

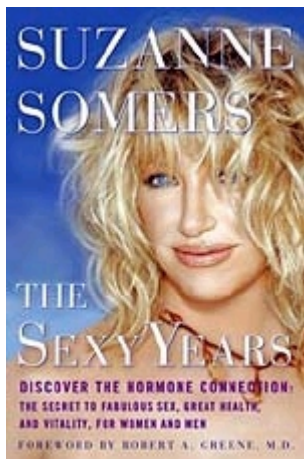
LE Magazine October 2004

AS WE SEE IT

My Interview with Suzanne Somers

On June 25, 2004, the US government proudly announced that 64% of cancer victims are living longer than five years, compared to a 50% five-year survival rate three decades ago.¹

The grim fact, however, is that 1,368,030 among us will be diagnosed with cancer in 2004. This translates into 3,748 Americans being told each day that their lives may never be the same.²



While the government brags about statistical improvements, it ignores the horrific lifelong debilities suffered by those fortunate enough to survive cancer. The dreadful reality is that those successfully treated with conventional cancer therapies often suffer from chronic pain, depression, fatigue, immune suppression, mental impairment, disfigurement, and other side effects.³⁻⁵ On top of that, cancer survivors usually have higher risks of developing heart disease, stroke, and new cancers.⁶⁻⁷ Many of these lethal side effects, plus recurrence of the original tumor, can happen after the “five-year survival” milestone has been achieved.⁸⁻¹²



William Faloon

So what does all this have to do with my interview with actress and author Suzanne Somers? Suzanne is a breast cancer survivor who is doing something highly unusual. Although she had estrogen-receptor-positive breast cancer, she made a personal decision to forgo chemotherapy and estrogen-blocking drugs. Instead, Suzanne did the opposite of what conventional medicine advocates and is continuing to take her natural estrogen replacement drug. Her reason for taking the estrogen drug, despite the fact that estrogen is supposed to increase the odds of cancer recurrence, is that she does not want to suffer the agony and debility of hormone deprivation.

Suzanne Somers has authored a book on natural hormone replacement that has sold over 2 million copies. Her book eloquently extols the virtues of natural female hormone replacement in a way that will appeal to the lay reader. Suzanne’s celebrity status, her grasp of anti-aging medical concepts, and her willingness to discuss her intimate personal affairs will motivate many women to follow in her footsteps.

In this issue, we take a critical look at natural hormone drugs that make us look and feel better today but may increase our risk of cancer tomorrow. We also discuss how Suzanne Somers’ book will influence the decisions aging women make to stay biologically younger using natural hormone replacement, and the possible long-term effects of those decisions.

The most important revelation in this month’s issue is our in-depth investigation of what estrogen actually does in an aging women’s body. A lot of experts think they understand estrogen, but there are serious misconceptions as to how this hormone reacts at the cellular level. The new scientific findings we report, as they relate to how estrogen is prescribed to aging women, may turn the medical community upside down. The encouraging news is that there may be ways for women to enjoy their youth hormones without increasing their risk of cancer.

A CANCER “CURE” THAT MAY BE LETHAL: RADIATION THERAPY INCREASES STROKE RISK

Head and neck cancer is the fifth most common form of cancer, yet most people are not familiar with this type of cancer. The mortality rate for those diagnosed with head and neck cancer (which does not include brain tumors) is high.

Radiation therapy is an important part of treating many different head and neck tumors, and is often used after surgery. Lethal radiation necrosis to the brain is one potential side effect.

Another danger of radiation therapy to the head is increased risk of stroke. A study of head and neck cancer patients who received radiation therapy found that stroke rates were five times greater than expected.¹³ This elevated stroke risk was found many years after administration of radiation. The average time between radiation treatment and stroke was 10.9 years, but the increased risk of stroke persisted for 15 years after radiation therapy.

For cancer patients treated with radiation therapy who later die of a stroke, the official cause of death is stroke, even though the cancer radiation therapy most probably caused the stroke. This is an example of how cancer cure statistics are misleading. The government brags that radiation therapy is curing cancer patients, yet long-term radiation side effects cause many deaths that are not attributed to cancer.

The government boasts that more cancer victims are living beyond five years, but conveniently ignores the fact that the toxic therapies often used to eradicate cancer can themselves cause premature death.

(The authors of this study do not recommend that head and neck cancer patients refuse radiation therapy, as it often buys years of extra life. Patients who have received radiation therapy to the head or neck should take extra precautions to reduce their stroke risk.)

