

National Institute on Aging

National Institutes of Health

U.S. Department of Health & Human Services

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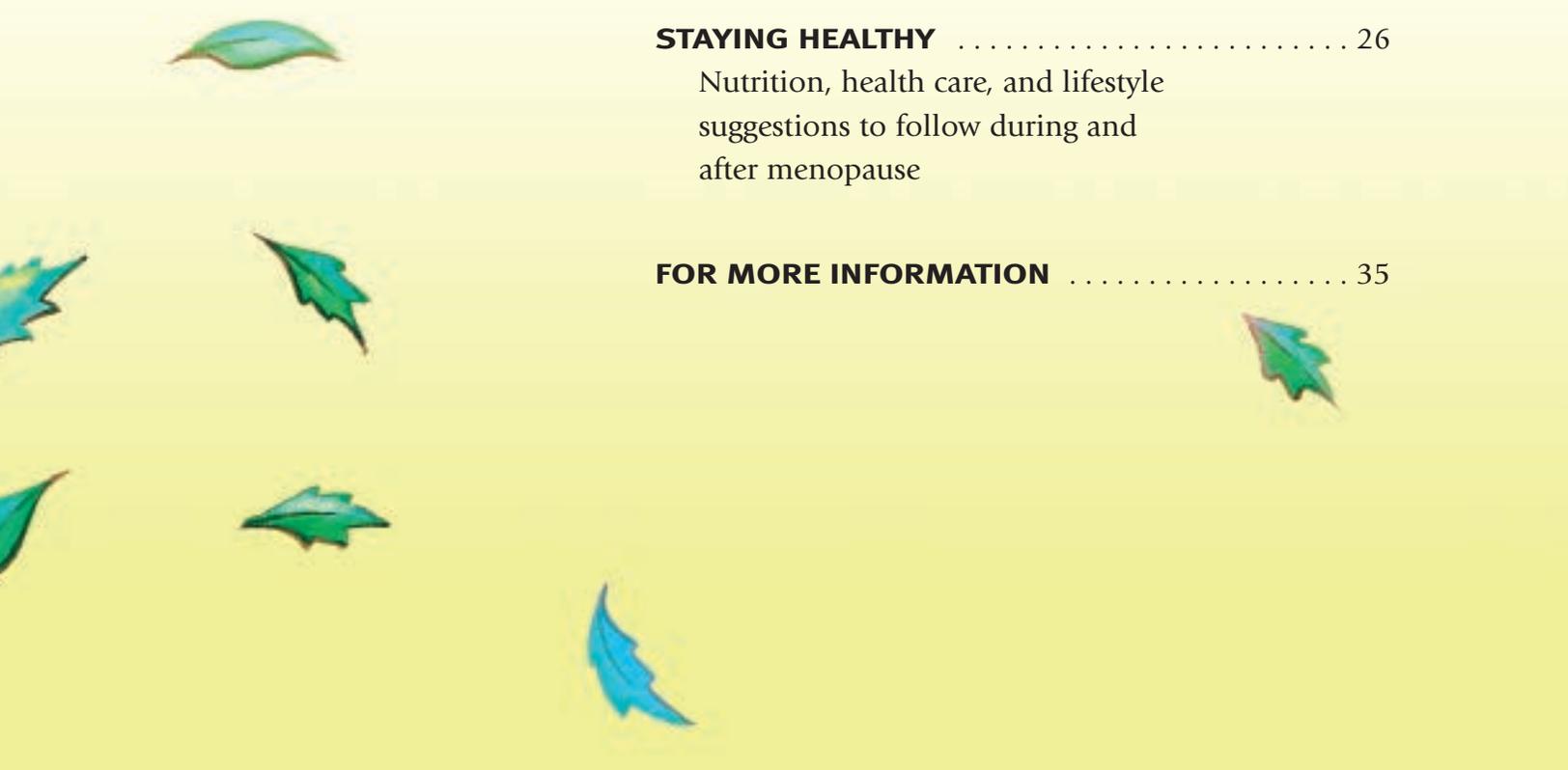
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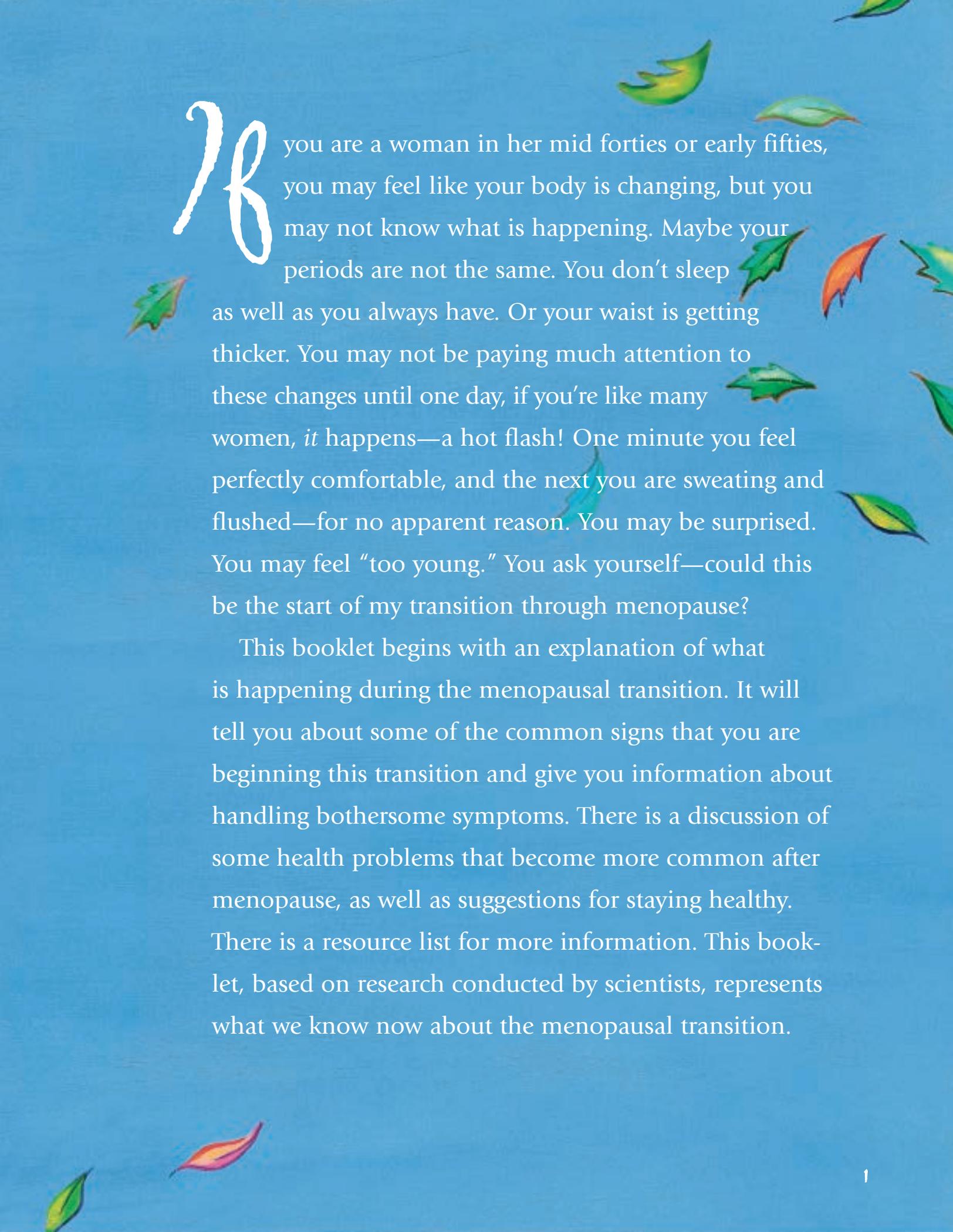
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When you are a woman in her mid forties or early fifties, you may feel like your body is changing, but you may not know what is happening. Maybe your periods are not the same. You don't sleep as well as you always have. Or your waist is getting thicker. You may not be paying much attention to these changes until one day, if you're like many women, *it* happens—a hot flash! One minute you feel perfectly comfortable, and the next you are sweating and flushed—for no apparent reason. You may be surprised. You may feel “too young.” You ask yourself—could this be the start of my transition through menopause?

