

Menopause is a normal, natural event, defined as the final menstrual period (FMP). It represents the permanent cessation of menses resulting from loss of ovarian follicular function, usually due to aging. Menopause can occur naturally (spontaneously)—on average around age 51—or be induced through a medical intervention (surgery, chemotherapy, or pelvic radiation therapy).<sup>1,2</sup>

## Introduction

Aging is the natural progression of changes in structure and function that occur with the passage of time in the absence of known disease. Aging of the female reproductive system begins at 20 weeks gestation with regard to follicle atresia and proceeds as a continuum. It consists of a steady loss of oocytes from atresia or ovulation, and does not necessarily occur at a constant rate. Because of the relatively wide age range (40-58 y) for natural menopause, chronologic age is a poor indicator of the beginning or the end of the menopause transition.<sup>3</sup>

Menopause affects every woman (if she is fortunate enough to survive to middle adulthood). And, as the large baby-boom generation reaches midlife and beyond, an unprecedented number of women are now postmenopausal. An estimated 6,000 US women reach menopause every day (over 2 million per year). In addition, more women are living beyond age 65. A woman's life expectancy in the Western world is estimated at 79.7 years. Today, a woman who reaches age 54 can expect to reach age 84.3. About two thirds of the total US population is expected to survive to age 85 or longer.<sup>4,5</sup>

During the transition from the reproductive years through menopause and beyond, a woman experiences many physical changes, most of which are normal consequences of both menopause and aging. Some of the physical changes observed around menopause may be signs of illness that develop during midlife, such as diabetes mellitus. Sometimes, health problems arise when changing hormone levels and the physical effects of aging are coupled with an individual's genetic makeup, certain unhealthy lifestyles, and other stresses of midlife.

Survey research does not verify the concept of a "midlife crisis" as universal or even widely present in the general population. However, women in midlife may fear aging for a variety of reasons, some of which are universal, some peculiar to their culture, and the rest reflecting their personal and family circumstances. Women at midlife may be reacting to a multitude of changes that are common at this time of life, such as financial, relationship, and caregiving burdens, that can elicit fear and anxiety.

All women experience menopause, but each one does so in a unique way. How a woman responds to the physical

changes of menopause may be similar to the way her mother responded, although the evidence to support this notion is limited.

Lifestyle, demographic factors, and attitudes all influence a woman's perception of menopause.<sup>6</sup> The menopause experience is often perceived as merely the cessation of menses. A woman may view the end of fertility as liberation from the possibility of pregnancy, or she may grieve for the children she never had. For women who have had an unexpected early menopause, either natural or induced, their experience may be more negative. The level of menopause-related symptoms will also have an influence. Some women will have troublesome symptoms, whereas others may navigate the transition with few or even no symptoms at all.<sup>7,8</sup>

Diverse social and cultural differences can also affect a woman's experience of menopause and her view of menopause treatments, as well as her overall health and well-being.<sup>7,9</sup>

Risk factors, patterns of disease and mortality, access to health care, economic status, existing medical therapies, and societal norms related to femininity and aging all differ across groups of women. There is very little research on how these differences affect the experience of menopause. To date, menopause research has focused mostly on middle-class Caucasian women. Although different populations are now being studied, considerable information is needed before many aspects of menopause are better understood.<sup>10</sup>

In one study, 80% of women experiencing menopause reported no decrease in quality of life (QOL), and 75% of the women denied experiencing any loss in their attractiveness. Most women (62%) reported positive attitudes toward menopause itself.<sup>11</sup> In another study, most women viewed menopause as inconsequential, and suggested that other events of midlife were more important or stressful.<sup>12</sup> A cohort of well-educated, midlife women described the menopause transition as a normal developmental event.<sup>13</sup> Only about 10% of peri- and postmenopausal women participating in community-based studies reported feelings of despair, irritability, or fatigue during the menopause transition.

The QOL and health status of a generally low-income and poorly educated population of menopause-aged women were examined in a cross-sectional study.<sup>8</sup> Women who were employed and had attained higher levels of education or income reported better overall health and fewer menopausal symptoms. There were no significant differences between ethnic groups with respect to either menopausal QOL or health status. The surgical intervention of hysterectomy (with bilateral oophorectomy) did not seem to be a factor in decreasing QOL. Compared

with women with an intact uterus, women who underwent hysterectomy expressed more improvement, especially in the areas of sexual relationships, spouse or partner relationships, personal fulfillment, and physical health. This improvement did not seem to be the result of menopausal hormone therapy (HT).

Most US postmenopausal women (51%) surveyed in a 1998 NAMS-sponsored Gallup Poll reported being happiest and most fulfilled between ages 50 and 65 compared with when they were in their 20s (10%), 30s (17%), or 40s (16%).<sup>14</sup> Many women reported improvement in various areas of their lives since menopause. They reported a sense of personal fulfillment, an ability to focus on hobbies or other interests, and improved relationships with their spouse or partner and with friends. Most (51%) said their sexual relationships had remained unchanged. Lifestyle behavioral changes were often initiated during this midlife period.

