
- ▶ Exercise—both weight-bearing and muscle-strengthening. Studies have shown that even people in their nineties can improve their walking and reduce their risk of falling by exercising. Exercise benefits the heart and bones and helps maintain a healthy weight. The NIA publishes *Exercise: A Guide from the National Institute on Aging*. It's a great way to get started exercising, and it's free. In addition, a kit containing the book and a 48-minute exercise video, are available for \$7 (page 31).
- ▶ Eat wisely. A balanced diet will provide most of the nutrients and calories your body needs to stay healthy. Two nutrients that can be safely taken as supplements are calcium and vitamin D (page 14). Eat a variety of foods from the five major food groups. Choose foods that are



low in fat and watch how much sugars, salt, sodium, and alcohol you consume. You don't have to eat all the required servings every day. For example, if you don't feel like having that last serving of fruit today, don't; but try to eat an extra serving tomorrow or the next day. Look for foods that have lots of nutrients, like protein and vitamins, but not a lot of calories—these are called nutrient-rich foods. As you age, you need fewer calories for energy, but just as many nutrients.

- ▶ Don't forget to drink plenty of water.
- ▶ If you drink alcohol, do so in moderation—only about one drink a day for a woman, according to the Department of Agriculture's Dietary Guidelines for Americans.
- ▶ Through exercise and diet, try to maintain a healthy weight. Studies have shown that being overweight, especially around

the abdomen, can increase your chance of developing diabetes, heart disease, high blood pressure, and osteoarthritis of the knee as you grow older. Having a waist measurement greater than 35", even if your weight is normal, also puts you at greater risk for these health problems.

- ▶ Continue to visit your doctor regularly. He or she can do routine screening tests, pelvic and breast exams, and a Pap test for cervical cancer. After age 50, don't forget your mammogram every 1 to 2 years.
- ▶ Also after age 50, you need to be checked for colon cancer. Talk to your doctor about which test is best for you.
- ▶ Around menopause, you should ask your doctor about a baseline bone density test, such as a DEXA-scan (dual-energy x-ray absorptiometry) to see if you are at risk for osteoporosis.
- ▶ You may want to get a flu shot every fall, especially if you have

other health problems, and the Centers for Disease Control and Prevention recommends that people over age 65 get a single dose of the pneumococcal vaccine. You should also have a tetanus shot every 10 years.

- ▶ Continue to practice safe sex.
- ▶ See your dentist once or twice a year.
- ▶ After age 40, reading may become more difficult—you may need to hold things farther away in order to see them clearly. Perhaps you need reading glasses. Your eye doctor may also want to check for glaucoma, which becomes more common after your forties. It can damage your vision before you realize you have it.
- ▶ Take your medicines as instructed, and be sure every doctor that you see knows all the drugs you are currently taking. This includes over-the-counter ones such as vitamins, dietary supplements, painkillers, and antihistamines. Some drug stores even keep a computer file of all your prescriptions so that they can check for dangerous drug interactions if a new medicine is added.
- ▶ Stay active—both physically and mentally. If you don't work outside of the home, consider getting a part-time job or volunteer with a nonprofit organization. Find a hobby. Learn to

play a musical instrument. Take a single class at the local community college or work towards a degree. Join a book group. Learn to garden. Do something you always wanted to try, but never had the time before. This is the time to explore your world, expand your horizons, and learn more about yourself—and to really enjoy yourself.

What does the future hold?

My doctor says I'm just beginning perimenopause now. Will there be more information to help me decide what to do when I actually reach menopause in a few years?

Physicians may never be able to make a single recommendation about using hormone supplements for all women approaching menopause. There are too many factors to consider that can vary from woman to woman. Personal and family medical history and health risks, lifestyle, and menopause symptoms are just a few. However, in the coming years physicians should have more reliable information about menopause with which to counsel their patients as a result of research underway now.

