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REPORT

The New Hormone Replacement Therapy

Science has proven that many of the adverse effects of age are a result of the body's dwindling supply of hormones. Reversing the hormone drain has been proven beneficial in stopping some of the negative effects of aging. The concept of reversing or preventing the signs of aging goes back thousands of years. For example, ancient Egyptians had a remedy for sagging breasts, and one for baldness. Though they didn't know it at the time, both conditions relate to hormones. Also unknown to them was that some of their remedies involved plants or animal parts with hormonal effects.

Science has come a long way since then. We now know that synthetic versions of hormones can reverse age-related effects we don't like, including a loss of energy, deterioration of muscles, bones, and a lack of interest and vitality. Despite the myriad of hormones and their effects, the most well-studied hormone is estrogen, notably its effects have been studied using the drug Premarin. Premarin and other synthetic estrogens alleviate symptoms related to estrogen loss in women such as hot flashes and insomnia.



Menopause, what menopause?

Drugs like Premarin can be used to treat menopausal symptoms. But a healthier approach is to eliminate the cause in the first place. That may sound like an unlikely proposition to generations of women brought up to believe that Premarin in the medicine cabinet is as natural as milk in the refrigerator. But the fact is that millions of women all over the world don't need Premarin because they don't get the symptoms Western women get.

By now most people have heard that the Japanese have no word for "hot flash". But did you know that the Mayan and Navajo indigenous peoples don't either? The women in these cultures simply don't get "hot flashes". In fact, they get virtually no menopausal symptoms at all. And it's not because they have strange rituals or odd lifestyles.



They simply eat differently. Sounds boring, but these women incorporate things in their diet that keep menopausal symptoms away. And it's not only what these women eat, it's what they don't eat. What they don't eat is animal protein with its fat and chemical additives, and what they do eat are plants, notably, vegetables, grains and beans. These common, everyday foods contain something very powerful and exciting that researchers are just now beginning to understand. They contain compounds known as phytoestrogens. Here are some eye-opening facts from new research on phytoestrogens and women who eat a lot of them:

- Strong estrogen (estradiol) is 171% higher in women who eat a Western counterparts in China who eat mostly soy products, rice and vegetables.
- Mayan Indians do not get osteoporosis; they eat large amounts of plant foods.
- Phytoestrogens reverse hyperparathyroid and protect against bone loss.
- "Lignans" from plants change the way estrogen is metabolized. It goes from growth to a form that does not.
- Flaxseed, which contains high levels of lignans, stops the growth and metabolism.
- Flaxseed oil can reduce the size of breast tumors in rats by 50%.
- The lignans in unprocessed olive oils may be responsible for the anti-cancer diet.

The foods that protect women in other cultures against menopausal symptoms contain a lot of these compounds. Although there are thousands of phytoestrogens, only two groups have been well-studied: those in soybeans and flaxseed. Soybeans contain phytoestrogens known as isoflavonoids, and flaxseed contains phyto-lignans that are converted to mammalian lignans in the gut. The list of phytoestrogens is endless, and most haven't been studied very well, if at all. Resveratrol from grapes, quercetin from onions, prunetin from plums and cherries are just a few. What's important is that women in cultures where menopausal symptoms and hormone-related cancers are rare, ingest hundreds of times more of these beneficial compounds than Western women.

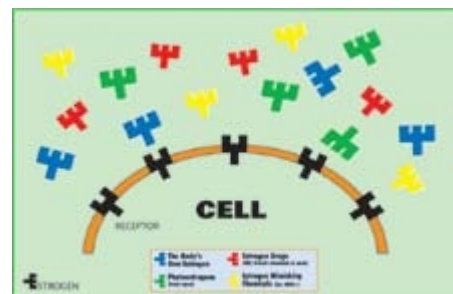
Lots of benefits

One of the most important benefits of phytoestrogens, especially for Western women, is that they are anti-estrogenic. They keep estrogen under control. One way they do this is they prevent the conversion of estrone to the "strong" estrogen, 17 β -estradiol. This is very important because this "strong" estrogen fuels the growth of hormonally-dependent cancers, such as breast cancer. Phytoestrogens also downregulate estrogen receptors (doorways) that allow estrogen into cells. By taking away some of the "doors", phytoestrogens limit the amount of estrogen getting into cells. A third way phytoestrogens put a damper on the problem is that they inhibit aromatase, an enzyme used for "strong" estrogen production. Some phytoestrogens like genistein, are themselves estrogenic in certain tissues where it's beneficial such as bone, but anti-estrogenic in other tissues such as the uterus where it could be detrimental. Other phytoestrogens, such as quercetin, are not estrogenic at all.

