Menopause and the Singing Voice

AN UPDATE ON MENOPAUSE CARE AND MENOPAUSAL HORMONE THERAPY

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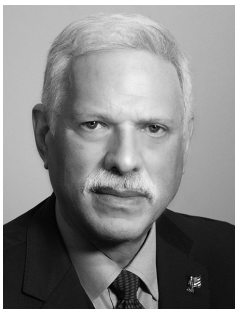

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Menopause can influence the voice, health, and wellbeing of professional singers, making it a critical area of understanding for singing teachers. For two decades, discussion of menopausal hormone therapy (HT) was shaped by the 2002 Women's Health Initiative study, which led to widespread concern and a decline in HT use. However, updated evidence reveals the safety of modern HT preparations, as well as non-hormonal treatment options, with emphasis on personalization of care. This article provides singing teachers with an overview of how contemporary menopause care has evolved, bridging clinical guidance with voice pedagogy to help support singers navigating this life stage.

Unless singing teachers have limited their student populations to children or males, nearly all teachers interact with female students of various ages. Physiologic changes (normal, expected variations) in the hormonal environment have a substantial impact on voice.[1] That impact varies depending on age, stage of the menstrual cycle, menopause, individual differences, and other factors. Menopause and the perimenopause period of time that precedes menopause are associated with a great number of changes in the body that substantially affect the voice. Singing teachers should be familiar with the expected consequences of this component of aging in their students and, if they are female teachers, in themselves. In addition, singing teachers should be aware that scientific understanding of menopause continues to evolve, as do recommendations for safe medical intervention to ameliorate associated symptoms. Such understanding helps teachers recognize problems early in their students and themselves, make appropriate referrals for medical evaluation and assistance, and recognize medical advice that might be out of date.

DEFINITIONS

A woman's life is divided into three stages along a continuum: childhood and adolescence, the reproductive stage, and menopause. The menopause stage is divided further into perimenopause and postmenopause. With increased life expectancies, women generally spend at least a third of their lives in postmenopause.[2]

Menopause is defined as twelve months without a menstrual period. This occurs naturally in most women between the ages of forty-five and fifty-five. Menopause is established clinically with no laboratory testing needed for diagnosis when it occurs within this age bracket. This definition excludes women

whose menstrual cycles stop because of medications, hormonal contraceptives such as the progestin-IUD (intrauterine contraceptive device), or hysterectomy (surgical removal of the uterus). The average age globally at which women reach menopause naturally is fifty-one, with some variability reported across different ethnic groups.[3]

"Peri" is Greek for around or near. Perimenopause is the stage of transition leading up to the final menstrual period (FMP). According to the stages of reproductive aging workshop (STRAW) system, late perimenopause typically lasts one to three years before the FMP. In contrast, the duration of early perimenopause is described as "variable."[4] Indeed, the perimenopause phase can begin up to ten years before the final menstrual period.[5]

The stage after the FMP is postmenopause. Early postmenopause is defined as up to six years from the FMP, and late postmenopause includes the remaining years of a woman's life.

Premature menopause, known as premature ovarian insufficiency (POI) is diagnosed when a woman experiences spontaneous menopause before the age of forty years. This affects up to 4 percent of women.[6] POI is a diagnosis of importance because women with POI are at increased long-term risks of osteoporosis, cardiovascular disease, dementia, and psychological distress.[7] In up to 90 percent of women with POI, the causes are unknown. Some risk factors include genetics, autoimmune disorders, connective tissue disorders, smoking, and low body weight. POI is an indication for the use of menopausal hormone therapy, which is discussed below. In about 10 percent of women, menopause occurs spontaneously between the age of forty and forty-five years. This is defined as "early menopause."

Medically- or surgically-induced menopause occurs, for example, in association with cancer treatment with chemotherapy, radiation therapy, and/or surgery to remove the ovaries (oophorectomy) and/or the uterus.

PHYSIOLOGY

The ovaries contain and release eggs during the menstrual cycle, in the process producing estrogen and progesterone, which are essential for female sexual and reproductive development, fertility and pregnancy, musculoskeletal health, cardiovascular health, and a healthy immune system.

When a girl is born, her ovaries contain all the eggs she will ever have: one million immature eggs or oocytes in follicles. The number of eggs decreases naturally and gradually from birth throughout her life, including after menopause.

The menstrual cycle involves complex interactions between hormones, including those from the brain, follicle-stimulating hormone (FSH), luteinizing hormone (LH) (figure 1). Rising rates of FSH in the follicular phase result in the release of estrogen by maturing follicles until ovulation is triggered by an LH peak. In the luteal phase, the corpus luteum (what remains of a follicle after the release of an egg) releases progesterone to prepare the uterine lining for implantation of a fertilized egg. When implantation does not happen, the corpus luteum breaks down, leading to a decrease in both progesterone and estrogen. Menstruation is triggered, and the cycle repeats itself with the start of another follicular phase.

The perimenopause is the transition stage during which the female body moves from the reproductive stage to menopause. The hormonal shifts are illustrated in a series of graphs created by Harvard Women's Health Watch, an amalgamation of data from studies by Nanette Santoro. Figure 2 tells the story of transition: the regular cycles in premenopause, patterns in perimenopause, and in postmenopause, stability with low levels of estrogen, progesterone, and high FSH reflecting permanent ovarian senescence.

SYMPTOMS OF HORMONAL CHANGE

Because the female hormones influence virtually every major organ system of the body, myriad symptoms arise as a result of hormonal change.