The Estrogen Dilemma

As women enter the menopausal years, they face a difficult decision. The body's natural production of estrogen, progesterone, DHEA, and other critical hormones needed to maintain health and vigor rapidly declines. While individual effects of menopause vary widely, most women suffer because their glands no longer produce the hormones needed to regulate critical physiological processes. Depression, irritability, and short-term memory lapses are common menopausal complaints, along with hot flashes, night sweats, and insomnia.

Scientific studies show that commonly prescribed estrogen drugs (Premarin® and Prempro™) increase the incidence of heart attack,¹⁴⁻¹⁹ stroke,¹⁹⁻²¹ breast and ovarian cancers,²²⁻³⁵ and possibly other diseases. More and more women are switching to "natural" estrogen drugs in the hope of deriving estrogen's anti-aging benefits without the lethal side effects associated with Premarin® and Prempro™.

Recognizing that even natural estrogen drugs stimulate breast cell proliferation, proponents of natural estrogen replacement advocate consumption of fruits and vegetables, along with supplements such as indole-3-carbinol (I3C),³⁶⁻⁵⁰ resveratrol,⁵¹⁻⁶¹ gamma tocopherol,⁶²⁻⁶⁷ melatonin,⁶⁸⁻⁷⁵ genistein,⁷⁶⁻⁹¹ and green tea.⁹²⁻⁹⁷ The cancer-preventive effects of these dietary modifications are well substantiated in the scientific literature. A concern remains, however, that we do not know for certain whether dietary modification confers absolute protection against estrogen drug-induced cancers. Life Extension addresses these controversial topics in the estrogen articles featured in this month's issue.

If you read Suzanne Somers' book, you will learn of the multiple wonderful benefits attributed to proper natural hormone replacement therapy. You will read expert physicians touting the benefits of so-called "bioidentical" estradiol (a natural form of estrogen), as opposed to drugs like Premarin® that are extracted from horse urine.

Our obligation is to convey factual information so that women can make a rational choice as to what they should be doing now to maintain healthy hormone balance while guarding against potential carcinogenic effects. We have in the past recommended the lowest effective dose of natural estrogen drugs, but we are concerned about the relatively high levels of estradiol (a potent form of estrogen) that some women are now taking for anti-aging effects.

Is There a "Safe" Level of Estrogen?

In response to the negative studies about Premarin® and Prempro™, some doctors believe that natural estrogen drugs are safer alternatives. Many of these natural estrogen drugs consist of estradiol that is synthesized to be identical to this form of estrogen that is made in the human body.

There is controversy, however, as to how safe estrogen produced in the human body really is. Scientific studies show that aging women who naturally produce higher levels of estrogen have greater rates of estrogen-stimulated cancers (breast, ovarian, endometrial).⁹⁸⁻¹⁰¹ The published literature is also consistent in showing that women with reduced levels of estradiol have lower rates of estrogen-stimulated cancers.^{102,103}

Postmenopausal women are increasingly taking bioidentical estradiol drugs, with or without natural progesterone. The physicians who advocate this type of hormone replacement therapy claim that since it is natural and "identical" to a woman's own ovarian-secreted estradiol, it will not pose the same risks associated with long-term use of Premarin®. These doctors also state that this type of estrogen replacement is safe as long as it is properly balanced with natural progesterone, and blood estradiol levels are monitored to maintain physiological (normal) levels.

Critics charge that no one knows whether natural estradiol drugs are less risky than previous regimens of synthetic hormone replacement therapy. They point out that it may take decades of higher-dose estradiol use before adequate data are produced. Those concerned about higher-dose estradiol drugs believe that without controlled long-term studies similar to those that revealed problems with Premarin® and Prempro™, safety cannot be assured.