This booklet begins with an explanation of what is happening during the menopausal transition. It will tell you about some of the common signs that you are beginning this transition and give you information about handling bothersome symptoms. There is a discussion of some health problems that become more common after menopause, as well as suggestions for staying healthy. There is a resource list for more information. This booklet, based on research conducted by scientists, represents what we know now about the menopausal transition.

# **M**ENOPAUSE

## AN INTRODUCTION TO

Menopause, also known as “the change” or “change of life,” is a normal part of a woman’s life. It is a point in time—the last menstrual cycle, the last period. The years leading up to that last period, when women might be experiencing menopausal symptoms like changes in their monthly cycles or hot flashes, are called the menopausal transition. It is a common mistake to use the word menopause to describe this whole transition.



**The** menopausal transition occurs at a time in a woman's reproductive life when the production of estrogen and progesterone, two hormones made by the ovaries, may vary dramatically and unpredictably. The ovaries are two small glands found on either side of the top of the uterus or womb. Before menopause, they hold eggs, one or more of which are released during a menstrual cycle. If the egg then joins with sperm following sexual intercourse and attaches itself inside the uterus, pregnancy is the result. Ovaries also produce chemical substances known as hormones, which travel through the blood to other tissues to control how cells work. One of these, estrogen, has effects on cells in many parts of the body including the reproductive organs, brain, heart and blood vessels, and bone.

Usually in her forties, a woman's body starts changing. Some differences, such as a thickening waist, can happen because she is getting older, but others, like vaginal



dryness, are caused by changes in her hormone levels. As a woman ages and especially as she gets closer to menopause, her ovaries get smaller. This time of changes in hormone levels and menstrual cycles is called the menopausal transition. You might also hear it called perimenopause. It usually lasts several years until 12 months after your last period. Once a woman has gone a full 12 months without a period, she can be fairly sure that she has been through menopause and is now in postmenopause. The chart on page 5 shows how the patterns of hormone production change as women go from their reproductive years through the menopausal transition to postmenopause. Postmenopause lasts the rest of a woman's life.

Going through menopause is a little like driving on an unfamiliar, twisting road with an unclear destination. You may not be sure of all that is happening, where you

**REPRODUCTIVE AGING IN WOMEN**

	Reproductive Years			Menopausal Transition			Postmenopause
	First Period					Final Period	
Average Age*	9-15	16-30	31-42	Early transition 40s	Late transition late 40s, early 50s	51	50s and beyond
Menstrual Cycles	Variable	Regular	Regular	Lengths of cycles vary increasingly	2 or more skipped periods	No period**	No periods
Signs and Symptoms			Fertility progressively declining		Hot flashes, irritability, and sleep disturbance. Bone loss begins.	Same as previous	Vaginal dryness, bone loss. Hot flashes can persist. For a few women, hot flashes continue into their 60s and 70s.

\*These are average ages. Women vary a great deal in the age at which they go through each of these stages.

\*\*Menopause is said to have occurred after twelve months without a period.

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are going, or what’s coming next. In fact, you won’t realize you have reached your destination (menopause) until you are past it and see it in your rearview mirror.

The average age of menopause is 51. That means that almost half of all women have their last period and reach menopause before that age, and some women may not have even started perimenopause yet.

It’s not easy to know when you are in the menopausal transition. Menopausal symptoms, along with a physical examination, medical history, and maybe some blood tests, may provide useful clues. But, it is not possible to correctly predict when a woman’s final period will be. Your doctor could test the amount of estrogen in your blood or the level of FSH (follicle-stimulating

hormone), another hormone that changes at this time. But, levels of both estrogen and FSH normally go up and down during your menstrual cycle. So, these test results alone cannot be used to predict or confirm menopause.

Levels of two other female hormones, progesterone and luteinizing hormone (LH), also rise and fall during your menstrual cycle. Progesterone levels drop after menopause, and LH levels go up (see chart on page 5).

Even though your monthly periods are not regular anymore, you can get pregnant during the menopausal transition. In fact, the irregular periods common in menopause make it harder to predict when an ovary is releasing an egg, the time when sexual intercourse is most likely to result in a pregnancy.

Do not assume that a couple of missed periods mean you are beginning the menopausal transition. Check with your doctor to see if you are pregnant or if there is another medical cause for your missed periods.

