



MENOPAUSE SYMPTOMS, HEALTH EFFECTS, AND WAYS TO MANAGE SYMPTOMS

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Annotation: This article provides a comprehensive, evidence-based analysis of menopause, a critical biological transition in women's lives marked by the cessation of menstrual cycles due to ovarian follicular depletion and declining estrogen and progesterone levels. It explores the multifaceted symptoms of menopause, including vasomotor symptoms (hot flashes, night sweats), mood disturbances, cognitive complaints, and genitourinary syndrome, which affect 75-85% of women to varying degrees. The long-term health implications, such as increased risks of osteoporosis, cardiovascular disease, metabolic disorders, and shifts in cancer risk profiles, are examined in detail, emphasizing estrogen's protective roles. Management strategies are thoroughly discussed, encompassing hormone replacement therapy (HRT), non-hormonal pharmacological options (e.g., SSRIs, gabapentin), lifestyle interventions (exercise, diet, smoking cessation), and psychological support (CBT, mindfulness). The article also addresses complementary therapies (phytoestrogens, acupuncture) and their variable efficacy, alongside emerging treatments like neurokinin-3 receptor antagonists. Psychosocial and cultural influences on the menopausal experience are considered, advocating for shared decision-making to enhance treatment adherence. This work integrates recent clinical research and underscores the importance of individualized care to optimize health outcomes and quality of life during and beyond menopause.

Keywords: Menopause, perimenopause, vasomotor symptoms, hot flashes, night sweats, genitourinary syndrome, osteoporosis, cardiovascular disease, hormone replacement therapy, non-hormonal treatments, lifestyle interventions, cognitive behavioral therapy, phytoestrogens, acupuncture, shared decision-making, neurokinin-3 receptor antagonists, psychosocial factors, women's health.

Menopause represents a pivotal transition in a woman's life, characterized by the permanent cessation of menstrual cycles due to the depletion of ovarian follicular reserves and a consequent decline in estrogen and progesterone production. Typically occurring between ages 45 and 55, menopause is clinically



confirmed after 12 consecutive months without menstruation. This biological milestone, while a universal aspect of female aging, manifests with a spectrum of symptoms and health implications that vary widely in intensity and impact. The physiological, psychological, and social dimensions of menopause necessitate a comprehensive understanding of its signs, long-term health consequences, and evidence-based management strategies to optimize women's health and quality of life during and beyond this transition. This article provides an in-depth, scientifically grounded exploration of these facets, emphasizing recent research and clinical insights to guide effective interventions.

The journey to menopause begins with perimenopause, a transitional phase that may last several years, during which ovarian function gradually declines, leading to irregular menstrual cycles and hormonal fluctuations. Estrogen levels oscillate unpredictably, contributing to a constellation of symptoms that affect up to 80% of women. Vasomotor symptoms, notably hot flashes and night sweats, are among the most common, affecting 75-85% of women. Hot flashes manifest as sudden, intense sensations of heat, often accompanied by sweating, flushing, and occasionally chills, lasting from 30 seconds to 10 minutes. These episodes stem from altered hypothalamic thermoregulation, where declining estrogen levels disrupt the brain's temperature control mechanisms, triggering inappropriate heat dissipation responses. Night sweats, occurring during sleep, exacerbate sleep disturbances, contributing to fatigue, irritability, and impaired cognitive function. Sleep disruptions, reported by 40-60% of perimenopausal and postmenopausal women, are further compounded by primary insomnia or secondary causes such as mood disorders or sleep apnea, which become more prevalent with age.

Mood and psychological symptoms are also significant, with 20-40% of women experiencing increased anxiety, depression, or emotional lability during perimenopause. Hormonal fluctuations, particularly rapid changes in estradiol, influence neurotransmitter systems, including serotonin and gamma-aminobutyric acid (GABA), which regulate mood and stress responses. Women with a history of premenstrual syndrome or postpartum depression may be particularly vulnerable, as these conditions suggest a heightened sensitivity to hormonal shifts. Cognitive complaints, such as memory lapses or difficulty concentrating (often termed "brain fog"), are reported by approximately 60% of women, though longitudinal studies, such as the Study of Women's Health Across the Nation (SWAN), indicate that these effects are often transient and not necessarily indicative of long-term cognitive decline. Genitourinary syndrome of



menopause (GSM), encompassing vaginal dryness, dyspareunia, and urinary symptoms like urgency or recurrent infections, affects up to 50% of postmenopausal women. These symptoms result from estrogen deficiency, which reduces vaginal epithelial thickness and lubrication, impairing sexual function and increasing susceptibility to infections.

