



Lactonova nutrition for menopause mothers

Govind Shukla, C.Subrahmanyam, Mantipally Yamuna, Aishwarya Pothuganti, Akanksha Sonalkhess, C.J Sampath Kumar

Lactonova Nutrition Research centre Hyderabad, A Unit of LactonovaNutripharm (P) Ltd, 81/3, IDA Mallapur, Hyderabad, Telangana, India-500 076.

Corresponding author: Govind Shukla

ABSTRACT

Menopause is a natural phase in a woman's life that can be thought of as a time of ovarian retirement. At birth women have about one million eggs in their ovaries. At puberty ovulation starts and eggs are released by the ovaries each month for the purpose of conception. As the years go by, the amount of eggs gradually declines until menopause, when the ovaries shut down and stop producing estrogen and progesterone, the two main female sex hormones. Menopause occurs when ovulation ceases and a woman can no longer conceive naturally. After menopause the adrenal glands, which supply some sex hormones throughout life, become the primary source. Women who have poor adrenal function, which can be caused by chronic stress, poor diet, lack of sleep, or excessive caffeine, are not able to provide adequate hormone amounts, and may have more severe menopausal symptoms. Estrogen can also be produced in the fat cells from androgens. There are many lifestyle measures and Lactonova Nutrition supplements that can promote hormone balance and ease menopausal concerns.

Keywords: Lactonova, menopause

INTRODUCTION

The milestone of menopause is reached when a woman goes one year without menstrual period. The average age for menopause is about 51 years, but it can occur naturally between ages 40 and 55. The decade or so before menopause is called perimenopause. During this time hormone levels fluctuate and the menstrual cycle becomes erratic. Menopausal symptoms are caused primarily by an imbalance of the hormones estrogen, progesterone, and/or testosterone. High cortisol levels caused by stress can negatively impact these hormones as well. The severity and duration of symptoms experienced vary due to genetics, ethnicity, cultural factors, and even attitude.

They include:

- Fatigue, foggy head, headache, memory loss
- Fluid retention and weight gain
- Hot flashes and night sweats
- Incontinence, bladder infections
- Low libido
- Mood swings, irritability, anxiety, depression
- Vaginal dryness

Menopause, also known as the climacteric, is the time in women's lives when menstrual periods stop permanently, and they are no longer able to bear children.^{[1][7]} Menopause typically occurs between 49 and 52 years of age.^[2] Medical professionals often define menopause as having occurred when a woman

has not had any menstrual bleeding for a year.^[3] It may also be defined by a decrease in hormone production by the ovaries.^[8]

In those who have had surgery to remove their uterus but still have ovaries, menopause may be considered to have occurred at the time of the surgery or when their hormone levels fell.^[8] Following the removal of the uterus, symptoms typically occur earlier, at an average of 45 years of age.^[9]

In the years before menopause, a woman's periods typically become irregular,^{[10][11]} which means that periods may be longer or shorter in duration or be lighter or heavier in the amount of flow.^[10] During this time, women often experience hot flashes; these typically last from 30 seconds to ten minutes and may be associated with shivering, sweating, and reddening of the skin.^[10] Hot flashes often stop occurring after a year or two.^[7]

Other symptoms may include vaginal dryness, trouble sleeping, and mood changes.^[10] The severity of symptoms varies between women.^[7] While menopause is often thought to be linked to an increase in heart disease, this primarily occurs due to increasing age and does not have a direct relationship with menopause.^[7] In some women, problems that were present like endometriosis or painful periods will improve after menopause.^[7]

Menopause is usually a natural change.^[4] It can occur earlier in those who smoke tobacco.^{[3][12]} Other causes include surgery that removes both ovaries or some types of chemotherapy.^[3] At the physiological level, menopause happens because of a decrease in the ovaries' production of the hormones estrogen and progesterone.^[1] While typically not needed, a diagnosis of menopause can be confirmed by measuring hormone levels in the blood or urine.^[13] Menopause is the opposite of menarche, the time when a girl's periods start.^[14]

Specific treatment is not usually needed.^[5] Some symptoms, however, may be improved with treatment.^[5] With respect to hot flashes, avoiding smoking, caffeine, and alcohol is often recommended.^[5] Sleeping in a cool room and using a fan may help.^[5]

The following medications may help: menopausal hormone therapy (MHT), clonidine, gabapentin, or selective serotonin reuptake inhibitors.^{[5][6]} Exercise may help with sleeping problems.^[5] While MHT was once routinely prescribed, it is now only recommended in those with significant symptoms, as there are concerns about side effects.^[5] High-quality evidence for the effectiveness of alternative medicine has not been found.^[7] There is tentative evidence for phytoestrogens.^[15]

Signs and symptoms

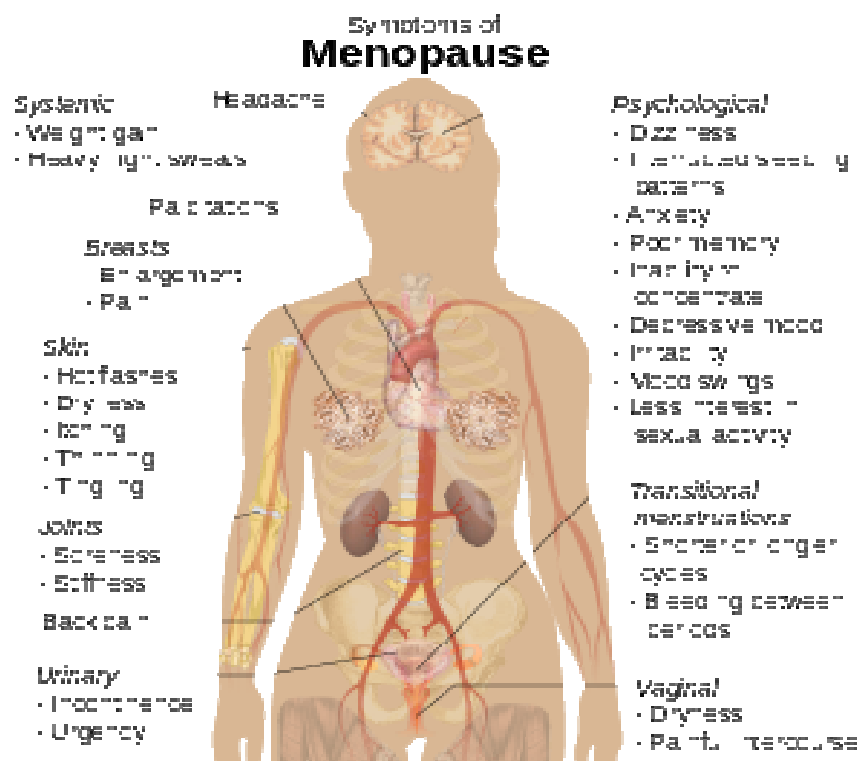


Fig.1

Symptoms of menopause

During early menopause transition, the menstrual cycles remain regular but the interval between cycles begins to lengthen. Hormone levels begin to fluctuate. Ovulation may not occur with each cycle.^[16]

The term *menopause* refers to a point in time that follows one year after the last menstruation.^[16] During the menopausal transition and after menopause, women can experience a wide range of symptoms.

Vagina and uterus

During the transition to menopause, menstrual patterns can show shorter cycling (by 2–7 days),^[16] longer cycles remain possible.^[16] There may be irregular bleeding (lighter, heavier, spotting).^[16] Dysfunctional uterine bleeding is often experienced by women approaching menopause due to the hormonal changes that accompany the

menopause transition. Spotting or bleeding may simply be related to vaginal atrophy, a benign sore (polyp or lesion), or may be a functional endometrial response. The European Menopause and Andropause Society has released guidelines for assessment of the endometrium, which is usually the main source of spotting or bleeding.^[17]

In post-menopausal women, however, any genital bleeding is an alarming symptom that requires an appropriate study to rule out the possibility of malignant diseases.