ESTROGEN'S WORRISOME EFFECT ON BREAST CELLS

From a cancer-risk standpoint, the use of higher-dose estradiol drugs is worrisome for two reasons:

1. Estradiol at physiological (normal) levels stimulates the growth and multiplication of breast cells. This is known as mammary hyperplasia. Hyperplasia is an increase in the number of cells in a body part—in this instance, the breast. Mammary hyperplasia is a precursor and a risk factor for the development of breast cancer.^{104,105}
2. Older women whose breast cells are stimulated to grow and divide by estradiol have an increased risk in errors of DNA replication. This occurs because each time a cell divides into new cells, the DNA in the new cells is altered slightly. After numerous cell divisions, these alterations accumulate, which can eventually result in mutations to genes that regulate cell proliferation. The accumulation of mutations in genes that regulate cellular proliferation is the under-lying cause of all cancers. Consumption of antioxidants, antimutagenic plant extracts, and other nutrients reduces certain gene alterations that lead to cancer, but it is not known to what degree cancer risk will be lowered in women taking estrogen drugs.^{106,107}

An examination of existing epidemiological studies shows an increased risk of breast cancer in response to longer exposure to estradiol. We have summarized 15 examples of this in the sidebar on page 12 titled “Troublesome Facts About Estradiol Therapy.”

It is obvious that placing postmenopausal women on estradiol drugs is increasing their lifetime exposure to this potent estrogen, something that epidemiological studies show increases breast cancer risk. As we discuss in this month's issue, however, these epidemiological studies often fail to account for dietary factors that may significantly alter the effects that estradiol inflicts on breast cells. Eventually, it may be shown that the adjuvant use of natural progesterone with estradiol lowers the risk for breast cancer, but this has not yet been fully documented.

So when one asks whether a “safe” dose of estradiol has been established, the answer at this time, from a cancer-risk perspective, is no. That does not mean, however, that aging women should be deprived of the benefits of estrogen. The multiple anti-aging effects of proper hormone replacement therapy may still outweigh the cancer risks. We are in fact devoting most of this month's magazine to the role of proper natural hormone restoration in preventing and reversing many of the negative aspects of aging.

TROUBLESOME FACTS ABOUT ESTRADIOL DRUG THERAPY

The following 15 facts about estradiol suggest a justifiable concern about breast cancer for those contemplating estradiol drug therapy:

1. Women who start menstruating early in childhood have a higher risk for breast cancer (longer exposure to estradiol)¹⁰⁴⁻¹¹⁰
2. Women who start menstruating later in childhood have a lower risk for breast cancer (shorter exposure to estradiol)¹¹¹⁻¹¹³
3. Women who were born prematurely have a higher risk for breast cancer (higher exposure to estradiol)¹¹⁴
4. Women who had early menopause have a lower risk for breast cancer (shorter exposure to estradiol)¹¹⁵⁻¹¹⁸
5. Women who have surgical menopause early have a lower risk for breast cancer (shorter exposure to estradiol)¹¹⁹⁻¹²²
6. Women who have late menopause have a higher risk for breast cancer (longer exposure to estradiol)^{123,124}
7. Women who have osteoporosis have a lower risk for breast cancer (lower exposure to estradiol)¹²⁵⁻¹²⁷
8. Women who have strong bones have a higher risk for
9. Women who have anorexia have a lower risk for breast cancer (lower exposure to estradiol)^{129,130}
10. Women who are overweight or obese have a higher risk for breast cancer (higher exposure to estradiol)¹³¹⁻¹³⁶
11. Women who are taller have a higher risk for breast cancer (higher exposure to estradiol)^{137,138}
12. Women who bear children at a younger age have a lower risk for breast cancer (probably less exposure to estradiol)¹³⁹⁻¹⁴¹
13. Women who nurse have a lower risk for breast cancer (probably less exposure to estradiol)¹⁴²⁻¹⁴⁵
14. Women who consume more alcohol have a higher risk for breast cancer (higher exposure to estradiol)¹⁴⁶⁻¹⁴⁸
15. Women who exercise regularly, even those who are overweight, have a lower risk for breast cancer (lower exposure to estradiol)¹⁴⁹⁻¹⁵⁶

breast cancer (higher exposure to estradiol)¹²⁸

These 15 points indicate, based on epidemiological studies, that an increase in exposure to estradiol results in a correspondingly increased risk of breast cancer. These epidemiological studies, however, do not reveal the effects of dietary modification on breast cancer risk. An in-depth discussion of this critical topic appears in this month's issue.

Note: Some of the facts above about estradiol also pertain to the peripheral conversion of estrogen precursors (such as androstenedione) into estrone, which is another potent estrogen.

