

# Hormone Replacement Therapy For Women

Bio-identical Hormone Replacement Therapy

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There are three main hormones that are responsible for the menstrual cycle, sexual drive or libido and the general characteristics of being female. These are estrogen, progesterone and testosterone. Before menopause the ovaries produce all three and after menopause the adrenal glands take over their production in much smaller amounts. In our natural state these hormones are in balance with each other. In a state of high stress or emotion, poor nutrition or medication use there can be many imbalances. By improving lifestyle, many women will never need hormones as they naturally decrease hormone production. If symptoms are severe however, hormone replacement can help women adjust to the changes their body is making over a longer period of time.

A hormone is a molecule that travels through the blood to have its effects throughout the body. For many years hormone replacement at menopause was done with hormone substitution. Examples of hormone substitution include conjugated estrogens from pregnant horses urine (mostly horse estrogens – not human) and medroxyprogesterone which is synthesized in a lab. These were given by mouth which is not the natural route and allows the liver to change the hormone before it gets to the cells. This tends to cause more side effects.

In the 1930's chemists learned to make a progesterone molecule that was identical to the one our bodies make from plants such as yams.

This was called “natural” progesterone which caused much confusion as it is made or synthesized in a lab. We now call a hormone which is the same molecule that our body makes “bio-identical” and it is a much more accurate name. Bio-identical estrogen is made in a lab also. For many years these hormones were made by a compounding pharmacy as the bio-identical molecules could not be patented and drug companies ignored them. As information about the benefits of using these hormones was spread, women began asking for these hormones and now they come in many forms and brands.

Compounding pharmacies are still very helpful in fine tuning the dose of a hormone to the individual woman’s needs. There are more bio-identical hormones available topically which sends the hormone to the blood directly and mimics the natural process more closely.

Unfortunately, many of the studies done with female hormones have been done with hormone substitutes and the risks and benefits are not always the same as with bio-identical hormones.

### Progesterone:

Progesterone is the hormone that the ovary makes after a woman ovulates or releases an egg. It is the hormone that signals the uterus to start and stop the menstrual flow. Prior to menopause many women notice a decrease of this hormone with symptoms of irregular periods, mood swings, irritability, night-time hot flashes and sleep disturbance. This can be premenstrual (PMS) or throughout the month. Dr. Katherine Dalton began using bio-identical progesterone to treat PMS in England many years ago and it is very effective.

Without progesterone women are in a state of “estrogen dominance” which can feel almost toxic. Before menopause, progesterone is used in the second half of the cycle (when levels should be higher) and

after menopause can be used daily, with or without estrogen. The other benefits of bio-identical progesterone for menopausal women in particular are that it increases bone density, can decrease vaginal dryness and increase libido. The PEPI Trial, a large government sponsored study of cardiovascular risk factors in women confirmed that progesterone substitutes (progestins) partially negate the beneficial effects on cholesterol that result from taking estrogen. Bio-identical progesterone, however, maintained all the benefits of estrogen on cholesterol without any of the side effects of the progestins. The study also confirmed that bio-identical progesterone is able to protect the lining of the uterus from the increased risk of cancer of the uterus that occurs if a woman takes estrogen alone. Progesterone does get converted to estrogen and testosterone in the body and its effects on those hormone levels must be kept in mind. Even though bio-identical progesterone is available over the counter I recommend having a blood level checked and discussing your individual pros and cons with a health professional.