Symptoms that may appear during menopause and continue through postmenopause include:

- painful intercourse^[16]
- vaginal dryness^[16]
- atrophic vaginitis – thinning of the membranes of the vulva, the vagina, the cervix, and the outer urinary tract, along with considerable shrinking and loss in elasticity of all of the outer and inner genital areas.

Other physical

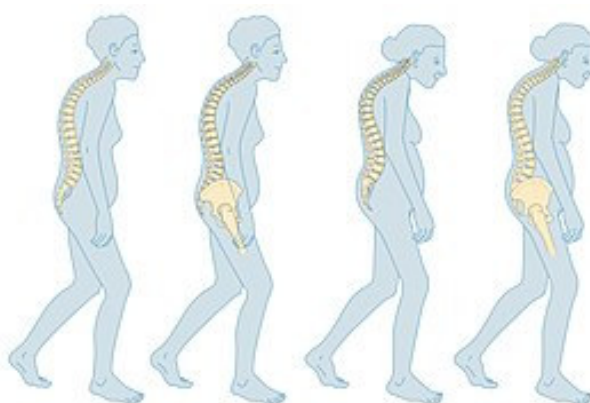


Fig.2

Bone mineral density, especially of the vertebrae, decreases with menopause. Other physical symptoms of menopause include lack of energy, joint soreness, stiffness,^[16] back pain,^[16] breast enlargement,^[16] breast pain,^[16] heart palpitations,^[16] headache,^[16] dizziness,^[16] dry, itchy skin,^[16] thinning, tingling skin, rosacea,^[18] weight gain,^[16] urinary incontinence,^{[16][19]} urinary urgency,^[16] interrupted sleeping patterns,^{[16][20][21][22]} heavy night sweats,^[16] and hot flashes.^[16]

Mood and memory effects

Psychological symptoms include anxiety, poor memory, inability to concentrate, depressive mood, irritability, mood swings, and less interest in sexual activity.^{[16][23]} Menopause-related cognitive

impairment can be confused with the mild cognitive impairment that precedes dementia.^[24] Tentative evidence has found that forgetfulness affects about half of menopausal women,^[25] and is probably caused by the effects of declining estrogen levels on the brain,^[25] or perhaps by reduced blood flow to the brain during hot flashes.^[26]

Long-term effects

Menopause confers:

- A possible but contentious increased risk of atherosclerosis.^[27] The risk of acute myocardial infarction and other cardiovascular diseases rises sharply after menopause, but the risk can be reduced by managing risk factors, such as tobacco smoking, hypertension, increased blood lipids and body weight.^{[28][29]}

- Increased risk of osteopenia, osteoporosis,^[30] and accelerated lung function decline.^{[31][32]}

Women who experience menopause before 45 years of age have an increased risk of heart disease,^[33] death,^[34] and impaired lung function.^[31]

Causes

Menopause can be induced or occur naturally. Induced menopause occurs as a result of medical treatment such as chemotherapy, radiotherapy, oophorectomy, or complications of tubal ligation, hysterectomy, unilateral or bilateral salpingo-oophorectomy or leuprolerin usage.^[35]

Age

Menopause typically occurs between 49 and 52 years of age.^[2] Half of women have their last period between the ages of 47 and 55, while 80% have their last period between 44 and 58.^[36] The average age of the last period in the United States is 51 years, in the United Kingdom is 52 years, in Ireland is 50 years and in Australia is 51 years. In India and the Philippines, the median age of natural menopause is considerably earlier, at 44 years.^[37] The menopausal transition or perimenopause leading up to menopause usually lasts 7 years (sometimes as long as 14 years).^{[1][11]}

In rare cases, a woman's ovaries stop working at a very early age, ranging anywhere from the age of puberty to age 40. This is known as premature ovarian failure and affects 1 to 2% of women by age 40.^[38]

Undiagnosed and untreated coeliac disease is a risk factor for early menopause. Coeliac disease can present with several non-gastrointestinal symptoms, in the absence of gastrointestinal symptoms, and most cases escape timely recognition and go undiagnosed, leading to a risk of long-term complications. A strict gluten-free diet reduces the risk. Women with early diagnosis and treatment of coeliac disease present a normal duration of fertile life span.^{[39][40]}

Women who have undergone hysterectomy with ovary conservation go through menopause on average 3.7 years earlier than the expected age. Other factors that can promote an earlier onset of menopause (usually 1 to 3 years early) are smoking cigarettes or being extremely thin.^[41]

Premature ovarian failure

Premature ovarian failure (POF) is when the ovaries stop functioning before the age of 40

years.^{[42][43]} It is diagnosed or confirmed by high blood levels of follicle stimulating hormone (FSH) and luteinizing hormone (LH) on at least three occasions at least four weeks apart.^[44]

Known causes of premature ovarian failure include autoimmune disorders, thyroid disease, diabetes mellitus, chemotherapy, being a carrier of the fragile X syndrome gene, and radiotherapy.^[43] However, in about 50–80% of spontaneous cases of premature ovarian failure, the cause is unknown, i.e., it is generally idiopathic.^{[42][44]}

Women who have a functional disorder affecting the reproductive system (e.g., endometriosis, polycystic ovary syndrome, cancer of the reproductive organs) can go into menopause at a younger age than the normal timeframe. The functional disorders often significantly speed up the menopausal process.

An early menopause can be related to cigarette smoking, higher body mass index, racial and ethnic factors, illnesses, and the surgical removal of the ovaries, with or without the removal of the uterus.^[45]

Rates of premature menopause have been found to be significantly higher in fraternal and identical twins; approximately 5% of twins reach menopause before the age of 40. The reasons for this are not completely understood. Transplants of ovarian tissue between identical twins have been successful in restoring fertility.

Surgical menopause

Menopause can be surgically induced by bilateral oophorectomy (removal of ovaries), which is often, but not always, done in conjunction with removal of the Fallopian tubes (salpingo-oophorectomy) and uterus (hysterectomy).^[46] Cessation of menses as a result of removal of the ovaries is called "surgical menopause". Surgical treatments, such as the removal of ovaries, might cause periods to stop altogether.^[33] The sudden and complete drop in hormone levels usually produces extreme withdrawal symptoms such as hot flashes, etc. The symptoms of early menopause may be more severe.^[33]

Removal of the uterus *without* removal of the ovaries does *not* directly cause menopause, although pelvic surgery of this type can often precipitate a somewhat earlier menopause, perhaps because of a compromised blood supply to the ovaries. The time between surgery and possible early menopause is due to the fact that ovaries are still producing hormones.^[33]