AS WE SEE IT

My Interview with Suzanne Somers

Why Cancer Prevents Us from Reversing Aging

Several promising anti-aging therapies are being denied to the very people who need them the most—older adults. Fear of cancer is the main reason that elderly people do not take youth hormones and other agents that might reverse the biological effects of aging. The problem is that older cells contain more mutated genes responsible for regulating cellular propagation. Older cells are therefore more prone to becoming cancerous. When a growth-stimulating agent like estradiol is added to an older person's body, the risk of certain cancers appears to increase.^{157,158}

I cannot tell you the frustration that we at the Life Extension Foundation encounter when we discover a potential age-reversing therapy, only to have to rule it out because it might increase the risk of cancer. This is why we have done such an in-depth report on Suzanne Somers' new book. Suzanne looks and feels so much better by taking natural youth hormones (along with a plethora of cancer-preventive nutrients) that she is willing to risk a recurrence of her breast cancer rather than do without her hormones. After reading the details of Suzanne's battle with breast cancer and the devastating effects she encountered when deprived of her hormones, you cannot help but see her personal point of view. That does not mean, however, that you should follow her exact footsteps.

What is abundantly clear from Suzanne's book is that if we are to overcome the destructive impact of aging on our bodies, it is critical that a cure for cancer be found. Cancer is the roadblock that is denying aged people the full complement of anti-aging hormones, of drugs that increase cellular longevity by increasing telomere length, and of a novel method of rejuvenating the circulatory system that corrects the dysfunctional aged arterial wall.

For example, Life Extension has published numerous articles about the anti-aging benefits of testosterone replacement therapy in aged men.¹⁵⁹⁻¹⁷³ The sad fact is that so many older men already have prostate cancer that they are deprived of this youth-promoting hormone. Testosterone replacement does not appear to increase prostate cancer risk in men. Interestingly, studies show that it may be high levels of estradiol that increase prostate cancer risk in aged men.¹⁷⁴⁻¹⁷⁶ (Aging men often convert their testosterone into estradiol.) The problem is that once prostate cancer manifests, testosterone is contraindicated, and aging men have to endure the serious consequences of hormone deprivation, which include depression, impotence, vascular disease, osteoporosis, anemia, and a host of other degenerative ailments.¹⁷⁷⁻¹⁹⁸

What Is the Solution?

The Life Extension Foundation has long advocated that finding a cure for cancer should be a national priority. Not only will one of every two men, and one of every three women, develop cancer in their lifetimes,¹⁹⁹ but the fear of cancer is denying aging people access to validated anti-aging therapies. So cancer not only directly kills 1,500 people every day, but it also causes the deaths of countless others by denying them youth hormones, telomere extenders, and therapies that could restore healthy arterial function.

Cure cancer and 563,000 Americans who would have otherwise perished from the disease will be alive 12 months from now. Cure cancer and the gates open up to potent anti-aging therapies that would significantly reverse many aspects of normal aging and possibly keep alive a million human beings who would otherwise die of an age-related disorder over the next year.

You do not see cancer discussed on the front page of the newspaper very often. In today's surreal world, a mere threatened act of terrorism grabs the news media's attention, while millions of Americans suffer and perish silently from cancer and other related diseases. For those diagnosed with cancer, their concern over international events is subordinated to the harsh reality that even if they beat the cancer, their bodies will suffer possible lifelong side effects from the curative therapy. Suzanne Somers' book brings out the reality of cancer and the tough choices patients have to make. Suzanne advocates natural hormone replacement as an anti-aging therapy, yet the very hormones that make her feel better today might increase the risk that her cancer will recur. We address the dilemma faced by breast cancer patients in this month's issue.

We at Life Extension think it is deplorable that cancer victims are still put in the terrible position of not being able to access cures for their disease that are free of side effects. For the past two decades, our nonprofit organization has exposed how cancer research is impeded by antiquated FDA policies. We have shown how the FDA delays or denies clinical studies for promising cancer therapies. We have revealed how the FDA manipulates clinical testing of cancer drugs in such a way that guarantees that the drug will fail to show efficacy. We have reported on the FDA's police-state attacks against pioneering cancer researchers and the stifling effect this creates in the scientific community.²⁰⁰⁻²¹¹ Our unequivocal position remains that if a cure for cancer and age-related disease is to be discovered in our lifetime, the FDA's totalitarian authority has to be abolished. Only in a scientific environment that is free of political bias will diseases as complicated as cancer be cured.

SHOULD BREAST CANCER PATIENTS BE DENIED ESTROGEN?

Many misconceptions exist concerning the role played by estrogens in women who have had their primary breast tumors removed and currently have no apparent sign of residual disease.