1. Vasomotor symptoms (VMS): The classic hot flashes and night sweats pose not only a physical discomfort but also are associated with diminished sleep quality, cardiovascular disease, impaired concentration, and reduced quality of life. Alarmingly, they have been found to persist on average 7.4 years or longer.[8]
2. Sleep disturbances: Affecting 40 percent of perimenopausal women, this is strongly associated with VMS and decreased quality of life, greater cardiovascular disease risk, and mood fluctuations, not to mention fatigue and impaired cognitive function.[9]

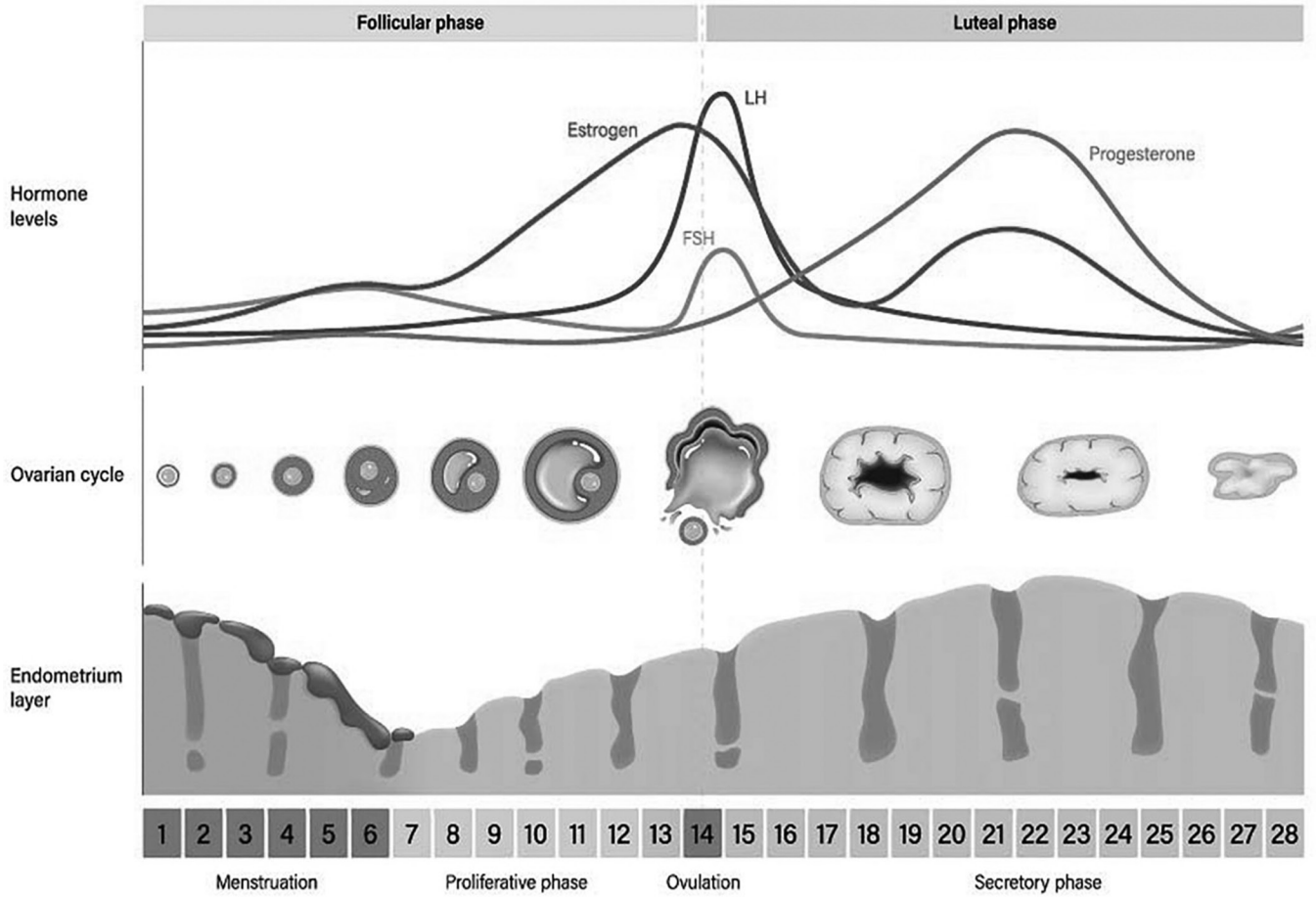


Figure 1. **The menstrual cycle. FSH: follicle stimulating hormone; LH: luteinizing hormone.**