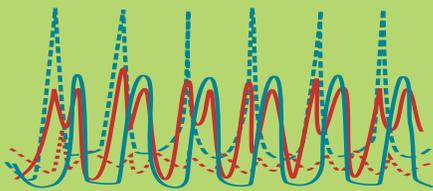
**OTHER CONDITIONS SIMILAR TO NATURAL MENOPAUSE**

At any age before natural menopause, an operation to remove both ovaries or the uterus results in “surgical menopause.” The medical term for the operation is a hysterectomy (surgery to remove the uterus) or bilateral oophorectomy (surgery to remove both ovaries). Removing either both ovaries or the uterus stops monthly periods right away. If the surgeon removes the uterus but is able to leave one or both ovaries, estrogen and progesterone might still continue to be made for a while longer. However, research suggests that, after a hysterectomy, the ovaries may stop making these hormones sooner than might normally be expected.

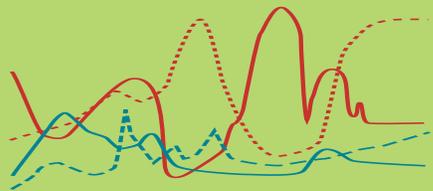
A woman who has either a hysterectomy or both ovaries removed often faces more intense menopausal symptoms than a woman who reaches menopause naturally. Removing both ovaries abruptly cuts off hormone production. If you are having this surgery, discuss how to manage your symptoms with your doctor before your

**CHANGES IN HORMONE LEVEL PATTERNS OVER SIX MONTHS**

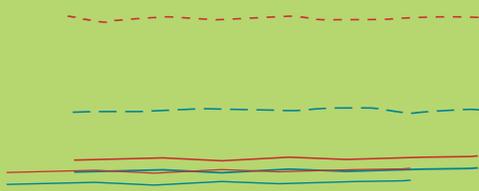
**Premenopause (180 days)**



**Perimenopause (180 days)**



**Postmenopause (180 days)**



— Estrogen                      — Progesterone  
 - - FSH                              - - LH

Excerpted from the September 1999 issue of the *Harvard Women's Health Watch*, ©1999, President and Fellows, Harvard College.

operation. Without treatment, symptoms may begin soon after surgery. Surgical menopause also puts you at early risk for bone loss and heart disease. Stay in touch with your doctor as you recover.

Usually menopause happens naturally, but some women develop symptoms of menopause and stop having menstrual cycles much earlier than expected. Before age 40, a menopause-like condition can happen for no known reason, or it can be caused by radiation treatment, some medicines like those used in chemotherapy, an autoimmunity (some of a woman's own body cells attacking her ovary or ovaries), or genetic errors. Radiation can make your ovaries stop working, as can some treatments like chemotherapy for cancer.

In the past when menopausal symptoms developed before age 40, it was referred to as "premature menopause." However, the term "premature menopause" is no longer considered scientifically accurate. That's because some women with this condition have ovaries that produce hormones irregularly and a return of menstrual periods, and some can even



become pregnant after the diagnosis. The terms "premature ovarian failure" or "primary ovarian insufficiency" are now used to describe this condition. Women with this problem may experience symptoms of menopause like hot flashes and vaginal dryness.

# Signs

## OF THE MENOPAUSAL TRANSITION

Many things can happen in a woman's body because of the changes in hormone patterns (see chart, *Changes in Hormone Level Patterns*, on page 5) that begin during the menopausal transition. Some women are bothered by only a few symptoms during perimenopause. Others are very uncomfortable, while the rest hardly feel any different. Scientists are trying to understand how the hormone changes during the menopausal transition may affect a woman's periods and menopausal symptoms.

