# Bio-identical Hormone Replacement Therapy (BRT)

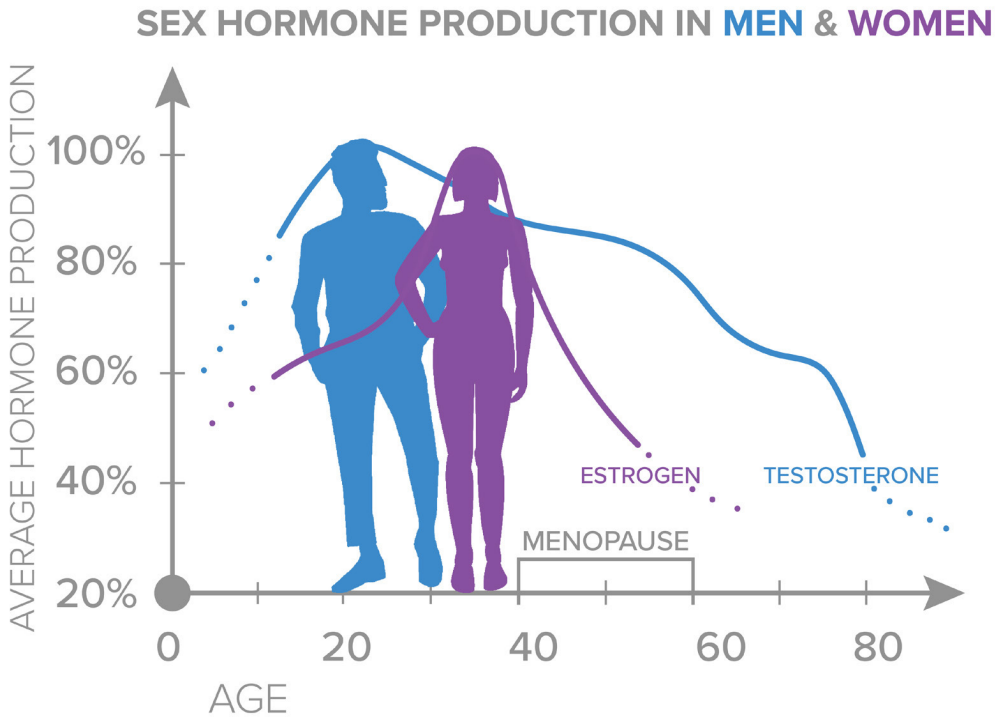
BALANCED HORMONE HEALTH

## What is Bio-identical Hormones vs Non-bio-identical hormones?

The term bio-identical does not indicate the source of the hormone but rather the chemical structure. Bio-identical hormones are produced from plant molecules, and through a series of chemical processes, is structurally converted to the specific human hormone molecule (i.e. estrogen, testosterone, etc). The final product has no trace of the plant; just pure biologically identical hormone. These bio-identical hormones convey the same action and effect, and are metabolized into the same metabolites with the same binding affinity. Non-bio-identical hormones can be derived from animals (i.e. estrogen from horse urine) of synthetic hormones that are not identical to human hormones.

Twenty-five years of research with hundreds of published studies conducted have demonstrated bio-identical hormones to be equally or more effective than non-bio-identical hormones for symptoms. In these studies, safety of use was also evaluated and indicate they are indeed safe. In a review of 196 studies, it was determined that physiological data clinical outcomes demonstrate that bioidentical hormones are associated with lower risks: including breast cancer, cardiovascular disease, and are more efficacious than their synthetic and animal-derived counterparts[1].

Hormone imbalance in women can easily start to happen in your 30's, and as you get closer to menopause, can be exacerbated. The 3 key hormones to focus on balance is estrogen, progesterone, and testosterone. Unlike men, who only focus on testosterone, women must balance these 3 to feel their best. Once the decline begins, it decreases rapidly over a short period of time (see figure below).