Fortunately, menopause is now better understood and more openly discussed than ever before. Menopause can be viewed as a sentinel event that presents a unique opportunity for women, working with their healthcare providers, to evaluate personal health and improve health practices. Collaboration between the woman and her provider, characterized by mutual respect and trust, is the goal of menopause counseling. Menopause counseling can facilitate informed decision making and validate the woman's confidence in her decisions, and in her ability to carry them out or modify them over time.<sup>15</sup> Individualized screening and management approaches are essential components of this collaboration.<sup>16,17</sup>

Accurate information about physiologic changes, management of menopause symptoms, and reducing disease risk is essential. Although menopause is perhaps the most obvious physical event, general knowledge about the aging process is also needed. Additionally, psychological support may be required for the many psychosocial issues women encounter in midlife.

By considering a woman's preferences, values, and concerns, the menopause practitioner will enhance the woman's sense of well-being, not only around menopause but for the rest of her life.

See Chapter 6 for more about counseling.

## Terminology

Clinicians and researchers in the field of menopause have long recognized the need for universally accepted menopause terminology as well as a staging system useful in categorizing the last 10 to 15 years of reproductive aging. In 2001, the Stages of Reproductive Aging Workshop (STRAW), sponsored by The North American Menopause Society (NAMS), the National Institutes of Health, the American Society for Reproductive Medicine, and the National Institute of Child Health and Human Development, addressed nomenclature and a staging system<sup>1</sup> (see Figure 1). (See Chapter 2 for more about STRAW.)

Previously, the Council of Affiliated Menopause Societies (CAMS), an international policy organ of the International Menopause Society, had developed standardized definitions for menopause-related

**Figure 1. Stages of reproductive aging<sup>1</sup>**

								Final Menstrual Period (FMP)							
								-5	-4	-3	-2	-1	0	+1	+2
Terminology:	Reproductive			Menopausal Transition		Postmenopause									
	Early	Peak	Late	Early	Late*	Early*	Late*								
	Perimenopause														
Duration of Stage:	variable			variable		Ⓐ 1 yr	Ⓑ 4 yrs	until demise							
Menstrual Cycles:	variable to regular	regular		variable cycle length (>7 days different from normal)	≥2 skipped cycles and an interval of amenorrhea (≥60 days)	Amen. x 12 mos		none							
Endocrine:	normal FSH		↑ FSH	↑ FSH		↑ FSH									

\*Stages most likely to be characterized by vasomotor symptoms.

events.<sup>18</sup> Although STRAW redefined some terms, other CAMS terms remain in use.

The reproductive aging continuum created by STRAW is divided into seven stages: five precede and two follow the FMP. STRAW points out, however, that not all healthy women will follow this pattern; some will seesaw between stages or skip a stage altogether. (See Chapter 2 for detailed menopause terminology.)

See Chapter 2 for more details about menopause & aging.

**Menopause.** The word *menopause* implies permanent cessation of ovulation and menses. As defined by STRAW, *menopause* (ie, “spontaneous” or “natural” menopause) is recognized to have occurred after 12 months of amenorrhea with no obvious pathologic cause. It reflects a near-complete but natural diminution of ovarian hormone secretion.<sup>1</sup> There is no adequate independent biological marker for menopause.

**Premenopause.** The term *premenopause* is used ambiguously, usually to mean “approaching menopause.” The literal meaning of the word implies “the whole time preceding menopause,” that is, the time before the FMP. CAMS recommends that this term encompass “the entire reproductive period up to the FMP.” STRAW does not use this term, but prefers classifying the reproductive stage as early, peak, and late (with “late” being the time when levels of follicle-stimulating hormone [FSH] increase).

**Menopause transition.** According to STRAW, the term *menopause transition* refers to the span of time when menstrual cycle and endocrine changes occur, and is divided into stage -2 (early) through stage -1 (late). The menopause transition begins with variation in the length of the menstrual cycle caused by a rise in levels of monotropic FSH and ends with the FMP (which is recognized only after 12 consecutive months of amenorrhea). Women experiencing induced menopause (see below) do not experience this menopause transition.

**Perimenopause.** The term *perimenopause* is somewhat confusing. According to STRAW, perimenopause is defined as about or around menopause, beginning with stage -2 (early transition) and ending 12 months *after* the FMP (not *with* the FMP). NAMS prefers to use the term interchangeably with *menopause transition*, although there is a difference in the STRAW system. STRAW suggests that “perimenopause” be used only with patients or in the lay press; NAMS uses the term for all audiences. It is a convenient way to refer to the highly symptomatic years of the transition.<sup>1,16</sup>

**Early menopause.** *Early menopause* is a vague term often used to describe natural or induced menopause that occurs well before the average age of natural menopause

(age 51)— before age 41 for example. Early menopause encompasses premature menopause. See Chapter 3 for more about premature menopause & primary ovarian insufficiency.