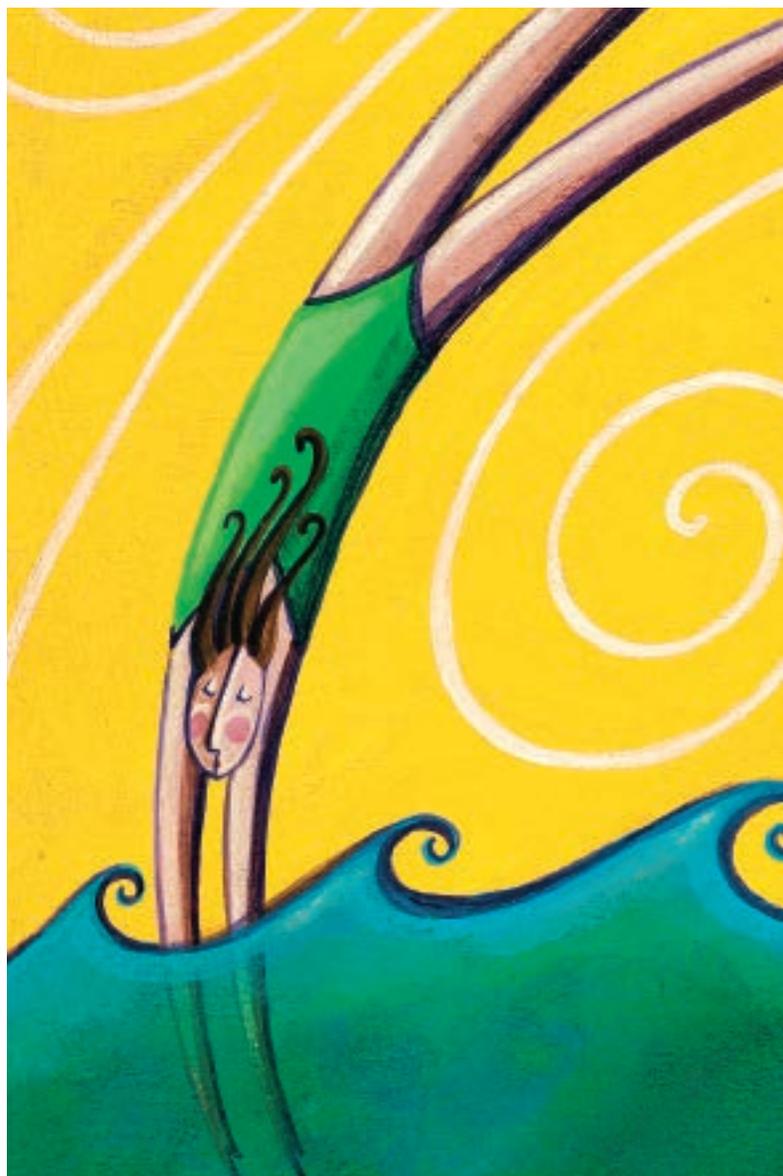
There are several common symptoms around this time of life, which may be caused by the shifting hormone levels of the menopausal transition. To learn more about managing these symptoms, see the chapter, *What You Can Do for Hot Flashes and Other Menopausal Symptoms*, starting on page 11.



**Menstrual cycle changes.** The first thing many women notice is a change in their periods. They might start coming farther apart or closer together. They might last longer or end sooner. The flow could be heavier or lighter.

**Hot flashes and night sweats.** Many women also start to be bothered by hot flashes or flushes and/or night sweats. The medical term is vasomotor symptoms. During a hot flash, your face and upper body begin to feel hot. Your skin gets flushed or red because blood vessels close to the surface are expanding. You might start sweating a lot, sometimes followed by cold shivering. Some hot flashes leave you with only a slight feeling of warmth or a light blush. Others may drench your clothes. Night sweats are hot flashes with sweating that happen during your sleep. They can be strong enough to wake you up at night.

Hot flashes can happen several times an hour, a few times a day, or just once or twice a week. They usually occur for just a few years and then stop, but about one woman in every ten women might have hot flashes into her sixties and seventies.



Some studies suggest that as many as three-fourths of white women have hot flashes and/or night sweats. A different study found that African-American women are more likely to report having hot flashes and night sweats than are Hispanic or white women. Japanese and Chinese women were the least likely to report this symptom.

**Your skin and other tissues.** As you age, your skin becomes drier. You might also start to lose fatty tissue and a protein material known as collagen under your skin and also in the areas near your vagina and urinary tract. These losses can make your skin thinner and less elastic. If your vaginal tissues are affected, these changes can make them drier and more likely to tear and become infected. Sexual intercourse may become painful.

**Sleep and fatigue.** Many women report having problems sleeping and feeling tired, especially in the years just before menopause and during postmenopause. But, it is difficult to know if sleep changes are a part of growing older, the result of hormone changes, or both.

Sometimes, it is night sweats that wake you in the middle of the night, or it might be that you have to go to the bathroom. Either way, once awake, you can then have trouble getting back to sleep. Perhaps you can't fall asleep in the first place, or you find yourself waking too early in the morning. When this happens over and over, you will become very tired. And feeling tired can affect everything you do during the day.