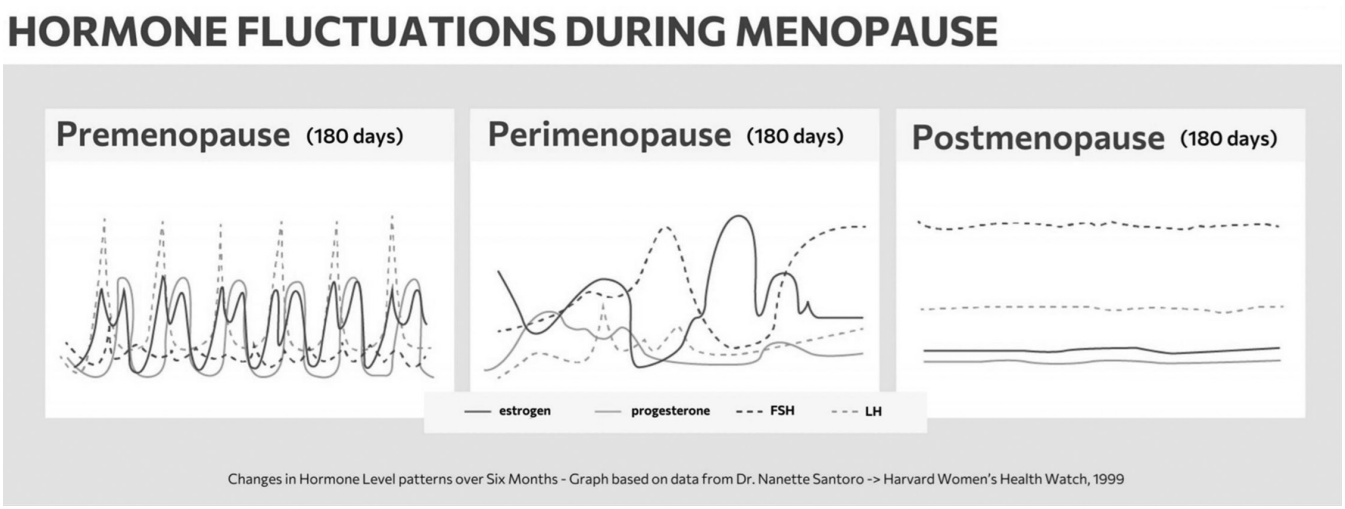


Figure 2. **Changes in hormone level patterns over six months. This graph is based on data from Nanette Santoro, Harvard Women's Health Watch, 1999. Figure 2 tells the story of transition: the regular cycles in premenopause (left), patterns in perimenopause (center), and in postmenopause (right), stability with low levels of estrogen, progesterone and high FSH reflecting permanent ovarian senescence.**

3. Genitourinary syndrome of menopause (GSM): Formerly known as vulvovaginal atrophy, symptoms of vaginal dryness and irritation, reduced lubrication, pain during sex, and urinary symptoms of urgency, painful urination, recurrent urinary tract infections (UTI), and incontinence are common. Whereas many symptoms of perimenopause are expected to abate during postmenopause, GSM is known to persist through late postmenopause.[10]
4. "Brain fog": This phrase is often used to describe cognitive, memory, and processing difficulties affecting 40–60 percent of women during perimenopause.[11] This may or may not be related to mood changes and sleep disturbances.
5. Mood changes: Mood changes such as irritability, volatility, anxiety, and depression affect 50–80 percent of women. Almost 40 percent of women report symptoms of depression in perimenopause.[12]
6. Musculoskeletal changes: Muscle aches and joint pains are reported in 71 percent of perimenopausal women, according to a meta-analysis across multiple regions, with variability by subgroup.[13]
7. Menstrual changes: Starting in perimenopause, this may be one of the earliest changes. Women may report a variety of changes in cycle length and period flow.[14] Other underlying causes (e.g., gynecological disorders, thyroid disorders) and effects (iron deficiency anemia) should be considered.
8. Skin changes: The skin is the largest organ in the body, and it is affected by menopause. There is a long list of skin changes, including dryness, eczema, fine wrinkling, facial hair, acne and rosacea, melasma, and others. Hair thinning and hair loss occur in a third of postmenopausal women, usually at the front and on top of the scalp.[15]
9. Central weight gain: Between the ages of forty-five and fifty-five, women gain, on average, a pound of body weight per year. Though multifactorial, hormonal changes of menopause result in a change in body composition with increased fat and decreased muscle, and can cause fat to settle in the abdomen or midsection. Excess abdominal fat is associated with heart disease and diabetes.[16]

Studies show that up to 80 percent of women experience symptoms associated with menopause, with 25 percent reporting their symptoms to be severe.[17] The physical symptoms and psychological symptoms often overlap. Indeed, physical symptoms can be exacerbated by psychological symptoms and vice versa.

IMPACT OF MENOPAUSE ON SINGERS

Changes during perimenopause and menopause may impact singers and their performance.

Menopausal Voice Syndrome

There is a trove of voice literature on the influence of hormones on the voice.[18] In a well-known study of singers experiencing voice change in menopause, Jacques Abitbol, Paul Abitbol, and Beatrice Abitbol compared the cells from vocal fold smears with cervical cells from Pap smears from the same singers obtained on the same day. Remarkably, they found the same changes of cellular atrophy and estrogen effect in both, leading them to coin the term "menopausal voice syndrome."[19]

The larynx contains abundant estrogen and progesterone receptors, making it particularly sensitive to hormonal fluctuations during the menopausal transition. Estrogen deficiency may cause voice fatigue, lowered pitch, reduced range, and diminished quality, often becoming apparent after menstrual cessation, which itself is a late marker of perimenopause. The SWAN (Study of Women's Health Across the Nation) study found that women experience different estradiol trajectories during perimenopause—some with a steep, rapid decline, others with a more gradual drop—which can influence symptom onset and severity.[20] In the context of voice, women with higher BMI may experience fewer voice changes because adipose (fat) tissue produces additional estrogen, buffering the drop in ovarian estrogen.[21]

Musculoskeletal Syndrome of Menopause

Postmenopausal osteoporosis is recognized widely as a major health complication of menopause with far-reaching consequences, including osteoporotic fractures and associated morbidity and mortality. More recently, studies have highlighted the consequences of menopause on the health of the entire musculoskeletal system, not just the bones. The changes to the musculoskeletal system include musculoskeletal pain, arthralgia, loss of lean muscle mass, increased tendon and ligament injury,

adhesive capsulitis, and cartilage matrix fragility with progression of osteoarthritis.[22]

Any of these conditions can pose significant challenges for performing artists. Whether they are engaging in repetitive, endurance, or high-impact motions during phonation, performing artists may be at increased risk of injury and chronic pain from any one or combination of these musculoskeletal changes associated with menopause.