The long-term health implications of menopause are profound, driven primarily by the loss of estrogen's protective effects. Osteoporosis is a major concern, as estrogen inhibits osteoclast activity, thereby maintaining bone density. Post-menopause, bone resorption accelerates, leading to a 2-3% annual bone loss in the first 5-7 years, particularly in trabecular bone sites like the spine and hip. This increases the lifetime risk of osteoporotic fractures to 50%, with hip fractures associated with significant morbidity and a 20-30% one-year mortality rate in older women. Dual-energy X-ray absorptiometry (DEXA) screening is recommended for women over 65 or younger with risk factors (e.g., smoking, low body weight, or family history) to assess bone mineral density and guide preventive measures. Cardiovascular disease (CVD) risk also rises sharply, as estrogen supports vasodilation, favorable lipid profiles (higher HDL, lower LDL), and anti-inflammatory pathways. Postmenopausal women face a 2-3-fold increased risk of coronary artery disease, with studies like the Framingham Heart Study highlighting a shift toward atherogenic lipid profiles (elevated LDL and triglycerides). Visceral fat accumulation, driven by hormonal and metabolic changes, further elevates risks of metabolic syndrome, insulin resistance, and type 2 diabetes, with 20-30% of postmenopausal women developing these conditions.

Cancer risk profiles also shift post-menopause. While breast cancer risk is influenced by cumulative estrogen exposure, the decline in endogenous estrogen may slightly reduce risk in some women, though obesity and HRT use can counteract this. Endometrial cancer risk decreases post-menopause due to the cessation of unopposed estrogen stimulation, but women on estrogen-only HRT (without progesterone) face an elevated risk of endometrial hyperplasia, a precursor to cancer. Colorectal cancer risk, however, may increase slightly, potentially due to changes in bile acid metabolism and gut microbiota influenced by estrogen decline. Cognitive health remains an area of active research, with conflicting evidence on menopause's role in dementia risk. While some studies suggest estrogen's neuroprotective effects may mitigate Alzheimer's disease risk, others, including data from the Women's Health Initiative Memory Study,



indicate no clear protective effect of HRT on cognitive decline, underscoring the complexity of hormonal influences on brain health.

Effective management of menopausal symptoms and long-term health risks requires a tailored, evidence-based approach. Hormone replacement therapy (HRT) is the gold standard for alleviating vasomotor symptoms and GSM, with systemic estrogen (oral or transdermal) reducing hot flash frequency and severity by 70-90%. For women with an intact uterus, combined estrogen-progesterone therapy prevents endometrial hyperplasia. The Women's Health Initiative (WHI) clarified HRT's risk-benefit profile: while effective for symptom relief and fracture prevention, it carries risks, including a 26% increased breast cancer risk and a 29% increased thromboembolism risk after five years of use. Thus, guidelines recommend the lowest effective dose for the shortest duration, typically initiated before age 60 or within 10 years of menopause to optimize safety. Transdermal estrogen may offer a lower thromboembolism risk compared to oral formulations. For women with contraindications (e.g., breast cancer history or thrombophilia), non-hormonal options like low-dose paroxetine (7.5 mg/day), a selective serotonin reuptake inhibitor, reduces hot flashes by 40-60%. Gabapentin (300-900 mg/day) and clonidine (0.1 mg/day) are alternatives, though less effective, with side effects like drowsiness limiting their use.

Lifestyle interventions are foundational for both symptom management and long-term health. Weight-bearing exercises (e.g., walking, resistance training) reduce bone loss by stimulating osteoblast activity, while aerobic exercise (150 minutes/week) improves cardiovascular health, mood, and weight control. Dietary strategies emphasize calcium (1200 mg/day) and vitamin D (800-1000 IU/day) for bone health, with fortified foods or supplements recommended for deficient individuals. A Mediterranean diet, rich in omega-3 fatty acids, fiber, and antioxidants, supports lipid profiles and reduces inflammation, mitigating CVD and diabetes risk. Smoking cessation is critical, as tobacco exacerbates vasomotor symptoms and accelerates bone loss and CVD risk. Alcohol moderation (≤ 1 drink/day) is advised to avoid exacerbating hot flashes and breast cancer risk. Cognitive behavioral therapy (CBT) is highly effective for managing mood disorders and insomnia, with randomized trials showing 50-70% improvement in sleep quality and anxiety. Mindfulness-based stress reduction (MBSR) and yoga further support emotional resilience and sleep, with studies reporting 20-40% reductions in hot flash severity.