### OTHER CHANGES

Scientists are working to understand how hormonal changes lead to menstrual cycle irregularities, hot flashes, night sweats, and vaginal changes. They are also trying to learn more about other changes around the menopausal transition that you may experience. Some may be the result of changes in the amounts of hormones made by your body as you go through menopause; some may be related to growing older.

**Sexuality.** You might notice changes in your interest in having sex (called libido) or in your ability to become sexually aroused. After menopause, some women say that freedom from concerns about pregnancy lets them feel more open to sex and more relaxed in general. Other women report losing interest in sex. If such changes bother you, talk to a doctor to make sure there is no other cause. For example, medicines, such as those prescribed to treat high blood pressure, depression, and cholesterol problems, might play a role.





**Mood.** There is some evidence that stress, a history of depression, and poor general health are more likely to contribute to mood changes, anxiety, and irritability during mid-life than do hormonal fluctuations. So, while women at mid-life are sometimes portrayed as having extreme mood swings, this may not be a true picture. The specific connection of mood to the hormone changes of menopause is not clear.

**Physical changes.** Mid-life is a time when you may see changes in your body, especially in its shape and makeup. Your joints or muscles might ache or feel stiff. Your waist might be getting thicker, and you could be gaining weight. Shifts in your body makeup such as the loss of muscle and increases in fatty tissue also take place. Muscle helps us burn a lot of calories, so losing muscle mass over time can make it harder to burn off calories and easier to gain weight.

**Memory.** Often, people start worrying about their memory as they get into their forties and fifties. Sometimes, it's that "tip

of the tongue" problem—you can't think of a familiar word, or you can't remember the name of someone you know. Then a couple of hours later the missing word just pops into your head. Or you walk into another room for something and, once there, can't remember what you wanted. Both middle-aged men and women describe short-term memory problems. Problems like these are probably normal, but other types of memory loss might not be. For example, forgetting where you put the car keys is normal, but forgetting how to drive the car is not.

Mid-life is a time that may bring new or greater sources of stress, and this stress can also add to memory problems. Stress is how the body responds to changes (both good and bad) and challenges in order to prepare to protect itself if needed. Some experts suspect that when you have a lot going on in your life, it can be harder to remember as much as you once did. Although mild, short-lived stress actually may improve learning in some situations, the complicated sources of stress in mid-life might interfere with your learning something new in the first place. So, sometimes, it's not that you forgot things that happened recently, it's that your brain never recorded it as something to remember.



# Hot Flashes

**AND OTHER  
MENOPAUSAL  
SYMPTOMS**

Check with your doctor if you experience a troubling change in how you feel.

Symptoms that might seem like the menopausal transition, even hot flashes, night sweats, and irregular periods, may have other causes.

Menopause is a natural stage of life. It is not something that you must take medicine for. If your doctor says you are in the menopausal transition and the symptoms are not bothering you, you don't have to do anything about them. If your symptoms are making you very uncomfortable, there are things you can do to relieve your discomfort. Your treatment should be chosen based on your own symptoms and health risks. What your sister or friend does may not be the right choice for you. Talk to your doctor about the best approach for you.

Whatever approach you choose, if you decide to treat your menopausal symptoms, remember that it is not a permanent decision. At every checkup, talk with your doctor about your symptoms or concerns. Find out if there have been any new research findings or different treatments. If you are using menopausal hormone therapy, maybe you need a higher dose for more relief, or maybe you want to try a lower, perhaps safer dose. Discuss whether you still need to treat your menopausal symptoms.

### **HOT FLASHES AND NIGHT SWEATS**

If hot flashes and/or night sweats are interfering with your daily activities, don't hesitate to seek relief. There are some practical steps you can try to ease hot flashes and/or night sweats:

- ▶ Sleep in a cool room.
- ▶ Dress in layers, which can be removed at the start of a hot flash.
- ▶ Have a drink of cold water or juice when you feel a hot flash coming on.
- ▶ Use sheets and clothing that let your skin "breathe."
- ▶ Don't smoke.

You could try to keep a written record of what you were doing just before a hot flash started. This might reveal

some triggers for your hot flashes which you could then try to avoid.