Two thirds of breast tumors are estrogen receptor positive, and only half of these patients respond to interventions that reduce the effects of estrogen. Until recently, tamoxifen was the drug of choice for the treatment of estrogen-responsive early and advanced breast cancer. Tamoxifen, however, is associated with increased incidence of endometrial cancer, uterine sarcoma, ocular disorders, and diseases caused by abnormal blood clotting.²¹² Many tumors eventually become resistant to treatment with tamoxifen.²¹³ One third to one half of patients will not benefit from treatment that blocks the estrogen receptor (such as tamoxifen) or inhibits estrogen production, either because the tumor does not use hormones to grow (i.e., is not estrogen or progesterone receptor positive) or because tumors that were originally hormonally responsive develop other pathways to facilitate their growth.²¹⁴

Doctors are increasingly looking at aromatase inhibitor drugs that suppress estrogen levels by inhibiting estrogen biosynthesis. The newer, third-generation aromatase inhibitors (such as Arimidex®, Femara®, and Aromasin®) are more effective in reducing estrogen levels than previous-generation drugs.^{213,215-19}

The current theory is that women successfully treated for estrogen-receptor-positive breast cancer should aim to have reduced levels of estrogen in the body, because estrogen stimulates the growth of estrogen-sensitive tissues.²²⁰ One recent study showed that the aromatase inhibitor Aromasin® reduced recurrence of breast cancer by 32% compared with tamoxifen over a period of two to three years. The problem with this study is that while Aromasin® reduced the rate at which the breast cancer returned, the overall survival rates of the tamoxifen and Aromasin® groups were not significantly different.²²¹ Could it be that denying a breast cancer patient adequate estrogens reduces cancer recurrence rates but also causes other health problems? We do not know the answer to this yet, but in men with prostate cancer who undergo testosterone ablation therapy, dangerous side effects are induced directly by the deprivation of testosterone.¹⁹⁶

In another study, the aromatase inhibitor Femara® resulted in more than 40% fewer breast cancer recurrences compared to placebo after 2.4 years. This study showed a trend toward reduced overall mortality in the Femara® group, albeit not statistically significant. For patients taking Femara®, more toxicity with respect to hot flashes, joint pain, and muscle pain contributed to a statistically significant decline in quality of life. Also reported was a trend toward more new diagnoses of osteoporosis for patients who took Femara® than for those who took placebo (5.7% vs. 4.5%).²¹⁵

Several problems face hormonally responsive breast cancer patients (with no apparent remaining disease) who use a drug that artificially lowers estrogens. First of all, breast cancer cells have a high propensity to mutate into cancer cells that no longer have an estrogen receptor. These mutated cancer cells do not require estrogen and use other growth factors and pathways in the body to propagate. So for many women initially diagnosed with estrogen-dependent breast cancer, cells that may have metastasized to other organ systems will not necessarily respond to estrogen-deprivation therapy, especially in the long term and if they have lost their estrogen-receptor expression.²²²

Another problem is that a large fat mass (or obesity) can result in excess production of estrogens, despite aromatase-inhibition therapy in some cases.^{223,224} In postmenopausal women who have no ovarian estrogen production, fat cells often function like “glands,” secreting locally abundant amounts of estrogens that increase cell division and thus cancer growth.^{225,226} Breast tissue is largely composed of fat, especially in postmenopausal women. Indeed, tumor estradiol concentration is often higher than the concentration seen in surrounding normal tissue, consistent with local estrogen synthesis in the tumor.²²⁷ Studies show that obese women have higher rates and recurrences of breast cancer.^{131,228-230} This could be related to both higher insulin and leptin levels, and higher estrogen levels, seen in the obese. Insulin is a potent promoter of cancer cell growth.²³¹⁻²⁴⁷ Leptin is a hormone that controls fat metabolism. It has been suggested that leptin can promote aggressive breast cancer characteristics that may be independent of estrogen. Leptin plasma levels correlate with total body fat, and particularly high concentrations occur in obese women.²⁴⁸ Furthermore, a recent meta-analysis revealed a strong correlation between body mass index and plasma estrogen levels in postmenopausal women, reinforcing the importance of lifestyle modification over currently available breast cancer treatments.^{217,249,250}

Oncologists are increasingly prescribing aromatase-inhibiting drugs to estrogen-receptor-positive postmenopausal breast cancer patients. In the short term, this may be an appropriate therapy, especially if this estrogen-deprivation therapy can block enough cancer cell growth to induce a “cure.” Over the long term, however, there is a risk that residual breast cancer cells will mutate and become resistant to estrogen-deprivation therapy, which has long-term side effects that are not fully understood.