Pelvic floor strength is necessary for breath support and control, core stability, and technique, whether in voice production, movement, or musical instrument=playing, especially of wind instruments. Pelvic floor dysfunction not only impacts performance but also may exacerbate the genitourinary syndrome of menopause and further impair performance by undermining effective support.[23]

Hypermobility Disorder

Research suggests that there may be a higher prevalence of hypermobility spectrum disorders and Ehlers–Danlos syndrome (EDS) in performing artists than in the general population. While the ability of joints to move beyond the normal range of motion can be advantageous for some performers, allowing for greater flexibility and range of motion, it also can lead to increased risk of injuries and various voice problems.[24]

Data conflict as to the effects of hormones on connective tissue, joint laxity, and tendons, and a scarcity of data on the impact of menopause on singers with hypermobility. However, it is thought that:

- The decline in estrogen levels during menopause can exacerbate symptoms associated with hypermobility because estrogen is known to play a role in maintaining connective tissue health.
- Research indicates that menopausal women with hypermobility may experience heightened symptoms of joint pain, muscle aches, and fatigue.
- The emotional toll of managing chronic pain and the physical and psychological symptoms associated with menopause can lead to increased anxiety and mood swings.
- Gynecological issues such as abnormal bleeding, dysmenorrhea (painful menstrual periods), and dyspareunia (pain during intercourse) are common gynecological complaints in women with EDS.[25]

These symptoms are encountered frequently during menopause transition.

The Brain

Research suggests women's brains undergo significant alterations in structure, energy metabolism, and memory circuitry during menopause—changes that do not occur in men of the same ages.[26]

Estrogen decline affects brain centers controlling memory (hippocampus), sleep–wake cycles (brainstem), body temperature regulation (hypothalamus), and emotions (amygdala). Estrogen also regulates neurotransmitters such as dopamine, which plays a central role in executive functioning. Women with attention-deficit hyperactivity disorder (ADHD) have dysregulation in their dopamine production, and therefore, their symptoms can worsen during perimenopause and menopause.

Studies show that the menopausal transition is a time of increased risk of mood disturbance. Women with a history of vasomotor symptoms or adverse life events are at increased risk of depressive symptoms compared to premenopausal women, even if they have no previous history of depression.[27] The risk of a major depressive episode is also higher in the perimenopause stage compared to the premenopause stage in women with a history of major depressive disorder.[28] Premature ovarian insufficiency is associated with a 20 percent higher prevalence of depression than the general population.[29]

Many symptoms overlap: For example, difficulties with sleep, concentration, energy, and libido could be attributed to classic depressive symptoms, or contribute to mood disturbance related to the menopausal transition.

Psychological Impact

The psychological impact of menopausal changes is often more than the sum of its parts.

Women who consult a physician for menopause care may not necessarily have physical symptoms, but many experience some degree of psychological impact (figure 3).

Women may report a profound sense of loss during the menopausal transition—including loss of identity, confidence, purpose, joy, and connection—along with feelings of shame, loneliness, burnout, and existential dread, particularly in the context of professional singing, where the voice is deeply tied to selfhood and career.[30]

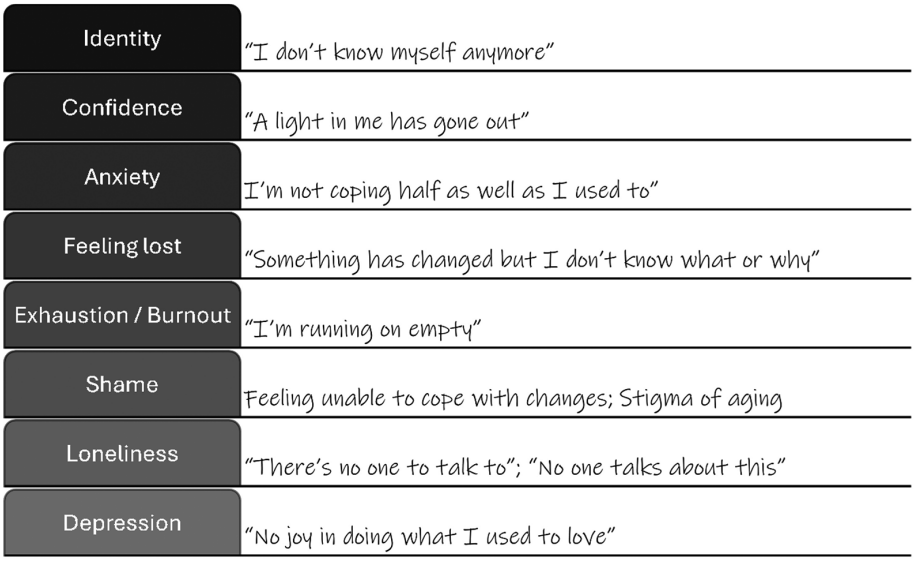


Figure 3. Common quotes by patients of the author (JTS).

MENOPAUSE MANAGEMENT—AN UPDATE ON THE GUIDANCE

Menopause management continues to evolve through advances in research. Guidelines on management have been updated, but for context, it is helpful to first review the troubled history of menopausal hormone therapy (MHT), formerly known as hormone replacement therapy (HRT).