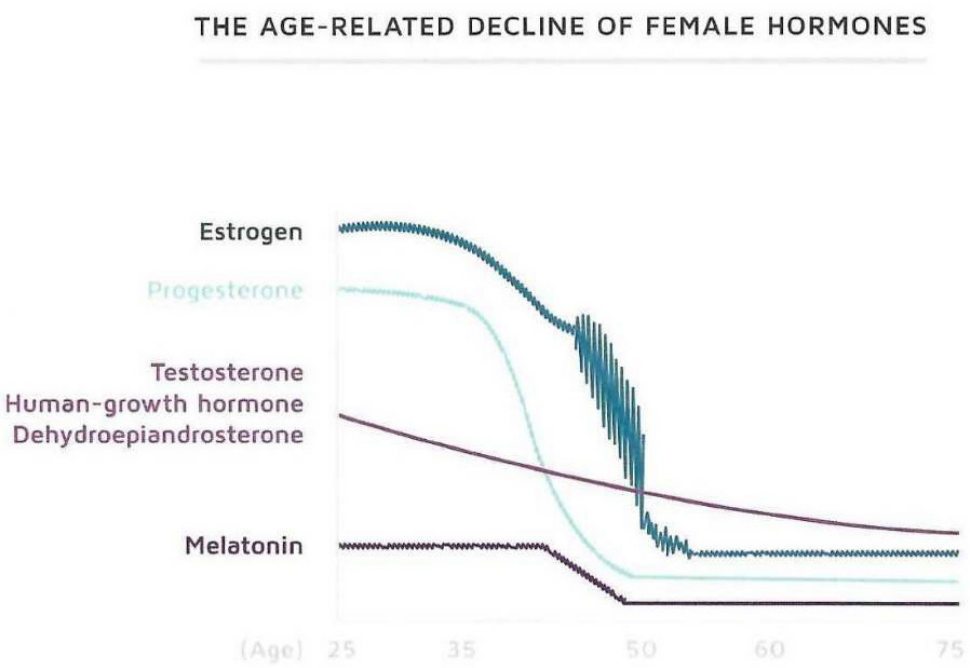


## Estrogen/Progesterone/Testosterone

Estrogen is broken into 3 parts: **1.** Estrone, **2.** Estradiol, and **3.** Estriol. There are two types of receptors for estrogen, alpha and beta. The alpha receptors are proliferatory to breast and uterine cells. The beta receptors antagonize proliferation and induces differentiation through apoptosis. High levels of Estrone (which has 5:1 affinity for alpha to beta receptors) have been implicated with an increased risk of breast cancer. Whereas Estradiol and Estriol can be utilized to balance your overall estrogen level. Estriol is an especially important component as it has a high affinity for beta receptors (1:3, alpha to beta). The focus of BHRT is enhance the components that are beneficial to the body.

Progesterone has several functions like estrogen, but one is it blocks the conversion of Estrone sulfate to Estrone. It also opposes cortisol, facilitates thyroid hormone utilization, and has positive feedback on endogenous (hormones produced or synthesized within the body) production. Low levels of progesterone are associated with increased risk of breast cancer. Not to be complicated with Progestin (a synthetically made hormone – NOT bio-identical), which has been implicated with increased risk of breast cancer the BHRT version of progesterone is identical to what is produced naturally in the body.

Testosterone is typically thought of as the sex hormone for men, however women do produce it and can be deficient in it. Though there really is not a defined syndrome of low testosterone in women it is important to have this balance with estrogen and progesterone. As with men, the main cause of low testosterone in women is aging, particularly as you get closer to menopause. Low levels of testosterone are associated with the risk of cardiovascular, cognitive, and musculoskeletal health.
Finding the right balance of these 3 hormones is not straightforward as it can be different for each person. It is easy to say some of these may be in “normal” range, however the range used is limited in its ability to accurately assess a person’s needs. The goal of the BHRT program is to find your optimal levels and help you feel you best



## Symptoms of being out of balance:

1. Brain fog/forgetfullness
2. Anxiety/Depression
3. Low energy/motivation
4. Weight gain
5. Hot flashes
6. Low libido
7. Hair loss
8. Loss of muscle tone
9. Cardio issues
10. Insulin resistance
11. Poor sleep
12. Joint pain

## What to expect when you are balanced:

1. Improved focus and cognition
2. Improved mood and overall well-being
3. Support for fat loss
4. Increased bone density
5. Increased sex drive
6. Improved cardiovascular health

The initial labs will help us determine if you are a candidate for BHRT. There is no magic number for where you will feel the best, which is why we will do routine blood testing to optimize what works best for you. Most women will be somewhere between 12.5-498 pg/ml on estradiol*, 0.1 – 23.9 ng/ml on progesterone**, and 4-50 ng/dL on total testosterone. Which is why we look at more than just total testosterone (i.e. estradiol, progesterone, testosterone, sex hormone binding globulin (SHBG), .....) Just because these are considered “normal” ranges does not mean these are optimal for you.