Lignans help nullify strong estrogens and get them out of the body. They do this by increasing a protein known as "sex hormone binding protein" (SHBG). SHBG attaches to sex hormones and inactivates them. The more lignans a person gets, the more SHBG they have. This is good because SHBG is also associated with lower levels of a dangerous estrogen called 16- α hydroxyestrone which, in turn, is associated with breast cancer. One of the lignans known to do this is enterolactone, which is abundant in berries.

Lignans and other phytoestrogens are great antioxidants. In the past, their antioxidant action was thought to be responsible for their anti-cancer effects. Researchers have since learned that there's a lot more to phytoestrogens. They can, for example, stop the growth of cancer cells by interfering with critical biochemistry. Different phytoestrogens have different effects. Research shows that some work better against certain types of cancer than others.

Japanese women are famous for their high levels of phytoestrogens and low levels of breast cancer. But Mexican women, who eat virtually no soy products, have even lower rates of breast cancer (7.1 per 100,000 vs. 11.3. The U.S. is 32.7). Mexican women get their beneficial phytoestrogens from onions, lettuce, spinach, herbal tea and apples, according to one study. These foods contain high amounts of such phytoestrogens as kaempferol, quercetin, and enterolactone. It has been shown repeatedly in scientific studies that people with the highest level of phytoestrogens in their blood have the lowest risk of cancer. Asian women and others who get a lot of phytoestrogens have much less cancer-promoting estradiol in their bodies than Western women. Soy contains the well-known phytoestrogens, daidzein and genistein.



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Phytoestrogens are from plants, and they bestow multiple benefits. But some estrogens are more bad than good. It's important to realize that there are many different types of estrogens. The only thing they have in common is that they all have an "estrogen" type molecular structure. Beyond that, they can be totally different.

Thousands of estrogens

The word "estrogen" has gotten a bad name because of its ability to promote the growth of some types of cancer. People hear the word "phytoestrogen" (plant estrogen), and assume it must promote cancer. But the opposite is true, and most phytoestrogens are not estrogenic. It's unfortunate that these beneficial compounds have been stuck with this name.

It's very important to differentiate between estrogens. When someone says "estrogen"—what are they really talking about? The human body contains all kinds of natural estrogen metabolites and an unknown number of synthetic estrogens and their metabolites. The only thing all these "estrogens" have in common is a similar chemical structure. But like a pig and a bear, although they can fit through the same estrogen doorway, once inside they act very differently.

Natural estrogen

Estrogen has become the focus of what causes breast cancer. Perhaps not realizing that women (and men) are being exposed to thousands of estrogen-like chemicals throughout life, that register as "estrogen" on tests, some people have seized upon our body's natural estrogen as the link to breast cancer. Some researchers have even advocated that high-risk women cut off their breasts to avoid breast cancer (New England Journal of Medicine). But our own natural estrogen is not only not a carcinogen, it's essential for life. Estrogen* has critical roles in the brain, the lung, bones, and heart. It and phytoestrogens are natural estrogens that have been with us since mankind has been in existence. Chemical estrogens are a different story.

Estrogen chemicals

Chemical estrogens have entered the world in the last few decades through artificial means, and there is compelling evidence that they are wreaking serious havoc on our bodies, and our very future.** These pretenders look like the real thing, but once inside cells, they don't behave like real estrogen.

Some manufactured estrogens are sold as drugs. Premarin, for example, contains horse-related estrogens that look enough like human estrogen to get into cells, but this drug is a listed carcinogen. Other artificial estrogens come from the plastics industry. When they are put in a test tube with normal or cancerous cells that respond to hormones, they strongly promote growth. Plastics-related estrogen mimickers are in dental sealants, food and beverage containers, some types of plastic wrap and many other everyday items. Some pesticides also contain estrogenic chemicals. The human environment is so saturated with these chemicals that it's impossible to avoid them. Research indicates that humans living today have hundreds of chemicals in their bodies, an unknown number of which act like estrogen. Researchers recently reported that mixtures of chemical estrogens have greater effects in the body than one alone.

Recently Congress enacted legislation that requires the government to investigate the effects of so-called "hormone disrupters". Hormone disrupters include the estrogen-type chemicals, as well as other chemicals that interfere with natural hormones. Virtually no research on these chemicals was done before they were allowed into the environment. Preliminary data indicates that there are 58,000 potential hormone disrupting chemicals in the environment. First estimates peg 6,903 of them as estrogen disrupters. The rest presumably disrupt androgens, thyroid and other hormones.

