

All About Bioidentical Hormones

"Bioidentical" = "same as your body produces naturally."

- ∞ Estrogens produce female-bodied characteristics in general, and strengthen bones. They include:
 - Estrone ("E1," made normally after menopause by fat cells)
 - Estradiol ("E2," the main active estrogen, made normally during fertility by ovaries)
 - Estriol ("E3," made normally during pregnancy by the placenta)
- ∞ Progesterone ("P4"), made by ovaries and adrenal glands - mainly necessary for pregnancy, but also protects the lining of the uterus from too much estrogen.
- ∞ Testosterone ("T") and DHEA "pre-testosterone", made by ovaries and adrenal glands; mainly produce a higher sex drive, strong bones, and greater muscle mass.
 - *A high level of estrogen will reduce the level of free testosterone in your body, and vice-versa.*
 - *Estrogens, progesterone, and testosterone/DHEA are inter-converted from one to another by fat cells in the body, accounting for hormonal changes people experience with obesity or starvation.*
 - *Here are some hormones, available as supplements, that are NOT naturally produced in the body: conjugated estrogens, esterified estrogens, progestin, medroxyprogesterone, methyltestosterone.*

Reasons women take hormones:

1. To even out the normal symptoms of menopause, which are related to hormone level fluctuations, including "power surges" and mood swings.
2. To treat urinary/vaginal problems resulting from dryness and thinning of the tissues.
3. To prevent osteoporosis and loss of muscle mass.
4. To prevent the sudden onset of these symptoms when the ovaries have been surgically removed, or impaired as a side effect of medical treatment.

Note: Plenty of women - most, in fact - are happy and relieved to have menopause, and don't take any hormone supplements. It's just a normal biological transition, not a medical problem.

How much do hormones cost? (prices are approximate):

∞ Well-woman physical exam. (\$60 office visit at Dr. Leigh's, plus \$75 lab fee for Pap/HPV/STD test if paying out of pocket. This visit includes a general physical exam, breast and ovary check [unless these were already normal in the past year], rectal exam if needed, pelvic-floor muscle testing as needed).

If you've already had a normal well woman exam in the past year, including the above, then you'd just have a general physical exam.

∞ Blood tests. (Cost range, \$54 [without thyroid or glucose tolerance tests] to \$114 [including thyroid and/or glucose tolerance tests or HbA1c], if no insurance.

- Complete blood cell count. Includes red blood cells, platelets, and immune cells.
- Complete metabolic panel. Includes electrolytes, blood sugar, and liver and kidney function.
- Cholesterol. Includes "good," "bad," and triglycerides.
- Thyroid check. Requires further testing if abnormal, which is added to cost.
- 2-hour glucose tolerance test if concern about diabetes, or HbA1c (3-month blood sugar) if diabetic.

If you already you had these tests done in the past year, and don't have any new symptoms, then there's no need to repeat them now! Please bring in lab results for review.

Follow-up visits:

- ∞ Checkup and adjust therapy as needed at 3 months. All visits cost \$60. You may file an insurance claim for reimbursement of the visit fee.
- ∞ Annual well-woman exam at 12 months and yearly thereafter.
- ∞ Regular primary-care visits, including hormone adjustments, as needed.

Hormone products for menopausal symptoms

In general, Dr. Leigh recommends daily use of a prescription, compounded, transdermal hormone cream that supplements all three of the major ovarian hormones. Amounts of hormone per daily dose are easily adjusted according to each individual's response. Insurance often does not pay for individually-made drug preparations, or charges a hefty co-pay. Dr. Leigh works closely with local pharmacists to make these medications affordable.

However, the following bio-identical preparations are also FDA-approved and mass-produced by drug corporations. Some insurance policies may pay for them, with or without co-pay.

[Approx. 2011 prices found online, for a month's worth if paying out-of-pocket]

Bioidentical estradiol:

Patches: generic [\$36-39], Alora [\$53-64], Vivelle [\$64-72], Estraderm [\$66-72], Climara [\$69-76].

Gel: EstroGel [\$75].

Cream: Estrasorb [\$16.95].

Vaginal ring: Femring [\$200 for a 3-month ring].

Pill (not recommended - see FAQ): generic [\$14-18, or \$4/month at big-box stores], Estrace [\$66-80], Femtrace [\$191-232].

Bioidentical estradiol, low-dose for vaginal symptoms and bones:

Vaginal cream: Estrace [\$128 per 42.5gm tube; use 0.5 g (50 mcg) daily x3wks, then 2x/wk thereafter. One tube for first month, then tubes last about 40 weeks].

Vaginal ring: Estring [\$197 for a 3-month ring].

Patch: Menostar [\$73].

Bioidentical progesterone:

Pill: Prometrium [\$60-106].

Vaginal gel: Crinone [\$80], Prochieve [\$152-221].

Cream: Various kinds; over-the-counter "beauty product", not standardized [prices vary].

Bioidentical testosterone:

Gel: AndroGel 1% (\$271-275 for a total of 750-1500mg; usual dosage is 5-10% of male-bodied dosage = 1-5 mg/ day; supply would last 5-10 months), Testim 1% (\$302 for 1500mg).