Mechanism

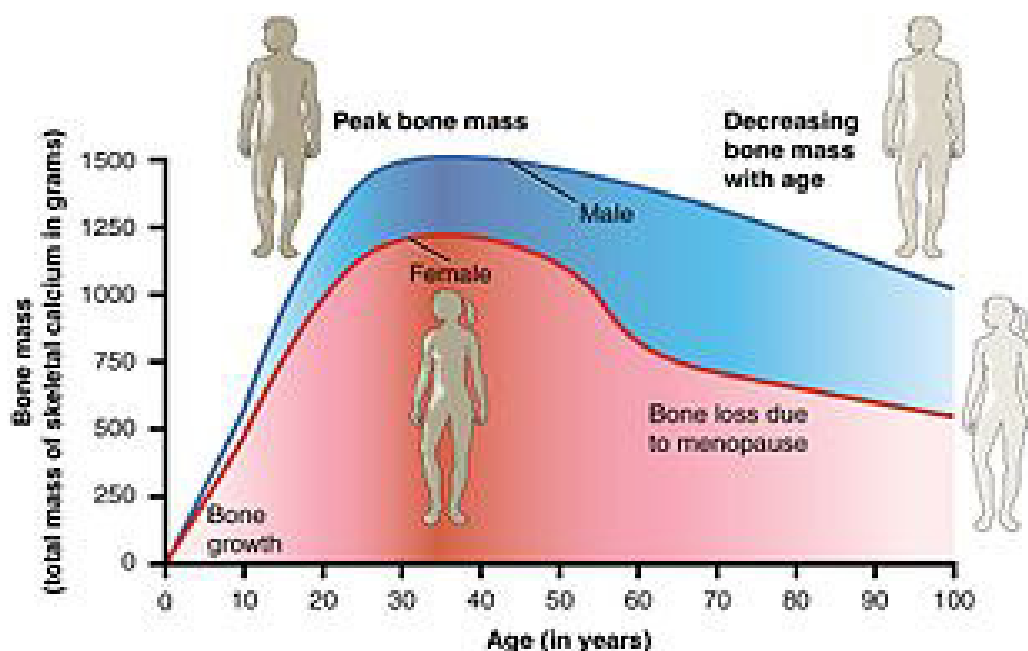


Fig.3

Bone loss due to menopause occurs due to changes in a woman's hormone levels. The menopausal transition, and post menopause itself, is a natural change, not usually a disease state or a disorder. The main cause of this transition is the natural depletion and aging of the finite amount of oocytes (ovarian reserve). This process is sometimes accelerated by other conditions and is known to occur earlier after a wide range of gynecologic procedures such as hysterectomy (with and without ovariectomy), endometrial ablation and uterine artery embolisation. The depletion of the ovarian reserve causes an increase in circulating follicle-stimulating hormone (FSH) and luteinizing hormone (LH) levels because there are fewer oocytes and follicles responding to these hormones and producing estrogen.

The transition has a variable degree of effects.^[47] The stages of the menopause transition have been classified according to a woman's reported bleeding pattern, supported by changes in the pituitary follicle-stimulating hormone (FSH) levels.^[48]

In younger women, during a normal menstrual cycle the ovaries produce estradiol, testosterone and progesterone in a cyclical pattern under the control of FSH and luteinizing hormone (LH), which are both produced by the pituitary gland. During perimenopause (approaching menopause), estradiol levels and patterns of production remain relatively unchanged or may increase compared to young women, but the cycles become frequently shorter or

irregular.^[49] The often observed increase in estrogen is presumed to be in response to elevated FSH levels that, in turn, is hypothesized to be caused by decreased feedback by inhibin.^[50] Similarly, decreased inhibin feedback after hysterectomy is hypothesized to contribute to increased ovarian stimulation and earlier menopause.^{[51][52]}

The menopausal transition is characterized by marked, and often dramatic, variations in FSH and estradiol levels. Because of this, measurements of these hormones are *not* considered to be reliable guides to a woman's exact menopausal status.^[50]

Menopause occurs because of the sharp decrease of estradiol and progesterone production by the ovaries. After menopause, estrogen continues to be produced mostly by aromatase in fat tissues and is produced in small amounts in many other tissues such as ovaries, bone, blood vessels, and the brain where it acts locally.^[53] The substantial fall in circulating estradiol levels at menopause impacts many tissues, from brain to skin.

In contrast to the sudden fall in estradiol during menopause, the levels of total and free testosterone, as well as dehydroepiandrosterone sulfate (DHEAS) and androstenedione appear to decline more or less steadily with age. An effect of natural menopause on circulating androgen levels has not been observed.^[54] Thus specific tissue effects of natural menopause cannot be attributed to loss of androgenic hormone production.^[55]

Hot flashes and other vasomotor symptoms accompany the menopausal transition. While many

sources continue to claim that hot flashes during the menopausal transition are caused by low estrogen levels, this assertion was shown incorrect in 1935, and, in most cases, hot flashes are observed despite elevated estrogen levels. The exact cause of these symptoms is not yet understood, possible factors considered are higher and erratic variation of estradiol level during the cycle, elevated FSH levels which may indicate hypothalamic dysregulation perhaps caused by missing feedback by inhibin. It has been also observed that the vasomotor symptoms differ during early perimenopause and late menopausal transition and it is possible that they are caused by a different mechanism.^[49]

Long-term effects of menopause may include osteoporosis, vaginal atrophy as well as changed metabolic profile resulting in cardiac risks.

Ovarian aging

Decreased inhibin feedback after hysterectomy is hypothesized to contribute to increased ovarian stimulation and earlier menopause. Hastened ovarian aging has been observed after endometrial ablation. While it is difficult to prove that these surgeries are causative, it has been hypothesized that the endometrium may be producing endocrine factors contributing to the endocrine feedback and regulation of the ovarian stimulation. Elimination of these factors contributes to faster depletion of the ovarian reserve. Reduced blood supply to the ovaries that may occur as a consequence of hysterectomy and uterine artery embolisation has been hypothesized to contribute to this effect.^{[51][52]}

Impaired DNA repair mechanisms may contribute to earlier depletion of the ovarian reserve during aging.^[56] As women age, double-strand breaks accumulate in the DNA of their primordial follicles. Primordial follicles are immature primary oocytes surrounded by a single layer of granulosa cells. An enzyme system is present in oocytes that ordinarily accurately repairs DNA double-strand breaks. This repair system is called "homologous recombinational repair", and it is especially effective during meiosis. Meiosis is the general process by which germ cells are formed in all sexual eukaryotes; it appears to be an adaptation for efficiently removing damages in germ line DNA.^[57]

Human primary oocytes are present at an intermediate stage of meiosis, termed prophase I (see Oogenesis). Expression of four key DNA repair genes that are necessary for homologous recombinational repair during meiosis (BRCA1, MRE11, Rad51, and ATM) decline with age in oocytes.^[56] This age-related decline in ability to repair DNA double-strand damages can account for the accumulation of these damages, that then likely contributes to the depletion of the ovarian reserve.

Diagnosis

Ways of assessing the impact on women of some of these menopause effects, include the Greene climacteric scale questionnaire,^[58] the Cervantes scale^[59] and the Menopause rating scale.^[20]

Premenopause

Premenopause is a term used to mean the years leading up to the last period, when the levels of reproductive hormones are becoming more variable and lower, and the effects of hormone withdrawal are present.^[46] Premenopause starts some time before the monthly cycles become noticeably irregular in timing.^[60]

Perimenopause

The term "perimenopause", which literally means "around the menopause", refers to the menopause transition years before the date of the final episode of flow.^{[1][11][61][62]}

According to the North American Menopause Society, this transition can last for four to eight years.^[63] The Centre for Menstrual Cycle and Ovulation Research describes it as a six- to ten-year phase ending 12 months after the last menstrual period.^[64]

During perimenopause, estrogen levels average about 20–30% higher than during premenopause, often with wide fluctuations.^[64] These fluctuations cause many of the physical changes during perimenopause as well as menopause, especially during the last 1–2 years of perimenopause (before menopause).^{[61][65]} Some of these changes

During this period, fertility diminishes but is not considered to reach zero until the official date of menopause. The official date is determined retroactively, once 12 months have passed after the last appearance of menstrual blood are hot flashes, night sweats, difficulty sleeping, mood swings, vaginal dryness or atrophy, incontinence, osteoporosis, and heart disease.^[64]

The menopause transition typically begins between 40 and 50 years of age (average 47.5).^{[66][67]} The duration of perimenopause may be for up to eight years.^[67] Women will often, but not always, start these transitions (perimenopause and menopause) about the same time as their mother did.^[68]

In some women, menopause may bring about a sense of loss related to the end of fertility. In addition, this change often occurs when other stressors may be present in a woman's life:

- Caring for, and/or the death of, elderly parents
- Empty nest syndrome when children leave home
- The birth of grandchildren, which places people of "middle age" into a new category of

"older people" (especially in cultures where being older is a state that is looked down on)

Some research appears to show that melatonin supplementation in perimenopausal women can improve thyroid function and gonadotropin levels, as well as restoring fertility and menstruation and preventing depression associated with menopause.^[69]

Postmenopause

The term "postmenopausal" describes women who have not experienced any menstrual flow for a minimum of 12 months, assuming that they have a uterus and are not pregnant or lactating.^[46] In women without a uterus, menopause or postmenopause can be identified by a blood test showing a very high FSH level. Thus postmenopause is the time in a woman's life that takes place after her last period or, more accurately, after the point when her ovaries become inactive.