Hormones in meat

Another source of foreign estrogen is meat. New data indicate that eating hormone-treated meat may increase estrogen levels hundreds of times over what the body naturally produces. It's disputed at this point just how much synthetic hormone ends up on the dinner plate. Beef cows in the U.S. are implanted with multiple synthetic hormones, including estradiol, to make them put on weight. There is no withdrawal period for these implants, which are in the cows at the time of slaughter. They're outlawed in Europe and not used in developing countries, but routinely implanted in cows in North America, Australia, New Zealand, and Argentina. North America has the highest rate of breast and prostate cancer in the world. The number of cases of breast cancer in Australia and New Zealand alone almost equals the number for all of Central America, including Mexico.

It's very difficult to know just how much estrogen American women are getting from meat. The FDA says very little; European research says a lot. There are many reasons for the discrepancy, including not knowing how many times cows are implanted with the hormones, and lack of reliable assays.

Synthetic estrogens like the ones put in meat are more biologically active than estrogen. Unlike the body's own estrogen which binds to sex hormone binding globulin (SHBG), these estrogens lodge in fat. This may add to their cancer potential.

Natural SAFEHRT

Unlike synthetic estrogens which have proven themselves potentially dangerous, phytoestrogens have proven themselves as potentially very beneficial. There are thousands of phytoestrogen compounds, only a handful of which have been studied.

Cancer prevention

Phytoestrogens, in sufficient amounts, can keep chemical estrogens out of cells. In a study on estrogen receptor positive breast cancer cells (MCF-7), genistein competed successfully with "strong" estrogen (estradiol) for access to the cells, and once inside, blocked estradiol from making them grow.

Phytoestrogens can also lower the amount of estradiol and estrone (which can be converted to estradiol) in postmenopausal women, reduce breast tumor growth and metastasis, and block the estrogen synthesizer, aromatase. In a breast cancer study, those with the highest amount of the lignan, enterolactone, had a 70% reduction in risk, and those with the highest level of the phytoestrogen, equol, had an 80% reduction in breast cancer risk. It's very likely that the low levels of estradiol in Asians and others is a result of their higher consumption of phytoestrogens.

Heart attack protection

Benefits of Phytoestrogens

Phytoestrogens have many benefits. Most phytoestrogens are not estrogenic. They:

- Prevent proliferation of estrogen-driven cancer cells
- Downregulate estrogen receptors
- Increase bone mineral density
- Lower cholesterol and

Studies show that phytoestrogens provide a high level of protection against heart disease without adverse side effects. In a study of people with high cholesterol, 86 mg of isoflavones from soy protein significantly lowered levels of oxidized cholesterol without causing estrogenic activity. In monkey studies comparing soy phytoestrogens to Premarin, phytoestrogens were better at normalizing cholesterol, and both treatments protected against diseased arteries. In a study of male monkeys, dietary soy protein with phytoestrogens reduced lesions in the arteries by 90% compared to a milk protein diet. Phytoestrogens can lower blood pressure and may protect heart tissue in case of a heart attack. In a study in animals, genistein given 5 minutes before an artery was blocked, reduced organ damage and decreased arrhythmias.

Continued on Page 2 of 2

[Back to the Magazine Forum](#)

triglycerides

- Increase HDL (“good” cholesterol)
- Inhibit the growth of cancer cells, both estrogen receptor positive and negative
- Reduce the synthesis of estrogen through aromatase
- Lower the risk of lung cancer in non-smokers, up to 40%
- Interfere with VEG-F, a factor that enables the spread of cancer

Isoflavones from soy, including daidzein and genistein, enhance immunity by activating NK (natural killer) cells. Anticancer effects of genistein and other isoflavones have been demonstrated against prostate, lung, head-and-neck, breast, colon and mouse bladder cancers.



REPORT

The New Hormone Replacement Therapy

Protection against osteoporosis

Vitamins D and K, calcium and load-bearing exercise help maintain bone. Estrogen is also beneficial. Some phytoestrogens have bone-building effects. Phytoestrogens in flaxseed don't seem to work, but other lignans do. So do genistein, daidzein, biochanin, formononetin, coumestrol, and others. Typically found in soybeans and other plants, these phytoestrogens maintain bone as well as estrogen drugs without the side effects. It appears, however, that different phytoestrogens affect different types of bone differently. In a study on daidzein and genistein, daidzein maintained both cancellous and cortical bone, whereas genistein only maintained cortical. Synthetic estrogen (17 β -ethinylestradiol) also only maintains cortical. (Cancellous bone is the spongy bone inside the cortical bone). Based on these studies, a mixture of phytoestrogens is probably the best bet for staving off osteoporosis. Biochemical studies on how phytoestrogens build bone are in agreement with studies in people. The findings of a study of 650 Chinese women, are similar to the findings of other studies where those who ingested the most phytoestrogens had strongest hip and spine bones. Studies also show that using phytoestrogens to maintain bone doesn't increase the risk of endometrial cancer.