Note: Bioidentical testosterone is not taken by mouth because it is deactivated by the liver.

Compounded bioidentical creams, made locally:

Single, double, or triple hormone combinations (estradiol, progesterone, testosterone) [\$24-52].

NB (non-bioidentical) products:

NB estrogens:

Premarin ("conjugated equine estrogens" from pregnant mares' urine), generic estropipate, Ortho-Est (estropipate), Menest (esterified estrogens).

NB progestins:

Generic medroxyprogesterone acetate (MPA), Amen, Cycrin, Provera (MPA), Micronor, Nor-QD, Aygestin (norethindrone).

NB combined hormones:

Premphase, Prempro (Premarin with MPA), Femhrt (ethinyl estradiol and norethindrone acetate).

Non-bioidentical testosterone-containing preparations:

Esterified estrogens + methyltestosterone HS/DS (half- and double-strength).

How to convert from one hormone to another? These dosages are approximately equivalent:

Estrogens

NB Conjugated estrogens (e.g., Premarin)	0.625 mg
NB Esterified estrogens (e.g., Estratab)	0.625 mg
NB Estropipate (e.g., Ogen)	1.25 mg
NB Ethinyl estradiol (e.g., Estinyl)	0.01-0.015 mg
Estradiol (e.g., generic, topical, sublingual, or oral)	1.0 mg
Estradiol patch (e.g., Vivelle)	0.05 mg
Tri-est, Bi-est (compounded)	2.5 mg

Progesterones

NB Medroxyprogesterone acetate (eg, Provera)	5 mg x14 days/month, or 2.5 mg daily
NB Norethindrone acetate (eg, Aygestin)	5 mg x14 days/month, or 2.5 mg daily
NB Norethindrone (eg, Micronor)	0.7 mg x14 days/month, or 0.35 mg daily
Micronized progesterone (eg, Prometrium)	200 mg x14 days/month, or 100 mg daily
Progesterone cream (compounded)	40 mg x 14 days/month, or 20 mg daily
Progesterone gel (eg, Prochieve 4%)	every other day x12d/month (45 mg/dose) or 2x/wk

Frequently Asked Questions:

Why a patch (cream, gel, ring)? Why not just an estrogen pill?

A pill has to be digested and processed by your liver. Estrogen affects the liver by boosting its production of proteins which bind up thyroid, adrenal, and sex hormones, as well as making more clotting factors and triglycerides. This can reduce the amount of free/active thyroid, cortisol, and sex hormones, and increase the risk of dangerous blood clots and high cholesterol. These effects only occur very partially, if you do not swallow a pill.

The lowest-dose bioidentical estrogen patch, Menostar (0.014mg estradiol) is used to prevent osteoporosis, and for many women, this dosage relieves symptoms of menopause. At this low dose, you do not need extra progesterone (see below) to protect your uterus.

Why do I need extra progesterone?

Estrogen makes the uterine lining grow, and this could cause uterine cancer, eventually, in some women.

Progesterone tones down this effect. (If you do not have a uterus, it doesn't matter!)

Progesterone creams are very poorly standardized, and may not even contain the amounts listed on the label, and your personal absorption of them may vary wildly, as well. Does this mean they don't protect the uterus as well, from the growth-hormone effects of estrogen? We just don't know.

Why vaginal estrogen?

Some women are troubled by symptoms causing dryness, tightness, pain, and muscular weakness (which can lead to urine leakage). Low-dose estrogen cream can plump up these delicate tissues and improve the problem, without affecting the whole rest of your body. Higher doses of vaginal preparations work the same way as do patches, creams, rings, and gels.

Is there a cancer risk from taking hormones?

The main sign of uterine-lining cancer is bleeding. If you have had post-menopausal bleeding, or have already taken plain estrogen for a long time, you should have an ultrasound and biopsy before taking hormones.

There is no increased risk of breast cancer for women who are healthy at a normal weight, taking estrogen. Recent European studies suggest that non-bioidentical progesterone may increase the risk of breast cancer, and bioidentical progesterone may not, but more study is needed.

When is it inappropriate to take hormones?

☞ If you have had breast or uterine cancer, or a heart attack, stroke, or blood clot to your lung, you are more vulnerable to the effects of extra hormones. However, the low-dose creams, used for vaginal symptoms and to strengthen bones, are safe for you, as they do not enter the bloodstream in appreciable amounts. (See end of article for other approaches.)

☞ When you are older. Studies have shown that if you are over 60 and have never taken menopause hormones before, starting them after that age would give you higher risks of cancer and blood clots. However, the low dose creams, used for vaginal symptoms and to strengthen bones, are safe, as they do not enter the bloodstream in appreciable amounts. (See end of article for other approaches.)

If I stop using hormones, what will happen?

Some women have symptoms come back for a short period of time. Hot flashes, mood swings, etc. are mainly caused by fluctuations in hormone levels during the shift from fertility to menopause, but once the ovaries have fully matured, these fluctuations cease and your system becomes stable.

I'm on birth control pills. How can I tell if I have entered menopause?