The reason for this delay in declaring postmenopause is because periods are usually erratic at this time of life. Therefore, a reasonably long stretch of time is necessary to be sure that the cycling has ceased. At this point a woman is considered infertile; however, the possibility of becoming pregnant has usually been very low (but not quite zero) for a number of years before this point is reached.

A woman's reproductive hormone levels continue to drop and fluctuate for some time into postmenopause, so hormone withdrawal effects such as hot flashes may take several years to disappear. A period-like flow during postmenopause, even spotting, may be a sign of endometrial cancer.

Management

Perimenopause is a natural stage of life. It is not a disease or a disorder. Therefore, it does not automatically require any kind of medical treatment. However, in those cases where the physical, mental, and emotional effects of perimenopause are strong enough that they significantly disrupt the life of the woman experiencing them, palliative medical therapy may sometimes be appropriate.

Hormone replacement therapy

In the context of the menopause, hormone replacement therapy (HRT) is the use of estrogen in women without a uterus and estrogen plus progestin in women who have an intact uterus.^[70] HRT may be reasonable for the treatment of menopausal symptoms, such as hot flashes.^[71]

It is the most effective treatment option, especially when delivered as a skin patch.^{[72][73]} Its use, however, appears to increase the risk of strokes and blood clots.^[74] When used for menopausal symptoms some recommend it be used

for the shortest time possible and at the lowest dose possible.^[74] Evidence to support long-term use, however, is poor.^[72]

It also appears effective for preventing bone loss and osteoporotic fracture,^[75] but it is generally recommended only for women at significant risk for whom other therapies are unsuitable.^[76]

HRT may be unsuitable for some women, including those at increased risk of cardiovascular disease, increased risk of thromboembolic disease (such as those with obesity or a history of venous thrombosis) or increased risk of some types of cancer.^[76] There is some concern that this treatment increases the risk of breast cancer.^[77]

Adding testosterone to hormone therapy has a positive effect on sexual function in postmenopausal women, although it may be accompanied by hair growth, acne and a reduction in high-density lipoprotein (HDL) cholesterol.^[78] These side effects diverge depending on the doses and methods of using testosterone.^[78]

Selective estrogen receptor modulators

SERMs are a category of drugs, either synthetically produced or derived from a botanical source, that act selectively as agonists or antagonists on the estrogen receptors throughout the body. The most commonly prescribed SERMs are raloxifene and tamoxifen. Raloxifene exhibits oestrogen agonist activity on bone and lipids, and antagonist activity on breast and the endometrium.^[79] Tamoxifen is in widespread use for treatment of hormone sensitive breast cancer. Raloxifene prevents vertebral fractures in postmenopausal, osteoporotic women and reduces the risk of invasive breast cancer.^[80]

Other medications

Some of the SSRIs and SNRIs appear to provide some relief from vasomotor symptoms.^[6] Low dose paroxetine is the only non-hormonal medication that was FDA-approved to treat moderate-to-severe vasomotor symptoms associated with menopause as of 2016.^{[81][82]} They may, however, be associated with appetite and sleeping problems, constipation and nausea.^{[6][83]}

Gabapentin or clonidine may help but do not work as well as hormone therapy.^[6] Gabapentin can decrease the amount of hot flashes. Side effects associated with its use include drowsiness and headaches. Clonidine is used to improve vasomotor symptoms and may be associated with constipation, dizziness, nausea and sleeping problems.^{[6][83]}

Therapy

One review found mindfulness and cognitive behavioural therapy decreases the amount women are affected by hot flushes.^[84] Another review found not

enough evidence to make a conclusion.^[85] A 2018 study found that 85% of study participants reported reduced hot flashes and night sweats when using a climate control system in their beds.^[86]

Exercise

Exercise has been thought to reduce postmenopausal symptoms through the increase of endorphin levels, which decrease as estrogen production decreases.^[87] Additionally, high BMI is a risk factor for vasomotor symptoms in particular. However, there is insufficient evidence to support the benefits of weight loss for symptom management.^[88] There are mixed perspectives on the benefits of physical exercise. While one review found that there was a lack of quality evidence supporting a benefit of exercise,^[87] another review recommended regular healthy exercise to reduce comorbidities, improve mood and anxiety symptoms, enhance cognition, and decrease the risk of fractures.^[89] Yoga may help with postmenopausal symptoms similar to other exercise.^[90] There is insufficient evidence to suggest that relaxation techniques reduce menopausal symptoms.^[91]

Alternative medicine

There is no evidence of consistent benefit of alternative therapies for menopausal symptoms despite their popularity.^[92] The effect of soy isoflavones on menopausal symptoms is promising for reduction of hot flashes and vaginal dryness.^{[15][93]}

Hypnosis may reduce the severity of hot flashes. In addition, relaxation training with at-home relaxation audiotapes such as deep breathing, paced respiration, and guided imagery may have positive effects on relaxing muscles and reducing stress.^[98]

There is no evidence to support the efficacy of acupuncture as a management for menopausal symptoms.^{[99][92]} A 2016 Cochrane review found not enough evidence to show a difference between Chinese herbal medicine and placebo for the vasomotor symptoms.^[100]

Other efforts

- Lack of lubrication is a common problem during and after perimenopause. Vaginal moisturizers can help women with overall dryness, and lubricants can help with lubrication difficulties that may be present during intercourse. It is worth pointing out that moisturizers and lubricants are different products for different issues: some women complain that their genitalia are uncomfortably dry all the time, and they may do better with moisturizers. Those who need

only lubricants do well using them only during intercourse.

- Low-dose prescription vaginal estrogen products such as estrogen creams are generally a safe way to use estrogen topically, to help vaginal thinning and dryness problems (see vaginal atrophy) while only minimally increasing the levels of estrogen in the bloodstream.
- In terms of managing hot flashes, lifestyle measures such as drinking cold liquids, staying in cool rooms, using fans, removing excess clothing, and avoiding hot flash triggers such as hot drinks, spicy foods, etc., may partially supplement (or even obviate) the use of medications for some women.
- Individual counseling or support groups can sometimes be helpful to handle sad, depressed, anxious or confused feelings women may be having as they pass through what can be for some a very challenging transition time.
- Osteoporosis can be minimized by smoking cessation, adequate vitamin D intake and regular weight-bearing exercise. The bisphosphonate drug alendronate may decrease the risk of a fracture, in women that have both bone loss and a previous fracture and less so for those with just osteoporosis.