Non-pharmacological and complementary therapies are increasingly popular but require cautious evaluation. Phytoestrogens, such as soy isoflavones, mimic estrogen's effects but yield inconsistent results; meta-analyses suggest a 10-20% reduction in hot flashes with high-dose isoflavones (50-100 mg/day), though placebo effects are significant. Acupuncture shows promise in small trials, reducing hot flash frequency by 30-50%, but large-scale, high-quality studies are lacking. Herbal remedies like black cohosh are widely used, yet systematic reviews find no consistent benefit, and rare cases of hepatotoxicity raise safety concerns. Women must consult healthcare providers to avoid herb-drug interactions, particularly with supplements like St. John's wort, which can affect antidepressant metabolism.

The genitourinary syndrome of menopause responds well to low-dose vaginal estrogen (creams, rings, or tablets), which restores vaginal epithelium with minimal systemic absorption, reducing risks associated with systemic HRT. Non-hormonal vaginal moisturizers and lubricants provide symptomatic relief for mild cases, while ospemifene, a selective estrogen receptor modulator, is an oral option for dyspareunia, though it carries a small thromboembolism risk. Regular sexual activity may also improve vaginal health by enhancing blood flow and elasticity.

Psychosocial and cultural factors significantly shape the menopausal experience. In cultures where aging is revered, such as in some Asian societies, women report fewer or less severe symptoms compared to Western societies, where menopause is often medicalized or stigmatized. Stigma can exacerbate psychological distress, with 30-40% of women reporting feelings of loss or diminished femininity. Support groups, peer counseling, and education can mitigate these effects, fostering empowerment and reducing isolation. Shared decision-making, where clinicians and patients collaboratively weigh treatment options based on individual risk profiles, preferences, and values, enhances treatment adherence and satisfaction. Decision aids and structured counseling improve women's understanding of risks, with studies showing a 20-30% increase in treatment compliance when shared decision-making is employed.

Emerging research highlights novel therapeutic avenues. Neurokinin-3 receptor antagonists, such as fezolinetant, target the hypothalamic pathways driving vasomotor symptoms, showing 60-80% reductions in hot flash frequency in phase III trials. These agents offer a non-hormonal alternative with fewer side effects than SSRIs or gabapentin. Advances in precision medicine, including genetic profiling of estrogen metabolism pathways, may soon allow



tailored HRT regimens to minimize risks like breast cancer. Wearable technologies and mobile health apps are also gaining traction, enabling women to track symptoms, sleep patterns, and lifestyle factors, providing data to guide personalized interventions.

In conclusion, menopause is a multifaceted transition with immediate and long-term implications for women's health. Vasomotor symptoms, mood disturbances, and genitourinary issues, while challenging, are manageable through a combination of hormonal and non-hormonal therapies, lifestyle modifications, and psychological support. Long-term risks, including osteoporosis, cardiovascular disease, and metabolic disorders, underscore the need for proactive prevention strategies. Cultural and individual variability necessitates personalized care, supported by shared decision-making and emerging therapeutic innovations. By integrating evidence-based interventions with holistic support, women can navigate menopause with resilience, maintaining health and well-being into later life.

References:

1. North American Menopause Society. (2022). The 2022 Hormone Therapy Position Statement of The North American Menopause Society. *Menopause*, 29(7), 767-794.
2. Santoro, N., Epperson, C. N., & Mathews, S. B. (2015). Menopausal symptoms and their management. *Endocrinology and Metabolism Clinics of North America*, 44(3), 497-515.
3. Davis, S. R., Lambrinoudaki, I., Lumsden, M., et al. (2015). Menopause. *Nature Reviews Disease Primers*, 1, 15004.
4. Nelson, H. D. (2008). Menopause. *The Lancet*, 371(9614), 760-770.
5. Rossouw, J. E., Anderson, G. L., Prentice, R. L., et al. (2002). Risks and benefits of estrogen plus progestin in healthy postmenopausal women: Principal results from the Women's Health Initiative randomized controlled trial. *JAMA*, 288(3), 321-333.
6. Crandall, C. J., Aragaki, A. K., Cauley, J. A., et al. (2018). Associations of menopausal vasomotor symptoms with fracture incidence. *Journal of Clinical Endocrinology & Metabolism*, 103(2), 562-570.
7. Thurston, R. C., & Joffe, H. (2011). Vasomotor symptoms and menopause: Findings from the Study of Women's Health Across the Nation. *Obstetrics and Gynecology Clinics of North America*, 38(3), 489-501.