The WHI Hormone Therapy Controversy

HRT continues to be considered the most effective treatment for menopausal symptoms. It was commonly prescribed up till about twenty years ago, when the Women's Health Initiative (WHI) dramatically altered menopause care.

The WHI is a long-term national health study funded by the National Heart, Lung, and Blood Institute (NHLBI). The original WHI study, involving 161,808 postmenopausal women aged between fifty and seventy-nine years, began in the early 1990s and concluded in 2005. Since then, the WHI has continued as extension studies with annual collections of health updates and outcomes in active participants. The hormone therapy (HT) arm of the WHI aimed at evaluating the effect of HRT on the most common causes of death and disability in postmenopausal women, such as cardiovascular disease, cancer, and osteoporosis.[31] At the time, HRT was believed to be beneficial to cardiovascular health and was commonly prescribed for that reason. Women with uteri (16,608 participants) were randomized and received a combination of 0.625 mg of conjugated equine estrogen (CEE) and 2.5 milligrams of medroxyprogesterone acetate, and women without uteri (10,739 participants) were randomized and received 0.625 milligrams of CEE or a placebo.

The first results of the WHI were published in 2002 after a mean follow-up period of 5.2 years. In the group with intact uteri, an increased incidence of coronary heart disease and breast cancer was observed in concomitance with a reduction of osteoporotic fractures and colorectal cancer. Given these results, it seemed that the risks outweighed the benefits, and the trial was discontinued prematurely. The data were disseminated to the media, creating panic globally among HRT users and changing guidance for doctors on prescribing HRT.

The trial with only estrogen (performed in hysterectomized women) continued, and the preliminary data were published in 2004.[32] That trial was stopped prematurely after 6.8 years of follow-up due to evidence of a small increased risk of ischemic stroke in the absence of other significant cardiovascular benefits. Despite the benefits (such as a reduction of osteoporotic fracture and colon cancer) and the non-increased risk of breast cancer or cardiovascular disease, the overall message on HRT remained negative.

In the immediate aftermath of the announcements, many experts highlighted limitations in the WHI design and conclusions. Although the absolute risks were rare to very rare by common standards, the data were presented alarmingly as percentage changes by the media. One important limitation of the WHI was that most of the participants were more than a decade past their final menstrual period—at an average age of 63.2 years—raising the question of whether the results of the trial could be applied to younger women in early postmenopause.[33] Furthermore, the WHI tested only CEE either alone or in combination with a single progestin, medroxyprogesterone acetate. The WHI findings did not address the safety and effectiveness of other HRT formulations, regimens, and delivery methods.[34] Despite its limitations, the WHI had a negative impact on the global perception of HRT, leading to a marked decline in HRT utilization. Many doctors stopped prescribing HRT, and many women abandoned HRT immediately.

A reanalysis of the WHI trial with new studies and a metanalysis showed that the use of HRT in younger women (50–59 years) or in early postmenopausal women (within 10 years of menopausal onset) had a beneficial effect on the cardiovascular system, reducing coronary diseases and all-cause mortality.[35] Furthermore, a large controlled trial from Denmark demonstrated that healthy women taking combined HRT for ten years immediately after menopause had a reduced risk of heart disease and death from heart disease.[36] Unfortunately, these data did not receive appropriate coverage by the media, and the fear regarding HRT has persisted. Prescribing fell by 80 percent, especially in primary care, resulting in many women "suffering in silence" and seeking other solutions for their symptoms.[37]

Safety of MHT—What We Know Now

Numerous randomized clinical trials focusing on the use of MHT in women at the usual age of menopause transition with more modern types of MHT have shown that there are few risks in this age group.[38]

- **Breast cancer**: The increase in risk equates to four extra cases per one thousand women after five years—less than that caused by smoking ten cigarettes per day, alcohol use, and obesity. The risk was reduced significantly in women taking estrogen alone who had never previously taken HRT. Micronised progesterone and dydrogesterone are likely to be associated with a lower risk of invasive disease compared to other progestogens.[39]
- **Heart disease**: There is no evidence of harm for women started on MHT within ten years of their menopause onset; the trend is instead toward reduced risk.[40]
- **VTE**: Transdermal MHT is not associated with an increase in risk of venous thromboembolic (VTE) disease (at doses of less than 50 mcg / 24 hrs). The effect of higher transdermal doses is less clear but is lower when compared to oral estrogen. The absolute risk of VTE on oral MHT is low, on the order of 2–3 per one thousand women years (compared to 1 per 1,000 women years in nonusers).
- **Stroke**: There is no increased risk for women without underlying stroke risk factors who are in their fifties or during the first ten years of menopause. Women with risk factors can probably safely use a patch or gel form of treatment.[41]

There is broad global alignment among the major menopause societies—the Menopause Society (previously known as North American Menopause Society), Australasian Menopause Society (AMS), European Menopause and Andropause Society (EMAS), British Menopause Society (BMS), International Menopause Society (IMS), Asia-Pacific Menopause Federation (APMF)—on the safety of MHT when it is individualized, started near the time of menopause (within 10 years of the onset of menopause or before 60 years of age), with the use of evidence-based, regulated products.[42]

Indications and Contraindications

MHT is approved by the United States Food and Drug Administration (FDA) for four clinical indications:

1. Treatment of vasomotor symptoms.
2. Treatment of genitourinary syndrome of menopause.
3. Prevention of osteoporosis.
4. In women with POI, prevention of cardiovascular disease, dementia, and osteoporosis.[43]

The IMS, EMAS, AMS, BMS, and APMF go further in acknowledging broader benefits of MHT for sleep, mood, cognition, musculoskeletal health, and quality of life.[44]

MHT for Treatment of Menopausal Voice Syndrome

Evidence suggests that estrogen therapy can prevent or forestall typical voice changes related to perimenopause and menopause in singers.[45] Systematic reviews / meta-analyses find a small but statistically significant tendency for MHT users to have a higher speaking fundamental frequency than non-users, suggesting MHT can partially counter the lowering/deepening effect of estrogen loss.[46] However, heterogeneity in study design, small sample sizes, variable MHT regimens (type, dose, route), and differing voice outcome measures mean that the clinical effect size and identification of which patients will benefit remain uncertain.

