

Are Bio-Identical Hormones Safer than Synthetic?

Part 2 – The Estrogens

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Yes! According to a recently published medical article in Postgraduate Medicine*, Bio-Identical hormone therapy is safer. This opinion, published in 2009, is based on the review of 197 medical studies. The medical journal article concludes that the Bio-Identical hormones have different effects on the human body when compared to synthetic hormones. This particularly applies to the risk for breast cancer, heart disease, heart attack and stroke. Both scientific and medical evidence demonstrate the sometimes dramatic differences between Bio-Identical and synthetic hormones as well as the safety of the Bio-Identical hormones. Certainly, more studies need to be performed to further clarify the differences.

If you have followed the hormone debate, you have undoubtedly heard that there have been no studies on the Bio-Identical hormones. You have been told that nothing supports the concept that one form of hormone replacement therapy is better for you than another. Yet, the discussion that follows is extracted, in part, from a course of study approved for physicians to earn continuing medical education credit.

It is my purpose to highlight some of the differences in these hormones. This month we will focus on the estrogens. The italicized material is taken directly from the article cited.

Estrogens and Breast Cancer

There are 3 main estrogens in a woman's body: Estradiol, Estrone and Estriol.

Each was studied individually. Each has very different actions on your breast tissue; either stimulating or protecting you from potential breast cancers.

The effect of estrogen on breast tissues takes place through 2 main estrogen receptors: estrogen receptor-alpha and estrogen receptor-beta.

Alpha estrogen receptor----- promotes breast cell proliferation, potentially stimulating cancer
Beta estrogen receptor ----- blocks proliferation and potentially prevents breast cancer

Estradiol - Conventional and Compounded

Estradiol is available in many different strengths and forms. The strengths can vary from very strong ones that are designed to affect the entire body to very low doses that can be used to "spot treat" tissues such as the vagina, when it is very dry.

Estradiol equally activates the alpha and beta estrogen receptors in the breast. This could stimulate breast cancer.

When estradiol is used in conventional medicine, what you are taking is 100% estradiol.

Most of us who prescribe compounded hormones Bio-identical hormones use a very low percentage of estradiol mixed with an estrogen, called estriol to the estrogen receptors in a much different fashion.

Estrone - Conventional and Compounded

Estrone is available in many different strengths and forms. Conventional medicine generally uses it in an oral table form.

Estrone activates the alpha receptor (cancer stimulating) 5 times more than it stimulates the cancer protective beta receptor. In other words, it is 5 times more like to stimulate potential breast cancer than it is to protect you from breast cancer.

When estrone is used in conventional medicine, what you are taking is usually 100% estrone.

Estriol-Compounded only

Estriol attaches itself to the beta receptors, the protective receptors, 3 times more than it attaches to the alpha receptors. This makes estriol a desirable form of estrogen allowing for the potential to protect you from breast cancer.

When we use estriol in compounding Bio-identical hormones, we usually use it at 80% and pair it with 20% estradiol.

Why do we even add estradiol to the compound mix? There are many good reasons including the fact that estradiol can do more to keep your bones strong than can estriol, when used alone. Also, some studies show that when these two estrogens are used together, there may be even more breast cancer protection.

For women who are at high risk for breast cancer we can certainly use an even high percentage of the potentially protective estriol. In fact, some of my patients taking only estriol as the estrogen in their therapy.

More on ESTRIOI

When a woman is pregnant, her body produces as much as 15 times more progesterone and 1000 times more estriol than when she is normally cycling. After a woman has had a baby, she continues to make more estriol than a woman who has never been pregnant. Many studies suggest that it is these higher levels of our natural hormones that grant us lower risk of developing some of the more common forms of breast cancer. Many studies have shown that even in the menopause, lower levels of estriol are associated with an increased incidence of breast cancer.

ESTRIOL IS NOT FDA APPROVED.

Many large pharmaceutical companies, the FDA and many uniformed health care providers emphasize that estriol has not been approved by the FDA. Let's make sure that fact is in our headlines. BUT, let's talk about the significance of estriol's non-FDA approval.

-----The FDA clearly acknowledges that they have NO REPORTS OF ESTRIOI CAUSING

WOMEN PROBLEMS. Estriol has been used in compounding for over 50 years.

-----It costs upwards of 100 million dollars for a pharmaceutical company to get FDA approval. No company has been willing to spend the money to do the research on estriol since it was Proven, some decades ago, that estriol was a 'weak' estrogen when it came to protecting bones.

-----Many large pharmaceutical companies, including the makers of Premarin, use estriol in the products they manufacture for women in the rest of the world.

Premarin-Conventional only

One more estrogen to discuss, the most frequently prescribed estrogen for many decades was Premarin, the equine (horse urine) estrogen. It contains many different hormone molecules that makes it bio-identical for horses, but not for women. When we consider its effects on your alpha and beta receptors, it is very clear why we don't use it in compounding. It only binds to the breast cancer stimulating alpha cells **and** makes the breast cancer protective beta cells less sensitive to the helpful protection your own body is trying to provide.

From the study: *“Estradiol equally activates ER- α and ER- β , while estrone selectively activates ER- α at a ratio of 5:1. In contrast, estriol selectively binds ER- β at a ratio of 3:1. This unique property of estriol, in contrast to the selective ER- α binding by other estrogens, imparts to estriol a potential for breast cancer prevention, while other estrogens would be expected to promote breast cancer. As well as selectively binding ER- α , CEE components are potent downregulators of ER- β receptors. Whether this activity is unique to CEE is unclear, but it could potentially increase carcinogenic properties.”*

From the study: *“Conjugated equine estrogens also contains at least one particularly potent carcinogenic estrogen, 4-hydroxy-equilenin, which promotes cancer by inducing DNA damage”*
From the study: *“Because of its differing effects on ER- α and ER- β , we would expect that estriol would be less likely to induce proliferative changes in breast tissue and to be associated with a reduced risk of breast cancer. Only one in vitro study on an estrogen receptor-positive breast cancer tissue cell line demonstrated a stimulatory effect of estriol as well as for estrone and estradiol. Melamed et al demonstrated that, when administered with estradiol, estriol may have a unique ability to protect breast tissue from excessive estrogen-mediated stimulation. Acting alone, estriol is a weak estrogen, but when given with estradiol, it functions as an antiestrogen. Interestingly, estriol competitively inhibits estradiol binding and also inhibits activated receptor binding to estrogen response elements, which limits transcription.”*

Estrogens and Progestins (See Part 1 of this series in Document Library For more information on Progesterone and Progestins)

And yes, there have been studies looking at what happens to breast cancer risk when synthetic progestins are used with estrogen therapy, especially with Premarin. Synthetic progestins increase the risk, albeit by a small percentage. But why not use bio-identical progesterone that has been shown to reduce breast cancer risk, especially when combined with estriol?

From the study: *“Mueck et al compared the proliferative effects of different estrogens on human breast cancer cells when combined with progesterone or synthetic progestins. They found that progesterone inhibited breast cancer cell proliferation at higher estrogen levels, but that synthetic progestins had the potential to stimulate breast cancer cell proliferation when combined with the synthetic estrogens equilin or 17-alpha-dihydroequilin, which are major components of CEE.”*

Other Benefit and Risk Comparisons

Though we have covered a great deal in this series, there is much more information that is available. It seems as if there are those in the medical community who are willing to look at the studies that do exist and render unbiased judgment. We must remember there are well-intentioned and intelligent medical professionals on both sides of this ongoing debate. We must also remember that HRT is a billion dollar business; we will hear much more from the pharmaceutical companies before they relinquish a penny of their profits without protest.

We have learned much about hormone therapy, both about the characteristics of the individual components and how best to administer them. As I write this, knowing that you are reading, learning, questioning and teaching, I celebrate each of you and your quest to be at your very best.

For Part 1: Progesterone and Progestins (See Document Library)

*Citation

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The Bioidentical Hormone Debate:

Are Bioidentical Hormones (Estradiol, Estriol, and Progesterone) Safer or More Efficacious than Commonly Used Synthetic Versions in Hormone Replacement Therapy?

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