It is easy to criticize Susanne Somers for not taking an estrogen suppressor (aromatase inhibitor drug) and instead doing the opposite by taking an estrogen drug. Susanne's arguments, so eloquently presented in her book, are that maintaining healthy hormone balance may be protective by virtue of maintaining better overall mental and physical health. There is evidence to back up what Suzanne states, as revealed in some of the articles in this month's issue.

The frightening aspect to this debate is that many of us reading these words today may face these difficult choices in the future. One option is to endure the agonies of hormone deprivation; the other option is to increase the risk of cancer recurrence by taking drugs that restore youthful hormone balance. Neither option is a comforting choice for cancer patients.

Readers should note that long-term use of aromatase-inhibition therapy is currently a subject of fierce debate within the medical establishment. Even when a consensus is reached, it will not resolve how women who are apparently free of residual breast cancer should approach hormone restoration.

As Life Extension was going to press, a prestigious cancer journal published a critique of clinical trials of aromatase-inhibiting therapy, particularly as they relate to the long-term consequences of such therapy. The author of the critique, Dr. Michael Baum, states: "I consider it too early for a proper risk benefit analysis to be calculated until we have the overall survival result."

AS WE SEE IT

My Interview with Suzanne Somers

How Life Extension Membership Can Save Your Life

In this issue of Life Extension, we present novel approaches that aging women should consider when it comes to safe hormone restoration. We also talk a lot about Suzanne Somers and her book, which is now in the hands of so many women. Suzanne was able to treat her cancer with a drug that is not approved by the FDA. While the efficacy of this particular drug remains questionable, Suzanne presents a compelling story to justify her right to access any drug that she believes would increase her chances of staying alive.

We do not agree with everything in Suzanne's book, but if it takes a celebrity to get the message across about the necessity of maintaining youthful hormone balance—while personally defying FDA dictates—we welcome the support. Our long-standing position is that the FDA is the roadblock that separates Americans from breakthrough medical discoveries.

As a member of the Life Extension Foundation, you gain access to in-depth analyses of complex medical issues that are comprehensible to the lay reader. We recommend Suzanne Somers' new book because it so well describes the critical need for hormone restoration. If you had to rely on Suzanne's book alone, however, you would only get part of the story. Life Extension members gain access to the collective experiences of physicians and scientists who have used safe and natural approaches to hormone replacement for decades, despite FDA persecution.

The Life Extension Foundation has long exposed misleading government propaganda about the failed war against cancer. While survival rates have improved for some cancers over the past 30 years, the government ignores the harsh reality that many of the allegedly "cured" cancer victims suffer horribly from their treatments. The Life Extension Foundation continues to be the voice that challenges the overwhelming power of the cancer establishment, and informs our members about realities the federal government would prefer to hide from the public.

If you are not yet a Life Extension member, I invite you to peruse this month's issue and ask yourself how valuable the information you read really is. On one side is the cancer establishment, supported financially, legally, and politically by the federal government. The objective of the cancer establishment is to pretend that significant progress is being made, though much of this so-called "success" is a result of earlier diagnosis and not better treatments. Life Extension, on the other hand, has consistently exposed the egregious misrepresentations made to the American public by the cancer establishment. Life Extension represents the consumer against an entrenched establishment that seeks to maintain its economic stranglehold on cancer research and treatment dollars.

As a member of our 24-year-old Foundation, you gain access to the latest medical breakthroughs, along with personalized access to Life Extension staff doctors by telephone. The free telephone contact alone could be worth hundreds of dollars, but membership in the Life Extension Foundation costs only \$75 a year. Life Extension endeavors to take care of its members' health concerns by incorporating the latest scientific findings in practical disease prevention and treatment protocols.

I hope the articles in this month's issue are impressive enough to convince you that Life Extension membership is the best investment you could ever make in yourself.

For longer life,



William Faloon

COMMONLY PRESCRIBED ESTROGEN DRUGS

As you can see from the following list, estrogen and progesterone drugs come in a wide range of choices. Here we list the most commonly prescribed estrogen-progestin drugs and the type of estrogen, along with the dosage units.