There are also lifestyle changes you can try. Exercise can improve your quality of life and may help with hot flashes. It will also help reduce your risk of heart disease and osteoporosis. Stopping smoking and losing weight might lower your risk of hot flashes. Studies in small groups of women suggest that slow, deep breathing, known as relaxation breathing, may also help reduce hot flashes.

### *What is relaxation breathing?*

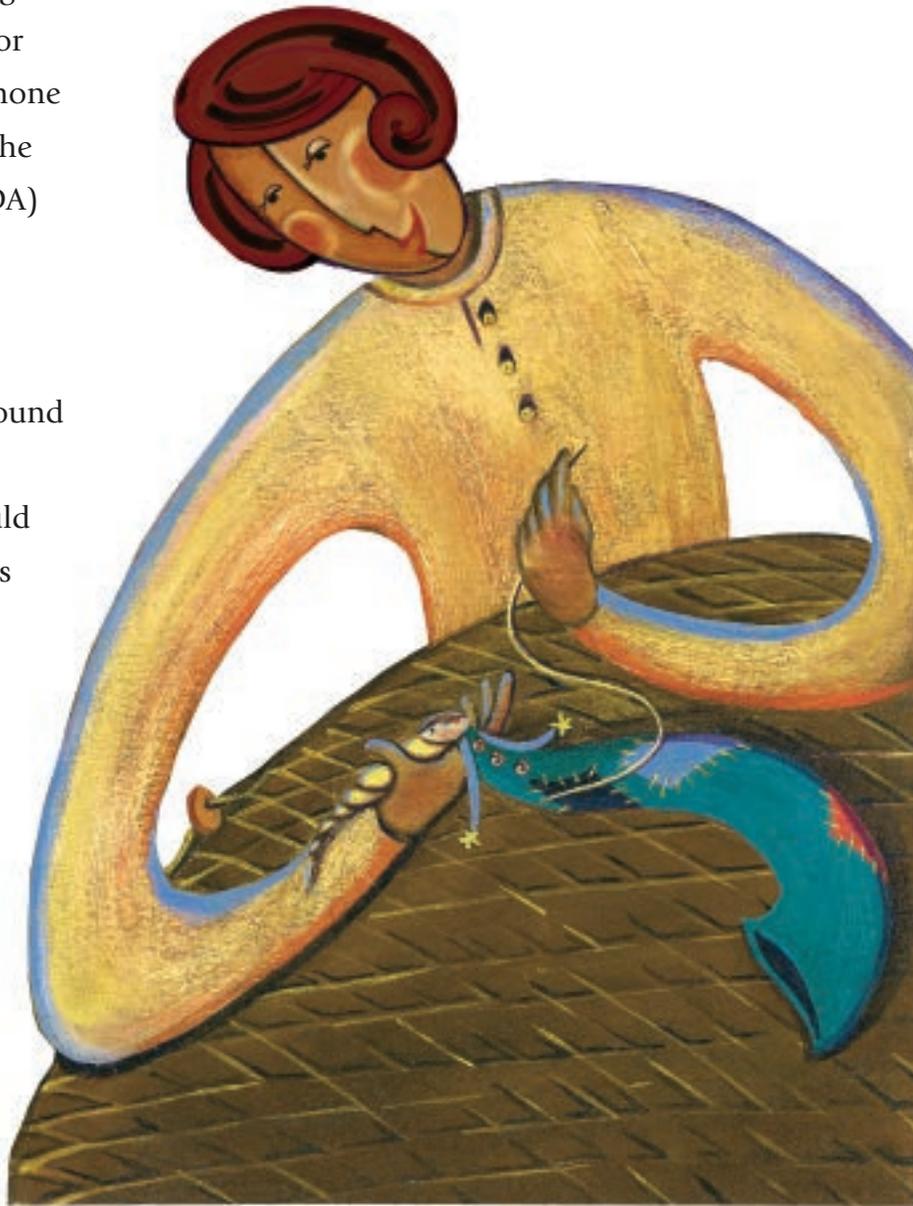
Deep breathing, relaxation breathing, and paced respiration all refer to a method used to reduce stress. It involves breathing in (inhaling) deeply and breathing out (exhaling) at an even pace. Do this for several minutes while in a comfortable position. You should slowly breathe in through your nose. With a hand on your stomach right below your ribs, you should first feel your stomach push your hand out, and then your chest should fill. Slowly exhale through your mouth, first letting your lungs empty and then feeling your stomach sink back. You can do this almost anywhere and several times during the day, whenever you feel stressed. You can also try this if you feel a hot flash beginning or if you need to relax before falling asleep.