Since the early 1980s, the author (RTS) has written about MHT mitigating hormone-related voice changes in singers. On a practical note, he keeps on record the blood hormone levels of his young female patients when their voices seem best during their menstrual cycle. If they experience voice change as they enter perimenopause, they can work with their gynecologist, endocrinologist, or family physician to implement hormone therapy that brings them close to their personal optimal levels. Equal emphasis should be placed on concomitant evidence-based voice rehabilitation.

Contraindications to Use of MHT

MHT should not be used in women with:

- Undiagnosed vaginal bleeding. Abnormal vaginal bleeding may indicate endometrial (uterine lining) pathology, which should be evaluated before considering MHT use.
- Current or history of hormone-dependent cancers such as some breast cancers.
- Known high risk of venous thromboembolism.
- Known high risk of ischaemic heart disease or cerebrovascular disease.
- Active liver disease.

Timing of MHT: Commencement and Cessation

MHT has been researched primarily in women who are either postmenopausal or in late perimenopause. Data are insufficient on the effectiveness of MHT in women earlier in their perimenopausal stage—a time when many women start to experience symptoms. The fluctuations in hormone levels during that period mean volatility and swings from low to excess levels of estrogen, resulting in a greater risk of adverse effects from MHT. More research is needed to determine suitable MHT regimens; until then, MHT prescribing in early perimenopause remains an off-label option.[47]

There is consensus across the major international menopause societies that arbitrary limits should not be placed on the duration of use of MHT. This should be at the discretion of the woman and her healthcare provider, considering their treatment goals and weighing ongoing benefits and risks of treatment.

MHT Options

MHT comprises treatment with estrogen and progestagen for all women with a uterus. The role of progestagen is to protect the uterine lining from unopposed stimulation by estrogen. In women who do not have a uterus (for example, who have undergone a total hysterectomy), only estrogen is needed.

Several MHT options are available in different preparations. Those discussed below are available as approved and regulated pharmaceutical-grade preparations, many of them containing "body-identical" hormones which are identical or similar to what the human body produces. These are thought to be more natural to the body than those studied in the WHI trial, and evidence suggests improved tolerability and safety. It is important to distinguish pharmaceutical-grade body-identical MHT from compounded bio-identical MHT, which is unregulated and not FDA-approved. Outside of the United States, the major menopause societies are similarly aligned in recommending regulated body-identical MHT over older synthetic formulations, all strongly cautioning against unregulated compounded bio-identical products.

Estrogen is available in oral, transdermal, and vaginal preparations. Transdermal estrogen is applied and absorbed through the skin; like oral estrogen, it exerts its effects throughout the body, thereby bringing relief from symptoms throughout the body. Unlike oral estrogen, transdermal estrogen is not processed through the liver and, therefore, it is associated with a reduced risk of venous thromboembolism compared to oral estrogen. Transdermal estrogen is available as gel, patch, and in the United Kingdom, also as a spray.

Vaginal estrogen works locally in the vaginal area and is highly effective for treating genitourinary syndrome of menopause. There is negligible absorption into the system; low-dose vaginal estrogen therapy is safe for long-term use and particularly useful for women in late postmenopause who may no longer need systemic hormone therapy but continue to suffer from genitourinary symptoms. Vaginal estrogen is commonly available as a pessary and cream, and in some countries as a vaginal gel and vaginal ring.

There are limited but interesting data on intranasal estrogen,[48] which was found to improve voice quality significantly in a small study.[49] However, pharmaceutical intranasal estrogen has been discontinued globally, and there is no FDA-approved intranasal estrogen available in the United States.

Women who have a uterus will need to take a progestogen with their estrogen. Some oral tablets and patches contain both hormones. There is considerable evidence that micronized progesterone, which is body-identical, and biologically similar progestogens (dydrogesterone) have metabolic and possibly breast advantages over traditional, androgenic progestogens. For the singer, it is important to avoid androgenic effects on the voice from hormone therapy. Micronized progesterone is taken orally and also can be used vaginally, off-label, in cases of progesterone intolerance. Dydrogesterone, not currently FDA-approved in the United States but approved elsewhere, also is taken orally. Other options include the intrauterine delivery of progestogen (levonorgestrel) from a progestogen-intrauterine device, a particularly good option for women experiencing heavy menstrual bleeding in perimenopause; and the oral tissue-selective estrogen complex (TSEC) conjugated equine estrogen/bazedoxifene which is currently only licenced in a few countries.

Monitoring of MHT Doses

Regulated, pharmaceutical-grade MHT products come with therapeutic dosing ranges to guide appropriate dosing, as well as dosing guidelines issued by the major menopause societies. The prescribing principle is to achieve adequate symptom relief by treating within the recommended dosing range without adverse effects. It is generally unnecessary to check hormone levels routinely. A useful way of assessing response to MHT is the use of the Modified Greene Scale, a validated assessment tool for menopausal symptoms.[50] A good example of this is the Australasian Menopause Society Symptom Score card, which can be used for periodic assessments and reviews (figure 4).