Dietary Recommendations in menopause

Foods to include

- Vegetables, fruit, whole grains, and legumes provide essential vitamins, minerals, antioxidants, fibre, and compounds that can reduce the risk of cancer and heart disease and improve overall health. In particular, load up on broccoli, Brussels sprouts, cauliflower, and cabbage, as these vegetables contain compounds that help the liver process hormones while reducing the risk of breast cancer.
- Soy foods (tofu, soy milk, soybeans, and soy nuts) contain isoflavones (plant based estrogens), which help minimize menopausal symptoms, offer protection against breast cancer, and improve bone health.
- Flaxseed is a rich source of fibre, which promotes bowel regularity and reduces the risk of colon and breast cancer and lowers cholesterol. It also contains lignans (another form of phytoestrogen), which may help balance estrogens and reduce menopausal symptoms.
- Fish, nuts, and seeds contain essential fatty acids that are important for heart and skin health.

Foods to avoid

- Alcohol, caffeine, and spicy foods can worsen hot flashes.
- Saturated fat (red meat) and trans fat (processed, deep-fried, and fast foods) increase the risk of heart disease.

Lifestyle Suggestions

- Stress can make menopausal symptoms more pronounced and affect adrenal gland function, reducing hormone production. Meditation, yoga, and breathing techniques can help reduce stress. Massage and acupuncture promote relaxation and studies have shown that acupuncture can reduce hot flashes.
- Get regular exercise. Studies have shown that regular exercise reduces the frequency and severity of hot flashes. It also improves mood and sleep, protects against heart disease, and weight-bearing activities strengthen the bones.
- Don't smoke. Smoking can worsen hot flashes and symptoms of anxiety, irritability, and depression.
- Consider a support group: it may help to share your experience with others.
- Laughter is good medicine. Watch funny movies, go to comedy shows, and spend time with people who make you happy and laugh.

Ensure adequate calcium intake or take a mineral supplement for bone health.

Menopause and weight gain

There are several factors that can contribute to weight gain in menopause. Highestrogen levels, as is common in perimenopause or among those with estrogen.

Diet chart for menopause mothers

EARLY MORNING: (6:00-7:00am)

- 1) Luke warm water
 - ❖ Physical activity 30m
 - ❖ Green tea
 - ❖ Lemon tea without sugar
 - ❖ Ginger tea without sugar
 - ❖ Soaked almonds-3
 - ❖

BREAKFAST: Before (9:00am)

- 1) Idly-3, uthappa, pongal, tomato rice, mint rice, broken wheat upma-1cup,
- 2) Ragi dosa-2, wheat dosa-2, green gram dosa-2, multigrain dosa-2,
- 3) Ragi malt-1cup, multi grain malt-1cup,
- 4) chapathi-2 + veg curry,
- 5) oats upma-1cup, oats dosa-2
- 6) oats + 250ml skimmed milk

- 7) fruit salad/veg salad
- TO BE AVOIDED: deep fried items.

MID MORNING: (11:00-11:30AM)

- 1) Coconut water
- 2) Butter milk
- 3) Veg salad
- 4) Fruit salad
- 5) Juice without sugar
- 6) Nuts
- 7) Green tea or lemon tea
- 8) Dry fruits

LUNCH: (1:00-2:00PM)

- 1) Brown rice-1cup + veg curry or chicken curry + curd or yogurt-1cup
- 2) Millet meal + veg curry or chicken curry + curd or yogurt -1cup
- 3) anyRoti-2 + veg curry or chicken breast + curd or yogurt-1cup

Note:

- ❖ Green leafy vegetable weekly twice
- ❖ Avoid white rice

SNACKS: (4:00-5:00PM)

- 1) Repeat mid morning snacks

DINNER: (8:00-9:00) if possible before 8:00pm

- 1) You can repeat breakfast options
- 2) Millet roti-2 + veg curry
- 3) Whole wheat roti + veg curry

TO BE AVOIDED AT NIGHT: Rice, dhal, lentils, non veg, oily fried foods.

BED TIME MEAL: optional (before 1hr to sleep)

- 1) Easily digest fruits
- 2) Turmeric milk without sugar

NOTE:

- ❖ 6L water per day
- ❖ 6-8hrs sleep per day
- ❖ Min 30m physical activity
- ❖ Add more fruits and vegetable
- ❖ No white sugar
- ❖ No processed foods(biscuits, cookies, baked foods, chips)
- ❖ No sugar drinks(cool drinks)
- ❖ Limit salt
- ❖ Limit spice
- ❖ No deep fries
- ❖ Avoid alcohol
- ❖ Avoid fast foods
- ❖ Avoid refined flour and white flour (Maida, rice flour)

Recommended Lactonova Nutrition

Immunize, Lycoten forte, foscal-i, NutralProtien powder,liquimega

REFERENCES

- [1]. Eunice Kennedy Shriver National Institute of Child Health and Human Development. 28 June 2013. Archived from the original on 2 April 2015. Retrieved 8 March 2015.
- [2]. Takahashi TA, Johnson KM (May 2015). "Menopause". *The Medical Clinics of North America*. 99 (3): 521–34.
- [3]. Eunice Kennedy Shriver National Institute of Child Health and Human Development. 28 June 2013.
- [4]. Eunice Kennedy Shriver National Institute of Child Health and Human Development. 6 May 2013.
- [5]. Eunice Kennedy Shriver National Institute of Child Health and Human Development. 28 June 2013..
- [6]. Krause MS, Nakajima ST (March 2015). "Hormonal and nonhormonal treatment of vasomotor symptoms". *Obstetrics and Gynecology Clinics of North America*. 42 (1): 163–79. .
- [7]. PubMedHealth. 29 August 2013. Archived from the original on 10 September 2017. Retrieved 8 March 2015.
- [8]. Lynnette Leidy (2006). *Menopause : a biocultural perspective* ([Online-Ausg.] ed.). New Brunswick, N.J.: Rutgers University Press. p. 81. ISBN 9780813538563. Archived from the original on 10 September 2017.
- [9]. International position paper on women's health and menopause : a comprehensive approach. DIANE Publishing. 2002. p. 36. ISBN 9781428905214. Archived from the original on 10 September 2017.
- [10]. Eunice Kennedy Shriver National Institute of Child Health and Human Development. 6 May 2013. Archived from the original on 20 March 2015. Retrieved 8 March 2015.
- [11]. . National Institute on Aging. Retrieved 6 October 2018.
- [12]. Warren M, Soares CN, eds. (2009). *The menopausal transition: interface between gynecology and psychiatry* ([Online-Ausg.] ed.). Basel: Karger. p. 73. ISBN 978-3805591010.
- [13]. Eunice Kennedy Shriver National Institute of Child Health and Human Development. 6 May 2013. Archived from the original on 2 April 2015. Retrieved 8 March 2015.
- [14]. *Dynamics of Human Reproduction: Biology, Biometry, Demography*. Transaction Publishers. p. 401. ISBN 9780202365701. Archived from the original on 10 September 2017.
- [15]. Franco OH, Chowdhury R, Troup J, Voortman T, Kunutsor S, Kavousi M, Oliver-Williams C, Muka T (June 2016). "Use of Plant-Based Therapies and Menopausal Symptoms: A Systematic Review and Meta-analysis". *JAMA*. 315 (23): 2554–63. doi:10.1001/jama.2016.8012. PMID 27327802.
- [16]. Hoffman, Barbara (2012). *Williams Gynecology*. New York: McGraw-Hill Medical. pp. 555–56. ISBN 9780071716727.
- [17]. Dreisler E, Poulsen LG, Antonsen SL, Ceausu I, Depypere H, Erel CT, Lambrinoudaki I, Pérez-López FR, Simoncini T, Tremollieres F, Rees M, Ulrich LG (June 2013). "EMAS clinical guide: assessment of the endometrium in peri and postmenopausal women". *Maturitas*. 75 (2): 181–90.
- [18]. "Red in the Face". NIH News in Health. 27 June 2017. Retrieved 31 March 2021.
- [19]. Pérez-López FR, Cuadros JL, Fernández-Alonso AM, Chedraui P, Sánchez-Borrego R, Monterrosa-Castro A (December 2012). "Urinary incontinence, related factors and menopause-related quality of life in mid-aged women assessed with the Cervantes Scale". *Maturitas*. 73 (4): 369–72. .
- [20]. Chedraui P, Pérez-López FR, Mendoza M, Leimberg ML, Martínez MA, Vallarino V, Hidalgo L (January 2010). "Factors related to increased daytime sleepiness during the menopausal transition as evaluated by the Epworth sleepiness scale". *Maturitas*. 65 (1): 75–80.
- [21]. Arakane M, Castillo C, Rosero MF, Peñafiel R, Pérez-López FR, Chedraui P (June 2011). "Factors relating to insomnia during the menopausal transition as evaluated by the Insomnia Severity Index". *Maturitas*. 69 (2): 157–61.
- [22]. Monterrosa-Castro A, Marrugo-Flórez M, Romero-Pérez I, Chedraui P, Fernández-Alonso AM, Pérez-López FR (April 2013). "Prevalence of insomnia and related factors in a large mid-aged female Colombian sample". *Maturitas*. 74 (4): 346–51.
- [23]. Llana P, García-Portilla MP, Llana-Suárez D, Armott B, Pérez-López FR (February 2012). "Depressive disorders and the menopause transition". *Maturitas*. 71 (2): 120–30.
- [24]. Panay N, Briggs P, Kovacs G (20 August 2015). "Memory and Mood in the Menopause". *Managing the Menopause: 21st Century Solutions*. Cambridge University Press. ISBN 9781316352717.
- [25]. Birkhaeuser M, Genazzani AR (30 January 2018). *Pre-Menopause, Menopause and Beyond: Volume 5: Frontiers in Gynecological Endocrinology*. Springer. pp. 38–39.
- [26]. Papadakis MA, McPhee SJ, Rabow MW (11 September 2017). *Current Medical Diagnosis and Treatment 2018*, 57th Edition. McGraw Hill Professional. p. 1212. .
- [27]. Mitchell RS, Kumar V, Abbas AK, Fausto N (2007). *Robbins Basic Pathology: With Student Consult Online Access* (8th ed.). Philadelphia: Saunders. p. 344.
- [28]. Souza HC, Tezini GC (September 2013). "Autonomic Cardiovascular Damage during Post-menopause: the Role of Physical Training". *Aging and Disease*. 4 (6): 320–8.