## WHAT YOU CAN DO FOR MENOPAUSAL SYMPTOMS

Your doctor might recommend certain prescription medicines to help manage hot flashes. For example, studies suggest that gabapentin, a medicine used for epilepsy, pain, and some mood disorders, might ease hot flashes in some women. There are a few antidepressants that might also help, even if you aren't depressed or don't have mood problems. However, none of these drugs have been approved by the U.S. Food and Drug Administration (FDA) for relieving hot flashes, and there are many questions that scientists are still working on answering.

More than sixty years ago, experts found that giving estrogen to a woman going through the menopausal transition could relieve some of the annoying symptoms like hot flashes. Estrogen remains the most effective medicine approved by the FDA for hot flashes, night sweats, and vaginal dryness. But, now we know that a few women who use estrogen may develop serious health

problems as a result. This approach, now known as menopausal hormone therapy (MHT), used to be called hormone replacement therapy or HRT.



## What about hormones for symptoms of menopause?

**M**enopausal hormone therapy (MHT) uses hormones to ease the symptoms of menopause or to prevent osteoporosis. The hormones are estrogen alone for a woman who no longer has her uterus or estrogen with progesterone or a progestin (a progesterone-like medicine) for a woman with a uterus. When a woman is taking estrogen, progesterone or a progestin is needed to protect the lining of the uterus, the endometrium. This lowers the chance of unwanted endometrial thickening and of endometrial cancer, an uncommon, but possible result of using estrogen alone.

Estrogen and progesterone/progestin come in many different forms—pills, creams, or skin patches, for example—and a variety of types and doses. The FDA recommends that MHT be used at the lowest dose that relieves symptoms for the shortest time needed.

Similar to the effect of using low-dose birth control pills before menopause, using menopausal hormone therapy before your last period can make it difficult to know

when menopause has occurred. That is, you might continue to have a period because of the hormones you are taking even after your ovaries are no longer making estrogen and progesterone.

If you have had a hysterectomy with your ovaries removed also, your doctor might suggest that you start using estrogen right after the operation. This may prevent hot flashes and other symptoms. If, later, you decide to stop using estrogen, however, bothersome menopausal symptoms could still start, even years after the surgery.

Many women find MHT relieves their menopausal symptoms, but not all women should use this therapy. If you are considering using MHT for troublesome menopausal symptoms or to prevent osteoporosis, you can read an up-to-date discussion of MHT, including the benefits and risks of both MHT and bioidentical or natural hormones, in the *Hormones and Menopause* tip sheet from the National Institute on Aging (NIA). Contact the NIA Information Center, listed in *For More Information*, for a free copy.

### **MENSTRUAL CYCLE PROBLEMS**

If you are having a problem with heavy bleeding during your period, your doctor might suggest that you use a low-dose birth control pill. This will make your menstrual cycle and flow more regular, prevent pregnancy, and help with hot flashes. However, using the pill could make it hard for you to know when you have reached menopause—you will probably continue to have periods, even after your ovaries are no longer making estrogen and progesterone, because of the hormones in the pills. If you are the right age for menopause, you might need to stop the birth control pill for 12 months to see whether or not you have a period. If you don't want to become pregnant during that time, you will need to use some other method of birth control.

### **VAGINAL DRYNESS**

Vaginal dryness can be very uncomfortable and may get in the way of a normal sex life. A water-based lubricant, but not petroleum jelly, may relieve your vaginal discomfort.

The hormone estrogen can also help with vaginal dryness. Women who are using MHT—a patch or pill, for example—for hot flashes should also find relief from their vaginal dryness. For women who are



only bothered by vaginal symptoms, inserting a vaginal estrogen tablet or vaginal ring containing estrogen or applying an estrogen cream in the vagina will probably relieve symptoms locally. With estrogen cream, some of the estrogen may enter your bloodstream from the vagina and travel elsewhere in your body as estrogen does before menopause or when you swallow an estrogen pill or use an estrogen patch. We don't know if estrogen cream could relieve hot flashes or cause serious side effects. Both seem to be less likely with a vaginal estrogen tablet, which has a lower dose of estrogen.

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