### Estrogen:

Estrogen is not a single hormone. It is a group of similar hormones that can have different degrees of activity on different tissues in the body. The three most important hormones of the estrogen class are estrone (E1), estradiol (E2) and estriol (E3). Estradiol is the primary estrogen produced by the ovary and estrone is formed by conversion from estradiol. Estrone is the estrogen primarily linked to breast cancer. Estriol is produced in very large amounts during pregnancy and may be protective against breast cancer. High levels of estriol are found in vegetarians and Asian women eating a traditional diet. Estriol has advantages over other forms of estrogen in that it is

weaker and does not stimulate the lining of the uterus to grow and therefore does not cause vaginal bleeding. It can be combined with estradiol (called Bi-est with 80% estriol and 20% estradiol) by a compounding pharmacy for help with hot flashes and more severe menopausal symptoms. Levels of all three of the forms of estrogen can be measured with blood tests. The symptoms of too much estrogen can be very similar to the symptoms of too little so blood tests can help see which direction to go. I frequently use just the estradiol level as it is so much stronger than estriol. The Womens Health Initiative study made it very clear that both bio-identical estrogen and estrogen replacement such as Premarin are risk factors for breast cancer after menopause, especially after five years of use. No study has been done to see if bio-identical progesterone will modify that risk so it is good to use estrogen as conservatively as possible. Estriol is very helpful in treating vaginal dryness after menopause and a cream can be compounded with testosterone to normalize sexual response. This does not seem to raise estradiol levels.

Menopause is occurring when the ovary no longer makes estrogen and there are no menses for 1 year. Blood tests can tell if a woman is not having menses due to low progesterone or due to decreased estrogen as well. I try not to give estrogen before it is low because it will stimulate the uterine lining and can cause more bleeding problems.

#### Testosterone:

For some women testosterone replacement can provide an increase in energy and libido. Testosterone is traditionally thought of as the male hormone but women make testosterone in much smaller amounts. Testosterone levels below 20 ng/ml may indicate a trial of

testosterone. A compounding pharmacy is the best way to get a dose that is appropriate for women - many prescription forms are too strong. Bio-identical testosterone does get converted into estradiol and this may cause further imbalance between progesterone and estrogen or increase the risk of breast cancer. This is a place where I may choose the replacement form of methyl testosterone which does not get converted to estradiol. Methyl testosterone cannot be checked with a blood level however.

Finding the optimal blend of hormone replacement therapy is a very individual matter and can take some trial and error. Noticing how you react and reporting back to your practitioner are very important. Although blood tests are not perfect they seem more reliable than salivary tests and can help guide the process.

### Hormone Replacement Choices

Progesterone/Progestin

Progestins: Provera or medroxy progesterone – oral, Rx

Progesterone: Micronized progesterone capsules – oral, Rx

100 mg – 200 mg at bedtime.

(may cause drowsiness or dizziness)

Topical or vaginal over the counter progesterone cream

Topical Rx strength progesterone (compounded)

(180 mg/ml, ¼ - ½ ml 1-2 times per day)

Vaginal Rx progesterone gel – Prochieve

Vaginal compounded progesterone suppositories/cream

Estrogen:

Conjugated estrogens: Premarin etc. oral, Rx Combined estrone, estradiol and horse estrogens

Estradiol: Estrace – Oral, Rx doses of 1 or 2 mg, scored  
Patches – several brands, Rx

Vivelle dot – multiple doses help to taper off  
Climara, Estraderm

Topical Rx – Estrogel – once a day gel  
– Evamist – once a day spray

Vaginal – Vagifem tablets 2x/wk , Rx; Nuvaring Rx

Estriol: Vaginal cream with or without testosterone – compounded, Rx  
.1 % of each hormone,  $\frac{1}{4}$  -  $\frac{1}{2}$  ml to vagina / day or as needed

Testosterone:

Methyltestosterone: Sublingual, compounded Rx (doses .25 - .75 mg/d)  
Combined with estradiol as Estratest  
(relatively high dose .625/1.25)

Micronized testosterone: Wide range of doses compounded for  
Oral capsules or sublingual tablets  
Topical – .1% cream for vaginal use with estriol  
– 1% - 2% gel for skin application

It is important to rotate sites of application with any topical hormone cream and not apply it to the breast or chest areas. Working with a compounding pharmacist can be very helpful in finding the right solution for you.

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