Blood tests for estradiol and FSH can indicate this. The estradiol test is *not* affected by the 'ethinyl estradiol' in birth control pills. However, birth control pills work by suppressing FSH (high levels of which would normally indicate menopause), so a low result would not necessarily mean you are fertile; it could be a "false negative". A high FSH would still indicate your ovaries were underactive at the time you took the test.

Is it possible for your ovaries to perk up later, and get you pregnant if you have unprotected sex? Chances are slim! Average risks of pregnancy are 20% at age 30; 10% at age 35; 5% at age 40; 1% at age 45. In groups where women do not use birth control, average age at birth of last child is 41 years.

If you are close to fifty, stop taking birth control pills and use non-hormonal protection for 2 months or so, and then get the tests, if you want to. It would be healthier for you to discontinue hormonal birth control and/or switch to the lower menopause hormone dosages, after 50 years of age.

About Premarin and Prempro:

"There are 50,000 mares in North Dakota, Minnesota and western Canada who are impregnated and then tethered in cramped stalls (3.5-5 feet wide by 8 feet long) so that their urine, which contains estrogen, can be collected... Grooming and hoof trimming is minimal to nonexistent, and mares are often denied adequate water, reportedly to increase the concentration of estrogens in the urine.

"The mares are kept pregnant so that they produce estrogen-rich urine for as much of their lives as possible. Within days of giving birth, they are re-impregnated. A few months later, the foals of these mares are taken away from them and they're put back on the "pee line".

"Most of the foals... are sold to "kill buyers", fattened, and then slaughtered; they're generally dead by four months old. The meat is sent to markets in Europe and Asia for human consumption. A few foals are kept for stud or to replace worn-out mares. The mares, in turn, are eventually auctioned off to butchers when they've outgrown their economic usefulness." (For details, see <http://bit.ly/b9ouaF>)

About herbal/ botanical supplements:

"Phytoestrogens" are estrogen-like compounds mainly found in flaxseed, beans, and clovers. The main phytoestrogens are isoflavones (soy, clover) and lignans (flax). Licorice, hops, fennel, and fenugreek also contain phytoestrogens.

Herbs that are not phytoestrogens: Black cohosh (more involved with serotonin), Chasteberry (more involved with dopamine); Angelica/Dong quai (more involved with cyclooxygenase/lipoxygenase inflammatory responses).

Wild yam root (a.k.a. Dioscorea) does not contain bioidentical progesterone. Progesterone cream must say it contains "Progesterone USP," not "wild yam," "diosgenin," etc., to contain bioidentical progesterone.

What about estrogen dominance?

Manufacturers of hormonal products, and "anti-aging specialists," describe this as a problem that causes vague, unpleasant symptoms; requires frequent, unusual forms of testing; and necessitates expensive treatments. Sorry, but there currently is no medical evidence that this phenomenon exists!

However, if you are concerned that you may be exposed to too many estrogen-like environmental contaminants or androgen antagonists ("endocrine disruptors"), here are some ways you can reduce this exposure:

- ☞ Eat low on the food chain, minimizing your use of animal products. Slaughter and dairy animals are usually given hormonal compounds (including estrogens and progesterone) to speed up growth.
- ☞ Choose whole organic fruits and vegetables, when you will be using the peels. Peel and/or carefully scrub fruits and vegetables that are *not* certified as organic.
- ☞ Avoid home, gardening, and pet products involving pesticides, weed killers, and insect repellents (e.g. Raid, Round-Up, permethrin flea dips). See "Resources" below for alternatives.
- ☞ Minimize your use of plastics and plastic coated items. Examples: canned foods and liquids, polystyrene/styrofoam, vinyl flooring, "enteric coated" medications, flame retardant clothing and bedding.
- ☞ Avoid parabens found in skin and beauty products.

If you eat and live simply, you are very unlikely to suffer clinical toxicity
related to exposure to environmental contaminants of any kind.

Resources:

Our Bodies, Ourselves: Menopause (Boston Women's Health Book Collective) A comprehensive guide. Available from your public library - ask your friendly reference librarian!

New Menopausal Years, The Wise Woman Way (Susun S. Weed) For those who simply must take an herbal remedy - Susun Weed's the boss. Available from your public library - ask your friendly reference librarian!

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| ☞ Treatment options for breast cancer survivors | http://bit.ly/g2AQ8L |
| ☞ The International Menopause Society's recommendations | http://bit.ly/e5gll0 |
| ☞ The North American Menopause Society | http://www.menopause.org |
| ☞ Phytoestrogens in herbal medicines | http://bit.ly/ea3hzX |
| ☞ Xenoestrogens and endocrine disruptors | http://bit.ly/9bySQQ and http://bit.ly/s9UfR |
| ☞ Strategies for reducing environmental contaminants | http://simplesteps.org |
| ☞ Testosterone for female bodies, from the trans community | http://www.ftmguide.org |
| ☞ What the FDA says about bioidentical hormones | http://bit.ly/egFJ7q |
| ☞ What was the Women's Health Initiative study? | http://bit.ly/g7p8jF |
| ☞ French research on progesterones vs breast cancer risk | http://bit.ly/hui141 |