**Primary ovarian insufficiency.** Although the term *premature ovarian failure* has been used to describe ovarian insufficiency leading to amenorrhea in women younger than age 40, some authorities prefer the term *primary ovarian insufficiency* (POI) because the condition is not always complete or permanent ovarian failure.<sup>19</sup> It may be transient when caused by autoimmune disease or chemotherapy; however, permanent loss of ovarian function is often the eventual outcome.<sup>20</sup> (See Chapter 3 for more about premature menopause & primary ovarian insufficiency.)

**Premature menopause.** *Premature menopause* should be defined as any menopause that occurs at an age younger than 2 SD below the mean estimated age for the reference population. CAMS states that age 40 is frequently used as an arbitrary cutoff point below which menopause is said to be premature.<sup>21</sup>

Premature natural menopause refers to an early menopause that was not induced. Several studies, including SWAN, indicate that the percentage of US women experiencing premature natural menopause is approximately 1%.<sup>22</sup> Applying this 1% estimate to the projected number of US women ages 15 to 44 in 2010 (~49 million),<sup>23</sup> approximately 490,000 US women will experience premature natural menopause.

See Chapter 3 for more about premature menopause & primary ovarian insufficiency.

**Postmenopause.** *Postmenopause* refers to the years after the FMP resulting from natural (spontaneous) or premature menopause. Nearly 40 million US women are past the average age of natural menopause (51 y). Although the US Census Bureau year 2000 report does not provide the exact number of women over age 51, it does report numbers for women age 55 and older, who can all be assumed to be postmenopausal. An estimated 75% of women ages 50 to 55 are assumed to be postmenopausal. These estimates include women who may have had induced or premature natural menopause earlier in life.

Among women ages 40 to 45, an estimated 5% have experienced natural menopause, based primarily on data from the Study of Women’s Health Across the Nation (SWAN).<sup>22</sup> For naturally postmenopausal women in the next oldest category (ages 45-55), a rough estimate is 25%. For a 1-year estimate of the number of women experiencing natural menopause during 2002, the number of women ages 50 to 55 was divided by 5 (approximately one fifth of the group ages 50-55 turned age 51 in 2000).

**Induced menopause.** According to CAMS, the term *induced menopause* is defined as the cessation of menstruation that follows either surgical removal of both ovaries (bilateral oophorectomy, with or without hysterectomy) or iatrogenic ablation of ovarian function (eg, by chemotherapy or pelvic radiation therapy). Bilateral oophorectomy is the most common cause of induced menopause. (See Chapter 3 for more about premature menopause & primary ovarian insufficiency.)

Annual numbers for hysterectomy came from the 2006 National Hospital Discharge Survey;<sup>24,25</sup> bilateral oophorectomy data for women ages 15 to 44 and 45 to 64 were also available. In order to isolate statistics for women under 50 with surgical menopause, the data for women ages 15 to 44 were added to a quarter of the data for women ages 45 to 64 to provide an estimate of 197,750 women who experienced surgical menopause in 2006.

See Chapter 3 for more about premature menopause & primary ovarian insufficiency.

**Climacteric.** STRAW suggests that the term *climacteric* be used interchangeably with *perimenopause*. However, CAMS defines *climacteric* as the age-related transition in women from the reproductive to the nonreproductive state. It is a process rather than a specific point in time. According to CAMS, the climacteric for women is sometimes, but not necessarily always, associated with symptomatology. When symptoms occur, they may be termed the *climacteric syndrome*.<sup>1,18</sup>

STRAW has suggested that the term “climacteric” not be used in scientific papers. Global consensus on this terminology has not been achieved.

## Demographics

Exact figures on the number of postmenopausal women and the number reaching menopause each year are not known.

**United States.** In 2000, there were an estimated 45.6 million postmenopausal women in the United States. About 40 million of them were older than age 51, the average age of natural menopause in the Western world. By the year 2020, the number of US women older than age 51 is expected to be more than 50 million.<sup>5</sup>

**Canada.** Canadian statistics also demonstrate an increase in life expectancy for midlife women.<sup>26</sup> In 1922, a 50-year-old woman lived until age 75 on average. Today, a woman the same age can expect to live until her mid-80s. Thus, Canadian women are living at least one third of their lives after menopause. By 2026, it is estimated that almost one quarter (22%) of the Canadian population will be composed of women older than age 50.

**Worldwide.** In 1998, there were more than 477 million postmenopausal women in the world, and approximately 9% were expected to live to age 80. By 2025, the number of postmenopausal women is expected to rise to 1.1 billion. Life expectancy for women worldwide was 65 years in 1998 (79 y in more developed countries). This is expected to rise to 72 years worldwide by 2025 (82 y in developed countries).

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