The Women's Health Initiative (page 23) will provide an understanding of how best to handle some health problems often

found in postmenopausal women. SWAN (page 8) is not only revealing the ways women from different ethnic, racial, and economic backgrounds respond to menopause, but is also looking at their lives in a very broad way to try to determine what factors in women's lives affect the perimenopause. By studying changes in body composition, bone density, cardiovascular and endocrine function, and sexuality, SWAN is also contributing to our basic understanding of menopause and its treatment. For example, SWAN investigators are:

- ▶ Considering whether a genetic test or tests could predict a woman's rate of postmenopausal bone loss,
- ▶ Examining the influence of diet and physical activity on health and well-being,
- ▶ Looking at alternative therapies used to deal with premenstrual and menopausal symptoms, and
- ▶ Evaluating the possible relationship between menopause and mood disorders and depression.

Another research subject that is already benefiting women are the so-called designer estrogens or SERMs (selective estrogen receptor modulators). Cells in body tissues sensitive to estrogen such as the breast, bone, and heart, have *estrogen receptors* that allow them to link with molecules of estrogen. This then allows this hormone to turn on

certain activities in that cell. For example, in bone, estrogen seems to be involved in the breakdown and rebuilding that takes place continually, keeping bone healthy and strong. Some experts wonder if it might be possible to modify estrogen in order to change how it links with the receptors in specific tissues. This might reduce the risks associated with using estrogen, but allow the benefits to continue. These SERMs could be a valuable approach to postmenopausal health problems.

Some SERMs are available now. Tamoxifen was first approved more than 20 years ago as a treatment for breast cancer. More recently, it has been proven to decrease the risk of getting breast cancer in women at high risk for the disease. Scientists soon learned that although this SERM could be used to combat breast cancer, it also increased the risk of endometrial cancer and serious blood clots, just like estrogen. Unlike estrogen, hot flashes are actually a side effect of this drug. In 1998 a second SERM, raloxifene, was approved to protect bone density like estrogen does. Unlike estrogen or tamoxifen, it does not seem to cause endometrial cancer, but like tamoxifen, it can cause blood clots and hot flashes. It is currently being compared to tamoxifen in a clinical trial for

breast cancer prevention in women at high risk for breast cancer. Other SERMs are under development now.

Research is under way at several institutions to find new ways to get information to women as they make health care choices. For example, a scientist at the University of Washington in Seattle hopes to develop a computerized guide for the World Wide Web that women could use to help them as they approach menopause. By providing the scientific basis for the benefits and risks of lifestyle changes, medications, and hormone replacement therapy, women will be able to choose the best way to handle their menopausal symptoms, as well as health problems after menopause, such as reducing their risk of bone fractures. The site might even provide features such as a chat room and access to an expert for answers to individual questions. Testing is underway to determine which age groups could benefit the most from such a website.

Studies such as these should provide and disseminate the knowledge needed to make it easier to understand the transition through menopause in the future—if not for us, then perhaps for our daughters. Until then, remember that you have much more health information available to you



than your mother might have had during her menopause—use it and be sure to:

- ▶ Take care of yourself.
- ▶ Enjoy the extra time you get as you are gradually freed from the time constraints of child rearing and/or a job.
- ▶ Remember a third of your life is ahead of you—make the most of it!



What does that word mean?

Glossary—the words in this glossary are italicized the first time they appear in the text.

Alzheimer's disease—most common form of dementia in older people; interferes with the way the brain works and affects the parts of the brain that control thought, memory, and language.

cholesterol—a type of lipid or fat in the blood which is produced by the body as a source of fuel for body cells.

collagen—a durable, flexible substance found in bone, cartilage, tendons, and connective tissue.

dietary supplements—something eaten in addition to one's normal diet, usually a plant-based substance, vitamin, mineral, or hormone that is available without a prescription.

estrogen—one of the sex hormones produced principally by the ovaries.

estrogen receptors—parts of cells which estrogen can attach to and then “turn on” those cells to perform certain duties; found in cells in the brain, breast, heart and arteries, bone, central nervous system, urinary and genital tract, and gastrointestinal tract.

estrogen replacement therapy—using estrogen to supplement postmenopausal levels of this hormone in a woman who usually no longer has a uterus.

hormones—chemical substances produced by one body part which promote activity by cells in another body part.

hormone replacement therapy—using estrogen and progesterin to supplement postmenopausal levels of these hormones.

incontinence—the inability to hold urine until you get to the toilet, due to various causes. Several forms including:

urge incontinence—trouble holding urine when feeling the need to go to the bathroom.

stress incontinence—being unable to hold urine when you sneeze, cough, laugh, run, or step down.