- [29]. ESHRE Capri Workshop Group (2011). "Perimenopausal risk factors and future health". *Human Reproduction Update*. 17 (5): 706–17. doi:10.1093/humupd/dmr020. PMID 21565809.
- [30]. Finkelstein JS, Brockwell SE, Mehta V, Greendale GA, Sowers MR, Ettinger B, Lo JC, Johnston JM, Cauley JA, Danielson ME, Neer RM (March 2008). "Bone mineral density changes during the menopause transition in a multiethnic cohort of women". *The Journal of Clinical Endocrinology and Metabolism*. 93 (3): 861–8. doi:10.1210/jc.2007-1876. PMC 2266953. PMID 18160467.
- [31]. Amaral AF, Strachan DP, Gómez Real F, Burney PG, Jarvis DL (November 2016). "Lower lung function associates with cessation of menstruation: UK Biobank data" (PDF). *The European Respiratory Journal*. 48 (5): 1288–1297. .
- [32]. Triebner K, Matulonga B, Johannessen A, Suske S, Benediktsdóttir B, Demoly P, Dharmage SC, Franklin KA, Garcia-Aymerich J, Gullón Blanco JA, Heinrich J, Holm M, Jarvis D, Jøgi R, Lindberg E, MoratallaRovira JM, MuniozgurenAgirre N, Pin I, Probst-Hensch N, Puggini L, Raheison C, Sánchez-Ramos JL, Schlünssen V, Sunyer J, Svanes C, Hustad S, Leynaert B, Gómez Real F (April 2017). "Menopause Is Associated with Accelerated Lung Function Decline". *American Journal of Respiratory and Critical Care Medicine*. 195 (8): 1058–1065.
- [33]. Womenshealth.gov. 12 July 2017. Retrieved 7 November2018.
- [34]. Muka T, Oliver-Williams C, Kunutsor S, Laven JS, Fauser BC, Chowdhury R, Kavousi M, Franco OH (October 2016). "Association of Age at Onset of Menopause and Time Since Onset of Menopause With Cardiovascular Outcomes, Intermediate Vascular Traits, and All-Cause Mortality: A Systematic Review and Meta-analysis". *JAMA Cardiology*. 1 (7): 767–776.
- [35]. "Gynaecologic Problems: Menopausal Problems". *Health on the Net Foundation*. Retrieved 22 February 2012.
- [36]. Morabia A, Costanza MC (December 1998). "International variability in ages at menarche, first livebirth, and menopause. World Health Organization Collaborative Study of Neoplasia and Steroid Contraceptives". *American Journal of Epidemiology*. 148 (12): 1195–205. doi:10.1093/oxfordjournals.aje.a009609. PMID 9867266.
- [37]. Ringa V (2000). "Menopause and treatments". *Quality of Life Research*. 9 (6): 695–707.
- [38]. Podfigurna-Stopa A, Czyzyk A, Grymowicz M, Smolarczyk R, Katulski K, Czajkowski K, Meczekalski B (September 2016). "Premature ovarian insufficiency: the context of long-term effects". *Journal of Endocrinological Investigation*. 39(9): 983–90. doi:10.1007/s40618-016-0467-z. PMC 4987394. PMID 27091671.
- [39]. Tersigni C, Castellani R, de Waure C, Fattorossi A, De Spirito M, Gasbarrini A, Scambia G, Di Simone N (2014). "Celiac disease and reproductive disorders: meta-analysis of epidemiologic associations and potential pathogenic mechanisms". *Human Reproduction Update*. 20 (4): 582–93. doi:10.1093/humupd/dmu007. PMID 24619876.
- [40]. Lasa JS, Zubiaurre I, Soifer LO (2014). "Risk of infertility in patients with celiac disease: a meta-analysis of observational studies". *Arquivos de Gastroenterologia*. 51 (2): 144–50. doi:10.1590/S0004-28032014000200014. PMID 25003268.
- [41]. Healthline (2 July 2014). "What causes early menopause". *Healthline*. Archived from the original on 28 September 2013.
- [42]. Laissue P (August 2015). "Aetiological coding sequence variants in non-syndromic premature ovarian failure: From genetic linkage analysis to next generation sequencing". *Molecular and Cellular Endocrinology (Review)*. 411: 243–57. doi:10.1016/j.mce.2015.05.005. PMID 25960166.
- [43]. Fenton AJ (2015). "Premature ovarian insufficiency: Pathogenesis and management". *Journal of Mid-Life Health (Review)*. 6 (4): 147–53. doi:10.4103/0976-7800.172292. PMC 4743275. PMID 26903753.
- [44]. Kalantaridou SN, Davis SR, Nelson LM. *Endocrinology Metabolism Clinics of North America*, December 1998; 27(4) 989–1006.
- [45]. Harlow SD, Gass M, Hall JE, Lobo R, Maki P, Rebar RW, Sherman S, Sluss PM, de Villiers TJ (April 2012). "Executive summary of the Stages of Reproductive Aging Workshop + 10: addressing the unfinished agenda of staging reproductive aging". *Fertility and Sterility*. 97 (4): 843–51. doi:10.1016/j.fertnstert.2012.01.128. PMC 3340904. PMID 22341880.
- [46]. Cohen LS, Soares CN, Vitonis AF, Otto MW, Harlow BL (April 2006). "Risk for new onset of depression during the menopausal transition: the Harvard study of moods and cycles". *Archives of General Psychiatry*. The Harvard Study of Moods and Cycles. 63 (4): 385–90. doi:10.1001/archpsyc.63.4.385. PMID 16585467.
- [47]. Soules MR, Sherman S, Parrott E, Rebar R, Santoro N, Utian W, Woods N (December 2001). "Executive summary: Stages of Reproductive Aging Workshop (STRAW)". *Climacteric*. 4 (4): 267–72. doi:10.1080/cmt.4.4.267.272. PMID 11770182. S2CID 28673617.