Side Effects of MHT

Breast tenderness, nausea, and irregular bleeding may be experienced in the initial period of MHT use; most side effects resolve spontaneously. If irregular bleeding persists beyond six months of starting MHT, the bleeding should be evaluated further. MHT does not cause weight gain, nor does it lead to weight loss.

Other Treatment Options

Other effective treatment options may be used together with MHT or used as an alternative to MHT.

Testosterone

The one current clinical indication for the use of testosterone in women is in the treatment of postmenopausal hypoactive sexual desire disorder (HSDD), or low libido.[51] There are good data on the efficacy and safety of treatment of HSDD with testosterone in natural and surgical menopause. However, except in Australia, New Zealand, South Africa and recently, the United Kingdom, there are no preparations licensed for use in women. Globally, testosterone for women is prescribed mostly off-label using testosterone gel designed for men at a dose one-tenth of that recommended for men, with monitoring of blood testosterone levels necessary to ensure levels stay within the female physiological range. The effects of excessive testosterone need to be avoided. In singers, extra caution must be exercised to avoid hyperandrogenism and masculinization of the voice, which usually is permanent. Currently, there are no long-term data on testosterone therapy in women. MHT with estrogen and progesterone is effective for menopausal symptoms, including HSDD, and remains the first-line treatment before testosterone therapy is considered.

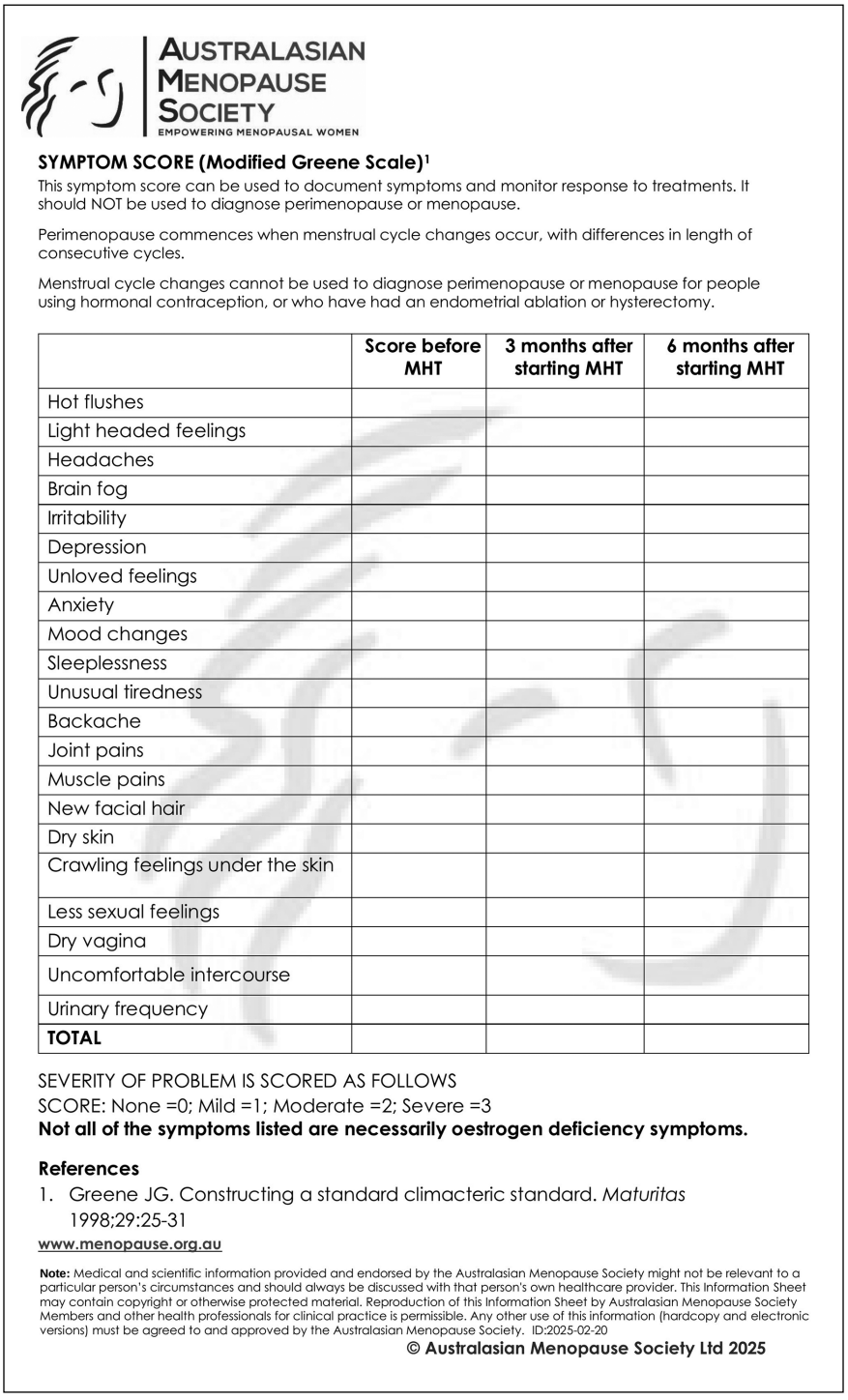
Tibolone

In many parts of the world, including the EU, the UK, Asia, and Australia, a synthetic hormone therapy known as tibolone is commonly prescribed . Tibolone has weak estrogenic, progestogenic, and androgenic properties and is licensed in these countries for the treatment of menopausal symptoms and prevention of osteoporosis

in postmenopausal women. It should be avoided or used with caution in professional singers on account of its androgenic properties. It is not FDA-approved and not available in the United States.