IUD—intrauterine device—a device made of metal or plastic which contains hormones and is placed in your uterus.

Kegel exercises—exercises to strengthen pelvic floor muscles by squeezing and holding these muscles for 3 counts, and then relaxing them for 3. Repeat these for 5 minutes 3 times a day. To find your pelvic floor muscles try to stop the flow of urine while on the toilet or pretend you are trying to stop passing gas. Those are the muscles you want to exercise.

metabolize—to breakdown a substance so that it can be used by body cells.

osteoporosis—a bone disorder, especially common in older women, in which bones become weakened and easily broken.

phytoestrogens—estrogen-like substances found in plants.

placebo—used in research, looks like the real medicine but with no health effects, a “sugar pill.” It is used to control for psychological effects on the results of a research study.

plaques—accumulations of a layer of cholesterol and other substances including cellular debris along the walls of arteries which contribute to hardening of the arteries and increase the risk of heart disease and stroke.

postmenopausal hormone therapy—another name for estrogen replacement therapy or hormone replacement therapy.

progesterone—one of the sex hormones produced mostly by your ovaries.

progesterin—a synthetic form of progesterone.

unopposed estrogen—estrogen prescribed alone without any other hormone.



Where can I get more information?

More information on aging is available from the National Institute on Aging (NIA), part of the National Institutes of Health (NIH).

National Institute on Aging

NIA Information Center
P.O. Box 8057
Gaithersburg, MD 20898-8057
800-222-2225
800-222-4225 (TTY)
www.nih.gov/nia

Alzheimer's Disease Education and Referral (ADEAR) Center
P.O. Box 8250
Silver Spring, MD 20907-8250
800-438-4380
www.alzheimers.org/adear

Other parts of NIH that can also provide information on related topics include:

National Cancer Institute

Office of Cancer Communications
Bldg. 31, Rm. 10A03
31 Center Dr., MSC 2580
Bethesda, MD 20892-2580
301-435-3848

Cancer Information Service
800-4-CANCER (800-422-6237)
www.nci.nih.gov

National Heart, Lung, and Blood Institute

NHLBI Information Center
P.O. Box 30105
Bethesda, MD 20824
301-592-8573
www.nhlbi.nih.gov

National Institute of Allergy and Infectious Diseases

Bldg. 31, Rm. 7A50
31 Center Dr., MSC 2520
Bethesda, MD 20892-2520
301-496-5717
www.niaid.nih.gov

National Institute of Child Health and Human Development

NICHD Clearinghouse
Bldg. 31, Rm. 2A32
31 Center Dr., MSC 2425
Bethesda, MD 20892-2425
800-370-2943
www.nichd.nih.gov

National Institute of Diabetes and Digestive and Kidney Diseases

Office of Communications and Public Liaison
31 Center Dr., MSC 2560
Bethesda, MD 20892-2560
301-496-3583
www.niddk.nih.gov

National Institute of Mental Health

6001 Executive Blvd., Rm. 8184
MSC9663
Bethesda, MD 20892-9663
301-443-4513
www.nimh.nih.gov

NIH Osteoporosis and Related Bone Diseases~

National Resource Center
1232 22nd St., NW
Washington, DC 20037
800-624-BONE (800-624-2663)
202-466-4315 (TTY)
www.osteo.org

Office of Research on Women's Health

9000 Rockville Pike
Bldg. 1, Rm. 201
Bethesda, MD 20892
301-402-1770
www4.od.nih.gov/orwh/

Women's Health Initiative

1 Rockledge Centre, Suite 300
MSC 7966
6705 Rockledge Dr.
Bethesda, MD 20892-7966
301-402-2900
www.nhlbi.nih.gov/whi/

This website offers access to several clinical trials databases in case you are interested in taking part in research related to menopause.

