

# Xenohormones and Your Health

## **PART I: XENOHORMONES AND YOUR HEALTH**

**Unseen, unknown, and damaging. We can no longer ignore the effects on our children.**

*by John R. Lee, M.D. and Virginia Hopkins*

I am frequently asked why postmenopausal women need progesterone. After all, a woman's progesterone levels naturally fall to close to zero after menopause.

My answer is that if women ate a perfect diet, got plenty of exercise, fresh air and sunshine, had no chronic stress, got plenty of sleep, and lived in a world free of environmental estrogens, most of them wouldn't need progesterone after menopause. The reality is that virtually all of us eat too much sugar and processed flour, don't get nearly enough exercise, fresh air or sunshine, are chronically stressed, don't get enough sleep, and **are awash in a sea of environmental estrogens created from our modern technological world of plastics and pesticides.**

While you can do something about changing your diet, sleep, exercise and stress, you may not know how to avoid environmental estrogens, and that's what I want to address this month. (If you do have questions about diet, exercise and stress management, you'll find detailed information in my two "*What Your Doctor May Not Know...*" books.)

### **Why Xenohormones Threaten Our Very Existence as a Species**

Women have also asked me why, if a woman's estrogen levels have dropped after menopause, environmental estrogens would harm them. Environmental estrogens can have unpredictable and damaging effects on your body because they behave differently from your own estrogens. They can also do severe damage to a developing fetus. I believe that environmental estrogens are the leading cause of the rising rate of prostate cancer in men, and that they play a significant role in the epidemic of infertility and PMS among young women.

**Many of these chemicals can also damage the nervous system and the brain, contribute to the development of cancer, and cause birth defects.** A study published in the *New England Journal of Medicine* in 1996 (J.L. Jacobson, et al) showed that mothers with the highest levels of the industrial toxins PCBs in their bodies had children who, by age 11, were three times more likely to have low IQ scores and to be at least two years behind in reading comprehension.

A very recent study published in the March issue of the *Journal of the American Medical Association* (JAMA) reported that women who were exposed to solvents in the workplace and had symptoms of solvent exposure while they were pregnant, had a 13-fold higher risk of giving birth to a baby with serious birth defects.

### **Take a Lesson from Birds and Alligators**

Xenohormones, also called endocrine disruptors, are a large class of exogenous (not made by the body) compounds. Our primary problem with them is that they damage developing tissues

in the endocrine system, which includes the thyroid, the adrenal glands, the pituitary gland, the testicles and ovaries, and the pancreas (which produces insulin).

A damaged endocrine system can, in turn, damage the reproductive organs such as the prostate and uterus, the immune system, blood sugar balance, and the ability of the brain to communicate with these systems. While many xenohormones have estrogenic effects, they can also be anti-estrogenic in the sense that they bind to estrogen receptors and in effect block their own potential estrogenic effect.

Damage from xenohormone exposure varies depending on the dose, individuality, and the age at which the exposure occurred. Fully matured tissues are less sensitive to xenohormone exposure than immature tissues. Developing tissues, during the early stage of embryo life are extremely sensitive to xenohormone exposure. **Exposure doses that would not harm a grown woman may cause irreparable damage to her developing baby. The observable effects of this damage may not become apparent until adulthood.** All animal studies show that prenatal (in the womb) and young offspring are at greater risk than adults.

At about day 18 to 23 days after conception, the baby's gonads are developing. If the baby exposed to xenohormones is male, the Sertoli cells in the testes are damaged and, when he grows up to adulthood, his sperm count is less than it should be. **If the baby is female, the follicle cells in her ovaries are damaged and, when she grows up to adulthood, many of the follicles are dysfunctional,** leading to either failed ovulation or to lack of progesterone production. In that case, she not only becomes estrogen dominant, but is also prone to early miscarriage.

#### **Where Do Xenohormones Come From?**

The vast majority of these xenohormones are man-made petrochemical products used in pesticides, cleaning agents, solvents, adhesives, emulsifiers, plastics and many other chemicals used in manufacturing and industry. They are found in food from crops sprayed with pesticides, in the out-gassing of the materials we build our homes and offices with, in cosmetics, coloring agents, in the various sprays we use to kill insects on our pets, in our homes and gardens, and in the weed killers and fungicides we use on our lawns and gardens.

Our knowledge of the effects of xenohormones comes primarily from observing wildlife populations exposed to them through industrial pollution of waterways and agricultural spraying. **No type of living creature has been immune from xenohormone effects,** including birds, amphibians, reptiles, mammals, fish and shellfish. Humans are not immune to xenohormones, and our environmental exposure to these agents is increasing. It is almost impossible to avoid them: they are a twentieth century plague.

#### **Phytohormones vs. Xenohormones**

Strictly speaking, hormonal compounds from plants, called phytohormones or phytoestrogens, which are found in soy and some herbs for example, also fit the definition of xenohormones. **Phytohormones, however, are considerably less toxic than synthetic xenohormones, since in most cases humans have evolved in the context of eating these plants and**

we have adapted to them, often to our benefit. In that sense, phytoestrogens are not foreign ("xeno") to us. In fact, the human body has the ability to bind the more toxic phytohormones to proteins that reduce their effects and make them easier to eliminate safely. This is not the case with synthetic xenohormones.

### **Even the Government is Taking Action**

The Environmental Protection Agency (EPA) is now mandated by Congress to test the toxicity of these suspect pollutants with the aim of removing the more toxic ones. **This is a Herculean task since there are now at least 100,000 such environmental pollutants.** The EPA has initiated a two-tier testing program in which the most toxic agents are first identified by rapid, automated laboratory tests. The first reports from these tests are beginning to trickle out, and the negative consequences of exposure to the suspect chemicals is clear.

### **HOW TO REDUCE XENOHORMONES EXPOSURE**

- It may seem overwhelmingly difficult to avoid xenohormones, but you can dramatically reduce your exposure if you follow some basic guidelines:
- Assume that all pesticides, fungicides and herbicides are toxic and do whatever you can to avoid them. This means anything used to kill bugs, fungus or plants. Pregnant women should be especially careful and children are more susceptible than adults.
- