



Hormones 101: The Breakdown of Estrogen

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Estrogen has acquired quite the reputation. With all the health conditions associated with this feminine hormone, it is no surprise that it has received such a bad rap. Conditions that are commonly associated with an imbalance of estrogen include fibrocystic breasts, premenstrual syndrome (PMS), breast cancer, uterine cancer, endometriosis, fibroids, and infertility. Countless research studies have proven the link between estrogen and wellbeing, and many treatment protocols in both conventional and naturopathic medicine center on decreasing the harmful effects of estrogen.

I would like to introduce an alternative concept with respect to this elusive hormone. The important message of this article is to discuss the idea of achieving *estrogen balance*. When it comes to health, estrogen itself is not necessarily the culprit, rather the *unhealthy metabolism* of estrogen that contributes to disease.

So let us delve for a moment into the enigmatic world of estrogen metabolism, and discover just exactly what this hormone is and what it does in our body.

Estrogen production occurs in a variety of locations. The primary contribution is in the ovaries. Secondary sources of production include the adrenal glands, the liver, breast tissue and even in our fat cells. In essence, estrogen is a growth hormone. It stimulates the lining of the uterus and vaginal walls, breast tissue, bone formation, sex drive, and even increases the production of good cholesterol. It makes sense, then, that with estrogen deficiency in menopause, that many of these systems can go awry.

In reality, estrogen is not a single substance, but rather it is a group of hormones that we collectively refer to as estrogen. There are actually three naturally occurring types of estrogen: Estrone (E1), Estradiol (E2) and Estriol (E3). Estrone is the base molecule for estrogen, and is the predominant form present in menopause. Estradiol is the strongest and most active of the three forms, with 75 times more biological activity as Estriol. Estriol is the mildest and is highest in pregnancy. Consequently, Estrone and Estradiol are the ones we need to keep a close eye on, and ensure that they are metabolized in a healthy way to avoid their detrimental proliferative effects.

Estrogen metabolism gets even more complicated. In the attempt to achieve balance, Estradiol and Estrone are converted by the liver into Estriol, decreasing the activity of the former two. This process depends upon the ability of the liver to



perform its function, as well as on good adrenal function. It is crucial then, to have healthy liver function and a clean body to maintain hormone balance.

Our body then metabolizes these estrogens into 2-hydroxyestrogen, 4-hydroxyestrogen or 16-hydroxyestrogen. The 2-hydroxy form has anti-estrogenic effects, while the 16-hydroxy form is associated with estrogen-related cancers.¹ Research has shown that the ratio between 2-hydroxyestrogen and 16-hydroxyestrogen represents the dominance of one pathway over the other, and that modifying dietary habits can increase the production of the 2-hydroxy form, thereby decreasing cancer risk.² In clinical practice, this is referred to as the Estrogen Quotient. Many commercial laboratories have established reliable methods of testing these metabolites of estrogen, so that patients can assess their overall health risk at any stage in a woman's menstrual history. In menopause, estrogen is low overall, but these tests can determine how the body is metabolizing these low circulating hormone levels. A woman is at risk of hormone related conditions at any stage of her menstrual life, so results of this novel testing can provide you with important information about how you can prevent the onset of hormone related disease or treat an existing condition³. Your Naturopathic Doctor can help you devise an integrative treatment plan to help you on your journey.

So how do we achieve estrogen balance? Honestly, the answer to this question is multifactorial and relatively complex. However, the good news is that you can start the process in the comfort of your own home. Below is a list of modifications you can make to your diet and lifestyle habits that require little effort. The intended outcome is to support the liver in its metabolism role of internal estrogens and to reduce outside sources of harmful estrogens.

- Support liver detoxification pathways by drinking several cups of green tea and lemon water daily
- Manage your weight. Excess weight means extra fat cells that encourage production of estrogen
- Increase consumption of flaxseed and fermented soy products. Studies show that 1-2 tablespoons of freshly ground flaxseeds can improve the estrogen quotient via an important constituent called lignan⁴
- Increase consumption of plant foods, especially dark leafy greens and brassica vegetables. Brassica vegetables are rich in 1-3-C, an ingredient that increases the production of 2-hydroxyestrogen. These include bittercress, bok choy, broccoli, cabbage, brussel sprouts, and kale⁵
- Eliminate consumption of cow's milk products. Cows are very large animals, and their breast milk is chalk full of growth hormones that encourage estrogen production
- Only eat red meat and poultry that is organic and hormone free. Hormones are often injected into these animals to increase their growth rates. We ingest all of these hormones when we consume these animals



- Increase eggs, garlic, and onions. The naturally occurring sulphur in these foods help the liver to detoxify estrogen
- Heal your digestive tract. Circulating levels of estrogens are highly determined by how well our gut is eliminating waste. You can improve your digestion by taking probiotics, eating whole foods and addressing food sensitivities
- Increase consumption of Calcium-D-Glucuronate containing foods, since this compound helps the body metabolize estrogen. These include oranges, apples, cherries, broccoli, grapefruits
- Eliminate sources of methyl-xanthines such as caffeine, theophylline, and theobromine (found in coffee, tea, chocolate, and cola) as these increase production of 16-hydroxyestrogen
- Eliminate sugar, white flour and refined foods. Processed foods cause a rapid rise in blood sugar. This triggers the pancreas to produce large amounts of insulin whose job it is to escort sugar into cells. The result is a rapid decrease in blood sugar and insulin levels. Fluctuations in blood sugar and insulin levels adversely affect our hormonal health and aging process
- Get rid of the plastics. Greater than 70% of plastics, even those that claim to be BPA-free, have compounds that are xeno-estrogens. Xeno-estrogens are synthetic substances that act like estrogen in the body and can alter our cell structure. Our exposure is increased even more when we store our food or beverages at extreme temperatures, like with refrigerating, freezing, or heating. Think of how many plastic water bottles that just sit in your car on a hot summers day!

References:

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