National Library of Medicine MEDLINEplus

www.nlm.nih.gov/medlineplus/menopause.html

These are some of the many public and private organizations that can provide information about menopause.

AARP (American Association of Retired Persons)

601 E St., NW
Washington, DC 20049
202-434-2277
800-424-3410
www.aarp.org

Administration on Aging

330 Independence Ave., SW
Washington, DC 20201
202-619-7501
Eldercare Locator: 800-677-1116
www.aoa.dhhs.gov

Alliance for Aging Research

2021 K St., NW, Suite 305
Washington, DC 20006
202-293-2856
www.agingresearch.org

American Cancer Society

1599 Clifton Rd., NE
Atlanta, GA 30329
800-ACS-2345 (800-227-2345)
www.cancer.org

American College of Obstetricians and Gynecologists (ACOG)

409 12th St., SW
P.O. Box 96920
Washington, DC 20090
202-638-5577
www.acog.org

American Dietetic Association

216 W. Jackson Blvd.
Chicago, IL 60606-6995
800-366-1655 (recorded messages)
312-899-0040
www.eatright.org

American Heart Association

National Center
7272 Greenville Ave.
Dallas, TX 75231
800-AHA-USA1 (800-242-8721)
888-4-STROKE (800-478-7653)
888-MY-HEART (800-694-3278)
(for women's health information)
www.americanheart.org
women.americanheart.org

**American Menopause
Foundation, Inc.**

350 Fifth Ave., Suite 2822
New York, NY 10118
212-714-2398
www.americanmenopause.org

**Centers for Disease Control and
Prevention (CDC)**

1600 Clifton Rd., NE
Atlanta, GA 30333
800-311-3435
404-639-3534
www.cdc.gov

National AIDS Hotline (CDC)

800-342-AIDS (800-342-2437)
800-344-SIDA (800-344-7432
for Spanish)
800-AIDS TTY
(800-243-7889 TTY)
www.ashastd.org

Children of Aging Parents

1609 Woodbourne Rd., Suite 302A
Levittown, PA 19057
215-945-6900
800-227-7294
www.careguide.net

**Department of Agriculture (USDA)
Food and Nutrition Information
Center (FNIC)**

10301 Baltimore Ave., Rm. 304
Beltsville, MD 20705-2351
301-504-5719
301-504-6856 (TTY)
www.nal.usda.gov/fnic

**Food and Drug Administration
(FDA) Office of Women's Health**

HF-8, Rm. 16-65
5600 Fishers La.
Rockville, MD 20857
888-INFO-FDA (888-463-6332)
www.fda.gov/womens/default.htm

National Alliance for Caregiving

4720 Montgomery La., Suite 642
Bethesda, MD 20814
www.caregiving.org

**National Center on Women
and Aging**

Heller Graduate School, MS 035
Brandeis University
Waltham, MA 02454-9110
800-929-1995
781-736-3866
www.heller.brandeis.edu/national/ind.html

National Osteoporosis Foundation

1232 22nd St., NW
Washington, DC 20037
202-223-2226
www.nof.org

**National Women's Health
Information Center**

Office on Women's Health
Room 730B
200 Independence Ave., SW
Washington, DC 20201
202-690-7650
800-994-WOMAN (800-994-9662)
888-220-5446 (TDD)
www.4woman.gov

**North American Menopause
Society**

P.O. Box 94527
Cleveland, OH 44101
440-442-7550
www.menopause.org

Older Women's League

666 11th St., NW, Suite 700
Washington, DC 20001
202-783-6686
800-825-3695
www.owl-national.org

**Planned Parenthood Federation of
America, Inc.**

800-230-PLAN (800-230-7526)
www.plannedparenthood.org



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