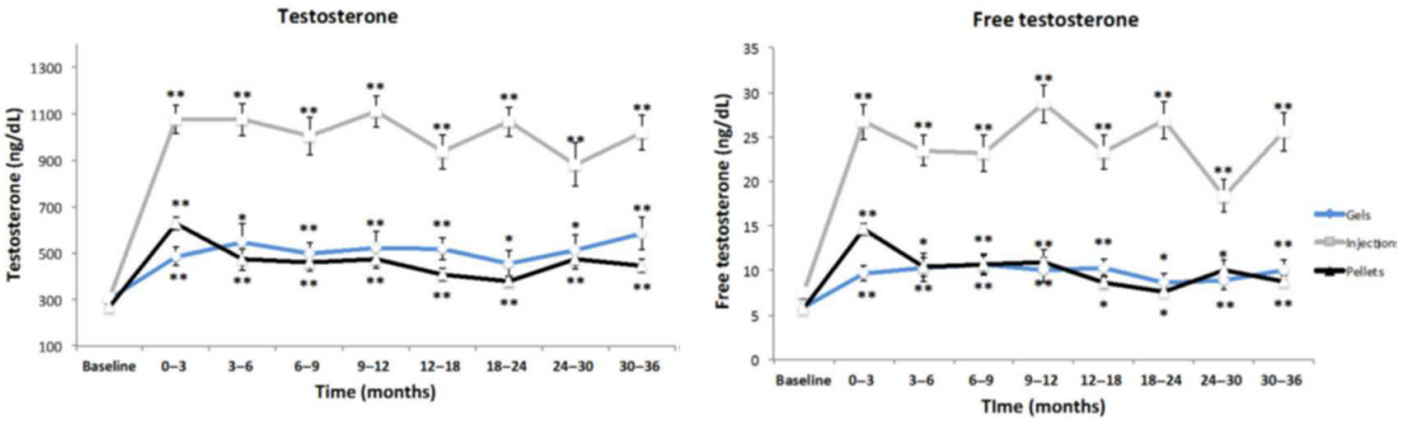
***Estradiol**

| | |
|---|---|
| Follicular phase | 12.5-166.0 |
| Ovulation phase | 85.8-498.0 |
| Luteal phase | 43.8-211.0 |
| Postmenopausal | <6.0-54.7 |

****Progesterone**

| | |
|---|---|
| Follicular phase | 0.1-0.9 |
| Ovulation phase | 1.0-23.9 |
| Luteal phase | 0.1-12.0 |

The goal of this program is to supplement your existing levels of estrogen, progesterone, and testosterone with bio-identical hormones to reach a balanced/optimal level for you. There are several forms in which these hormones can be administered: injections, gels, patches, pellets or pills. We believe the most effective[2] of way of getting a consistent dose is by injections (see figure below a study done to evaluate effects of injection, pellets, and gel).




## How does it work?

1. Visit with a consultant and schedule labs (bring your own if you have them).
2. Meet with Practitioner to discuss treatment plan. (Telemed visit)
3. Medications* shipped directly to your home. You administer in the privacy of your home.

**Medications will include Estrogen, Progesterone, and Testosterone*

## Literature Cited:

**1.** The Bioidentical Hormone Debate: Are Bioidentical Hormones (Estradiol, Estriol, and Progesterone) Safer of More Efficacious than Commonly Used Synthetic Versions in Hormone Replacement Therapy? Kent Holtorf, MD. http://www.nchi.nlm.nih.gov/pubmed/19179815

**2.** Pastuszak AW, Gomez LP, Scovell JM, Khera M, Lamb DJ, Lipshultz LI. Comparison of the Effects of Testosterone Gels, Injections, and Pellets on Serum Hormones, Erythrocytosis, Lipids, and Prostate-Specific Antigen. Sex Med. 2015 Sep;3(3):165-73. doi: 10.1002/sm2.76. Epub 2015 Aug 12. PMID: 26468380; PMCID: PMC4599554.