- [48]. Prior JC (August 1998). "Perimenopause: the complex endocrinology of the menopausal transition". *Endocrine Reviews*. 19 (4): 397–428. doi:10.1210/edrv.19.4.0341. PMID 9715373.
- [49]. Burger HG (January 1994). "Diagnostic role of follicle-stimulating hormone (FSH) measurements during the menopausal transition--an analysis of FSH, oestradiol and inhibin". *European Journal of Endocrinology*. 130 (1): 38–42. doi:10.1530/eje.0.1300038. PMID 8124478.
- [50]. Nahás E, Pontes A, Traiman P, NahásNeto J, Dalben I, De Luca L (April 2003). "Inhibin B and ovarian function after total abdominal hysterectomy in women of reproductive age". *Gynecological Endocrinology*. 17 (2): 125–31. doi:10.1080/713603218. PMID 12737673.
- [51]. Petri Nahás EA, Pontes A, Nahas-Neto J, Borges VT, Dias R, Traiman P (February 2005). "Effect of total abdominal hysterectomy on ovarian blood supply in women of reproductive age". *Journal of Ultrasound in Medicine*. 24 (2): 169–74. doi:10.7863/jum.2005.24.2.169. PMID 15661947. S2CID 30259666.
- [52]. Simpson ER, Davis SR (November 2001). "Minireview: aromatase and the regulation of estrogen biosynthesis--some new perspectives". *Endocrinology*. 142 (11): 4589–94. doi:10.1210/en.142.11.4589. PMID 11606422.
- [53]. Davison SL, Bell R, Donath S, Montalto JG, Davis SR (July 2005). "Androgen levels in adult females: changes with age, menopause, and oophorectomy". *The Journal of Clinical Endocrinology and Metabolism*. 90 (7): 3847–53. doi:10.1210/jc.2005-0212. PMID 15827095.
- [54]. Fogle RH, Stanczyk FZ, Zhang X, Paulson RJ (August 2007). "Ovarian androgen production in postmenopausal women". *The Journal of Clinical Endocrinology and Metabolism*. 92 (8): 3040–3. doi:10.1210/jc.2007-0581. PMID 17519304.
- [55]. Titus S, Li F, Stobezki R, Akula K, Unsal E, Jeong K, Dickler M, Robson M, Moy F, Goswami S, Oktay K (February 2013). "Impairment of BRCA1-related DNA double-strand break repair leads to ovarian aging in mice and humans". *Science Translational Medicine*. 5 (172): 172ra21. doi:10.1126/scitranslmed.3004925. PMC 5130338. PMID 23408054.
- [56]. Brandl E, Mirzaghaderi G (September 2016). "The evolution of meiotic sex and its alternatives". *Proceedings of the Royal Society B: Biological Sciences*. Proc Biol Sci. 283 (1838). doi:10.1098/rspb.2016.1221. PMC 5031655. PMID 27605505.
- [57]. Greene JG (May 1998). "Constructing a standard climacteric scale". *Maturitas*. 29 (1): 25–31. doi:10.1016/s0378-5122(98)00025-5. PMID 9643514.
- [58]. Monterrosa-Castro A, Romero-Pérez I, Marrugo-Flórez M, Fernández-Alonso AM, Chedraui P, Pérez-López FR (August 2012). "Quality of life in a large cohort of mid-aged Colombian women assessed using the Cervantes Scale". *Menopause*. 19 (8): 924–30. doi:10.1097/gme.0b013e318247908d. PMID 22549166. S2CID 19201297.
- [59]. Schneider HP, Naftolin F (2005). *Climacteric medicine where do we go?*. London: Taylor & Francis. p. 28. ISBN 9780203024966.
- [60]. "What Is Perimenopause?". WebMD. Retrieved 6 October 2018.
- [61]. "Perimenopause - Symptoms and causes". Mayo Clinic. Retrieved 6 October 2018.
- [62]. "Menopause 101". A primer for the perimenopausal. The North American Menopause Society. Archived from the original on 10 April 2013. Retrieved 11 April 2013.
- [63]. Prior J. "Perimenopause". Centre for Menstrual Cycle and Ovulation Research (CeMCOR). Archived from the original on 25 February 2013. Retrieved 10 May 2013.
- [64]. Chichester M, Ciranni P (August–September 2011). "Approaching menopause (but not there yet!): caring for women in midlife". *Nursing for Women's Health*. 15 (4): 320–4. doi:10.1111/j.1751-486X.2011.01652.x. PMID 21884497.
- [65]. Hurst, Bradley S. (2011). *Disorders of menstruation*. Chichester, West Sussex: Wiley-Blackwell. ISBN 9781444391817.
- [66]. McNamara M, Batur P, DeSapri KT (February 2015). "In the clinic. Perimenopause". *Annals of Internal Medicine*. 162(3): ITC1–15. doi:10.7326/AITC201502030. PMID 25643316.
- [67]. Kessenich C. "Inevitable Menopause". Archived from the original on 2 November 2013. Retrieved 11 April 2013.
- [68]. Bellipanni G, DI Marzo F, Blasi F, Di Marzo A (December 2005). "Effects of melatonin in perimenopausal and menopausal women: our personal experience". *Annals of the New York Academy of Sciences*. 1057 (1): 393–402. Bibcode:2005NYASA1057..393B. doi:10.1196/annals.1356.030. PMID 16399909. S2CID 25213110.
- [69]. The Woman's Health Program Monash University, Oestrogen and Progestin as Hormone Therapy Archived 11 July 2012 at the Wayback Machine
- [70]. "Estrogen and progestogen use in postmenopausal women: 2010 position statement of The North American Menopause Society". *Menopause*. 17 (2): 242–55.