Genistein and cancer cells

Despite the overwhelming benefits of phytoestrogens, some people have become leery because some researchers have reported that one of the soy phytoestrogens, genistein, can act like estrogen. First, it's important to realize that acting estrogenic can be a good thing, depending on the tissue. In bone, for example, estrogenic type activity maintains bone. In immune cells, it increases the ability of natural killer cells to kill cancer cells. Genistein does both of these things. But in breast tissue, estrogen is not desirable because it can promote the proliferation of cells.

Second, it's important to remember that different phytoestrogens act differently. Most do not have any estrogenic activity whatsoever. Some, like genistein, can have weak activity in certain tissues.

The perception that phytoestrogens promote, rather than impede, cancer was created by experiments in one type of human breast cancer cell. These cells, known as MCF-7 human breast cancer cells can be made to grow in test tubes using nano amounts of genistein. There must be no other estrogen in the cells, and only the tiniest amounts of genistein can be used to make the experiment work. (It should be noted that the same amount of genistein impedes growth in a different type of human breast cancer that has no estrogen receptors and is not estrogen-responsive.) In these cell experiments, if the amount of genistein added to the cells is greater than the tiniest amount, it will impede growth, not promote it. And if the cancer is not already there, genistein will not cause it.

One research group has gone one step further, and transplanted the MCF-7 tumor cells into mice. They report that increasing amounts of genistein enhance tumor size. This contradicts the cell studies which show that increasing amounts of genistein reduce cell growth. Another group has done a very similar study using the same type of cells in mice. They report that increasing amounts of genistein block cancer growth and induce cell death. Neither study has been independently verified by outside researchers. Unfortunately, the negative findings on genistein have been extrapolated to all isoflavones and phytoestrogens in general, leading to the false impression that these beneficial plant compounds are dangerous. A new study has been done in a mouse that has the human equivalent of a genetic defect (neu, HER2) that causes some breast cancers. It shows that genistein can significantly delay cancer onset, and that an isoflavone mixture can lower metastasis by 25% (genistein didn't in this study).

Studies in monkeys, the closest animal model to humans, show that soy phytoestrogens impede estrogen-driven cell proliferation. Researchers who have been studying for decades the effects of different types of estrogens on monkeys state flatly: "Soybean phytoestrogens are not estrogenic at dietary doses."

The preponderance of evidence on soy phytoestrogens to date agrees with observational studies in humans showing that women who eat large amounts of phytoestrogens have the least estrogen in their bodies, and the lowest rate of breast cancer.

Other "Hormone Replacement" estrogens



In the future, real hormone replacement therapy will be possible. It will involve understanding not only a hormone's individual effects, but its combined effects with other hormones. Then, and only then, will real "hormone replacement" be

Synthesized hormones that have the same chemical structure as the body's own hormones appear to be free of some of the side effects associated with hormones that are foreign to the human body. Natural progesterone cream, for example, doesn't lower "good" HDL-cholesterol like the synthetic progesterone in "Prempro" does. Natural progesterone also lowers blood pressure instead of elevating it, and helps heart function instead of hindering it. The same type of heart benefits are found in phytoestrogens as well.

In the future, real hormone replacement therapy will be possible. It will involve understanding not only a hormone's individual effects, but its combined effects with other hormones. Then, and only then, will real "hormone replacement" be achieved. In the meantime, modern technology has made it possible for people to get the benefits of phytoestrogens in a concentrated and purified form. The preponderance of the evidence is that these plant compounds have multi-system benefits, including protection against menopause and other effects of aging. Women in other cultures prove it—phytoestrogens work. Note: For those women who have not found effective relief from menopausal symptoms, despite using varying combinations of phytoestrogens and DHEA, refer to the updated Female Hormone Replacement Protocol.

*Estrogen refers to that made by the body.

**For more on this, see the Our Stolen Future website.

***Figures from IARC CancerBase, Globocan 2000, see www-dep.iarc.fr

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