Brand Name

Type of Estrogen and Dosage Units

Oral Estradiol Drugs

Estrace®

Estradiol 0.5 mg, 1 mg, 2 mg

Estinyl® Estradiol 0.02 mg, 0.05 mg, 1 mg

Estinyl® comes in a lower-dose strength because it has a much longer-acting effect in the body.

Transdermal Estradiol Drugs

Alora®, Climara®, Esclim™, Vivel®	Estradiol matrix patch
Vivelle-Dot®	Estradiol matrix patch
Estraderm®	Estradiol reservoir patch
Estrasorb™	Estradiol topical emulsion 1.7 g twice daily

Estradiol patches have variable rates of estradiol release over 24 hours and are changed once or twice weekly depending on the patch used.

Vaginal Cream, Gel, Ring, or Tablet Estradiol Drugs (for vaginal symptoms only)

Estrace® Vaginal (cream)	Estradiol (0.01%) = 0.1 mg/dose
Estring® (ring)	Estradiol 2 mg (7 ug over 24 hrs)
Vagifem® (tablet)	Estradiol 25 ug per tablet

Conjugated Estrogen Drugs

Premarin® Vaginal (cream)	Conjugated estrogens 0.625 mg/g
Premarin® (oral)	*Conjugated estrogens 0.3 mg, 0.45 mg, 0.625 mg, 0.9 mg, 1.25 mg, 2.5 mg.
Cenestin®	*0.3 mg, 0.45 mg, 0.625 mg, 0.9 mg
Menest®	0.3 mg, 0.625 mg, 1.25 mg, 2.5 mg

These drugs consist of 75-85% sodium estrone sulfate and 6-15% sodium equilin sulfate in such proportion that combined these total not less than 90% of the total esterified estrogens content. (Source: Facts and Comparisons, 2004 ed.)

* The manufacturers of Cenestin® (Barr Labs) and Premarin® (Wyeth) would not confirm the percentages of any of the estrogen components in their formulas, stating that this is "proprietary information." Note that Premarin® is a natural, animal-based product derived from pregnant mare's urine, unlike other commonly prescribed products such as Estrace® (soy based) and Cenestin® (yam based)

Oral Estrone Drugs

Ortho-Est®	Estrone 0.75 mg and 1.5 mg
Ogen®	Estrone 0.625 mg, 1.25 mg, 2.5 mg

Oral Estriol Drugs

Estriol (generic only)	Estriol 4 mg, 8 mg
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Commonly Prescribed Estrogen-Progestogen (Progestin) Drugs

Oral:	Activella™, FemH® 1/5, Prefest®, Premphase®, Prempro™
Patches:	Climara Pro™ and Combipatch®

Note: Progestogens and progestins are progesterone-like substances but are not structurally or biologically identical to progesterone. These include medroxyprogesterone acetate, norethindrone acetate, and levonorgestrel.

Progesterone-Only Medications Non-bioidentical to humans

Provera®	Medroxyprogesterone acetate 2.5 mg, 5 mg
Avgestin®, Aygestin®	Norethindrone acetate 5 mg

Bioidentical Progesterone

Prometrium® (micronized progesterone)	100 mg, 200 mg capsules
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(Note: Natural progesterone capsules are not recommended because the liver first metabolizes them before they enter the bloodstream. Natural progesterone creams are a better choice.)

Common Bioidentical Hormone Formulations

BiEst®	A combination of human bioidentical estradiol and estriol compounded by a pharmacist. It may come in varying percentages of each hormone and the total milligram dose may differ depending on what the doctor orders. A common starting dose is 80% estriol and 20% estradiol, with a total
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dosage of 1.25 mg providing 0.25 mg of estradiol and 1 mg of estriol. The dose can be titrated upward. It comes in oral, topical cream, gel, or a lozenge (troche). Most think of an 80:20 ratio when they think of BiEst®. Because the medication is compounded to order, the physician can order whatever he or she believes will work best for each patient.

TriEst®

A combination of estradiol, estriol, and estrone. It may also come in varying percentages and the total dose may differ depending on what the doctor orders. A common starting dose is 80% estriol, 10% estradiol, and 10% estrone, with a total dosage of 1.25-2.5 mg. The dose can be titrated upward. Comes in the same options as BiEst® (oral, topical, or lozenge). Most think of the 80:10:10 ratio when they think of TriEst®, but the physician can order whatever ratio he or she believes will work best for the patient.

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