- [71]. North American Menopause Society (March 2012). "The 2012 hormone therapy position statement of: The North American Menopause Society". *Menopause*.
- [72]. Sarri G, Pedder H, Dias S, Guo Y, Lumsden MA (September 2017). "Vasomotor symptoms resulting from natural menopause: a systematic review and network meta-analysis of treatment effects from the National Institute for Health and Care Excellence guideline on menopause"(PDF). *BJOG*. 124 (10): 1514–1523. doi:10.1111/1471-0528.14619. PMID 28276200. S2CID 206909766.
- [73]. Boardman HM, Hartley L, Eisinga A, Main C, RoquéiFiguls M, BonfillCosp X, Gabriel Sanchez R, Knight B (March 2015). "Hormone therapy for preventing cardiovascular disease in post-menopausal women". *The Cochrane Database of Systematic Reviews* (3): CD002229.
- [74]. de Villiers TJ, Stevenson JC (June 2012). "The WHI: the effect of hormone replacement therapy on fracture prevention". *Climacteric*. 15 (3): 263–266. doi:10.3109/13697137.2012.659975. PMID 22612613. S2CID 40340985.
- [75]. Marjoribanks J, Farquhar C, Roberts H, Lethaby A, Lee J (January 2017). "Long-term hormone therapy for perimenopausal and postmenopausal women". *The Cochrane Database of Systematic Reviews*. 1:CD004143. doi:10.1002/14651858.CD004143.pub5. PMC 6465148. PMID 28093732.
- [76]. Chlebowski RT, Anderson GL (April 2015). "Menopausal hormone therapy and breast cancer mortality: clinical implications". *Therapeutic Advances in Drug Safety*. 6 (2): 45–56. doi:10.1177/2042098614568300. PMC 4406918. PMID 25922653
- [77]. Somboonporn W, Davis S, Seif MW, Bell R (October 2005). "Testosterone for peri- and postmenopausal women". *The Cochrane Database of Systematic Reviews* (4): CD004509. doi:10.1002/14651858.CD004509.pub2. PMID 16235365
- [78]. Davis SR, Dinatale I, Rivera-Woll L, Davison S (May 2005). "Postmenopausal hormone therapy: from monkey glands to transdermal patches". *The Journal of Endocrinology*. 185(2): 207–22. doi:10.1677/joe.1.05847. PMID 15845914.
- [79]. Bevers TB (September 2007). "The STAR trial: evidence for raloxifene as a breast cancer risk reduction agent for postmenopausal women". *Journal of the National Comprehensive Cancer Network*. 5 (8): 719–24. doi:10.6004/jnccn.2007.0073. PMID 17927929.
- [80]. Orleans RJ, Li L, Kim MJ, Guo J, Sobhan M, Soule L, Joffe HV (May 2014). "FDA approval of paroxetine for menopausal hot flushes". *The New England Journal of Medicine*. 370 (19): 1777–9. doi:10.1056/NEJMp1402080. PMID 24806158.
- [81]. Hill DA, Crider M, Hill SR (December 2016). "Hormone Therapy and Other Treatments for Symptoms of Menopause". *American Family Physician*. 94 (11): 884–889. PMID 27929271.
- [82]. Potter B, Schrager S, Dalby J, Torell E, Hampton A (December 2018). "Menopause". *Primary Care. Women's Health*. 45 (4): 625–641. doi:10.1016/j.pop.2018.08.001. PMID 30401346.
- [83]. van Driel CM, Stuursma A, Schroevens MJ, Mourits MJ, de Bock GH (February 2019). "Mindfulness, cognitive behavioural and behaviour-based therapy for natural and treatment-induced menopausal symptoms: a systematic review and meta-analysis". *BJOG*. 126 (3): 330–339.
- [84]. Goldstein KM, Shepherd-Banigan M, Coeytaux RR, McDuffie JR, Adam S, Befus D, et al. (April 2017). "Use of mindfulness, meditation and relaxation to treat vasomotor symptoms". *Climacteric*. 20 (2): 178–182.
- [85]. "BedJet is Clinically Proven Treatment for Menopausal Sleep Disturbances". 9 October 2018. Retrieved 24 November 2019.
- [86]. Hickey M, Szabo RA, Hunter MS (November 2017). "Non-hormonal treatments for menopausal symptoms". *BMJ*. 359: j5101. doi:10.1136/bmj.j5101. PMID 29170264. S2CID 46856968.
- [87]. Moore TR, Franks RB, Fox C (May 2017). "Review of Efficacy of Complementary and Alternative Medicine Treatments for Menopausal Symptoms". *Journal of Midwifery & Women's Health*. 62 (3): 286–297. doi:10.1111/jmwh.12628. PMID 28561959. S2CID 4756342.
- [88]. Grindler NM, Santoro NF (December 2015). "Menopause and exercise". *Menopause*. 22 (12): 1351–8. doi:10.1097/GME.0000000000000536. PMID 26382311. S2CID 27802470.
- [89]. Cramer H, Peng W, Lauche R (March 2018). "Yoga for menopausal symptoms-A systematic review and meta-analysis". *Maturitas*. 109: 13–25. doi:10.1016/j.maturitas.2017.12.005. PMID 29452777.
- [90]. Saensak S, Vutyavanich T, Somboonporn W, Srisurapanont M (20 July 2014). "Relaxation for perimenopausal and postmenopausal symptoms". *Cochrane Database SystRev*(7): CD008582. doi:10.1002/14651858.CD008582.pub2. PMID 25039019
- [91]. Nedrow A, Miller J, Walker M, Nygren P, Huffman LH, Nelson HD (July 2006). "Complementary and alternative therapies for the management of menopause-related symptoms: a systematic evidence review". *Archives of Internal Medicine*. 166 (14): 1453–65. doi:10.1001/archinte.166.14.1453. PMID 16864755.

- [92]. Bolaños R, Del Castillo A, Francia J (2010). "Soy isoflavones versus placebo in the treatment of climacteric vasomotor symptoms: systematic review and meta-analysis". *Menopause*. 17 (3): 660–6. doi:10.1097/gme.0b013e3181cb4fb5. PMID 20464785. S2CID 25552285.
- [93]. Lethaby A, Marjoribanks J, Kronenberg F, Roberts H, Eden J, Brown J (December 2013). "Phytoestrogens for menopausal vasomotor symptoms". *The Cochrane Database of Systematic Reviews*. 12 (12): CD001395. doi:10.1002/14651858.CD001395.pub4. PMID 24323914.
- [94]. EFSA Femarelle® and bone mineral density Archived30 January 2012 at the Wayback Machine Scientific substantiation of a health claim related to "Femarelle®" and "induces bone formation and increases bone mineral density reducing the risk for osteoporosis and other bone disorders" pursuant to Article 14 of the Regulation (EC) No 1924/20061 Scientific Opinion of the Panel on Dietetic Products, Nutrition and Allergies. *The EFSA Journal* (2008) 785, pp. 1–10]
- [95]. Leach MJ, Moore V (September 2012). "Black cohosh (*Cimicifuga* spp.) for menopausal symptoms". *The Cochrane Database of Systematic Reviews*. 9 (9): CD007244. doi:10.1002/14651858.CD007244.pub2. PMC 6599854. PMID 22972105.
- [96]. Clement YN, Onakpoya I, Hung SK, Ernst E (March 2011). "Effects of herbal and dietary supplements on cognition in menopause: a systematic review". *Maturitas*. 68 (3): 256–63. doi:10.1016/j.maturitas.2010.12.005. PMID 21237589.
- [97]. Johnson A, Roberts L, Elkins G (2019). "Complementary and Alternative Medicine for Menopause". *Journal of Evidence-Based Integrative Medicine*. 24: 2515690X19829380. doi:10.1177/2515690X19829380. PMC 6419242. PMID 30868921.
- [98]. Dodin S, Blanchet C, Marc I, Ernst E, Wu T, Vaillancourt C, Paquette J, Maunsell E (July 2013). "Acupuncture for menopausal hot flushes". *The Cochrane Database of Systematic Reviews*. 7 (7): CD007410. doi:10.1002/14651858.CD007410.pub2. PMC 6544807. PMID 23897589.
- [99]. Zhu X, Liew Y, Liu ZL (March 2016). "Chinese herbal medicine for menopausal symptoms". *The Cochrane Database of Systematic Reviews*. 3: CD009023. doi:10.1002/14651858.CD009023.pub2. PMC 4951187. PMID 26976671.
- [100]. Wells GA, Cranney A, Peterson J, Boucher M, Shea B, Robinson V, Coyle D, Tugwell P (January 2008). "Alendronate for the primary and secondary prevention of osteoporotic fractures in postmenopausal women". *The Cochrane Database of Systematic Reviews* (1): CD001155.