Non-hormonal treatments

Non-hormonal options remain important for women who choose not to or cannot use MHT, for example, women with some kinds of breast cancer. These options



AUSTRALASIAN MENOPAUSE SOCIETY
EMPOWERING MENOPAUSAL WOMEN

SYMPTOM SCORE (Modified Greene Scale)[1]

This symptom score can be used to document symptoms and monitor response to treatments. It should NOT be used to diagnose perimenopause or menopause.

Perimenopause commences when menstrual cycle changes occur, with differences in length of consecutive cycles.

Menstrual cycle changes cannot be used to diagnose perimenopause or menopause for people using hormonal contraception, or who have had an endometrial ablation or hysterectomy.

	Score before MHT	3 months after starting MHT	6 months after starting MHT
Hot flushes			
Light headed feelings			
Headaches			
Brain fog			
Irritability			
Depression			
Unloved feelings			
Anxiety			
Mood changes			
Sleeplessness			
Unusual tiredness			
Backache			
Joint pains			
Muscle pains			
New facial hair			
Dry skin			
Crawling feelings under the skin			
Less sexual feelings			
Dry vagina			
Uncomfortable intercourse			
Urinary frequency			
TOTAL			

SEVERITY OF PROBLEM IS SCORED AS FOLLOWS
SCORE: None =0; Mild =1; Moderate =2; Severe =3
Not all of the symptoms listed are necessarily oestrogen deficiency symptoms.

References

1. Greene JG. Constructing a standard climacteric standard. *Maturitas* 1998;29:25-31

www.menopause.org.au

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Figure 4. Australasian Menopause Society symptom score for symptom documentation and monitoring response to treatment.

include selective serotonin reuptake inhibitors (SSRI), serotonin-norepinephrine reuptake inhibitors (SNRI), neurokinin-3 (NK3) receptor agonists, and neuromodulators like gabapentin.[52] Oxybutynin is used in the management of urinary urge incontinence and overactive bladder, and it has been shown to reduce moderate-to-severe vasomotor symptoms in a number of studies.[53]

Lifestyle, Psychological, and Complementary Therapies

Lifestyle measures, including exercise, nutrition, sleep, avoidance of harmful substances, and stress management, are not only fundamentals of good health and disease prevention, they also are useful in managing menopausal symptoms, including voice change.

Psychological therapies have proven beneficial in menopause treatment. Cognitive behavioral therapy (CBT) is a recommended treatment option for anxiety experienced during the peri- and post-menopause stages. CBT also has been shown to improve hot flash perception and reduce stress and sleep problems. Mind–body therapies like meditation and mindfulness practice may have some benefit.[54]

There are numerous over-the-counter supplements and herbal remedies for menopause treatment. Questions remain regarding the effectiveness and safety of these herbal remedies and supplements. Data are inconsistent or absent, and because they are not regulated carefully by governments, manufacturing practices may vary. Information is lacking about dosages, potential risks and side effects, especially long-term, or about drug interactions. Lack of regulation results in uncertainty about what is actually contained in the products purchased. The major menopause societies agree that dietary supplements and herbal remedies lack sufficient evidence to be recommended for symptom relief.

SUPPORTING SINGERS THROUGH MENOPAUSAL TRANSITION

Personalization of medical care with shared decision-making is key, with periodic re-evaluation to determine an individual woman's benefit-risk profile.[55] Individualized care is essential because no two women are alike in their symptoms, experience, medical history, and response to treatment.

The biopsychosocial approach has been suggested as ideal for providing holistic care in menopause.[56] It is a way of understanding human health and behavior that considers biological, psychological, and social factors. That approach is at the core of providing comprehensive medical care for performing artists and their unique needs.

State-of-the-art medical voice care requires a multidisciplinary team, which ideally should include a physician specializing in menopause to help singers cope with changes expected during the progression to menopause and thereafter.[57]

For the broader voice community, including singing teachers and other educators, coaches, and performers, support starts with awareness. Awareness opens opportunities for conversations, for education, and for referrals to the right resources. Such conversations can be validating, reassuring, and empowering.

Women who need help are encouraged to seek out providers who are knowledgeable and experienced in menopause care who can collaborate with their laryngologists and voice care team. Most of the major menopause societies worldwide have directories listing their members and practice details. It is important that women find providers who are willing to listen to their concerns, are nonjudgmental, and understand and respect their profession. Laryngologists who care for singers often can provide referrals to appropriate menopause specialists.

CONCLUSION

Menopause can affect a singer's voice, general health, and overall well-being; and those changes vary from person to person. Current clinical guidance on menopause management states that hormone therapy is safe and effective for most women when started in their fifties or within ten years of menopause onset. Clinical guidelines emphasize personalized care with shared decision-making. For singers, hormone therapy can prevent or relieve many menopausal symptoms that directly or indirectly impact voice quality and performance. While more research is needed on its specific effects on the voice, the improved safety and tolerability of today's hormone therapy options appears promising. Singing teachers who understand the latest information

on menopause can support their students better with knowledgeable empathy, and provide individualized advice and informed encouragement to seek appropriate medical care.

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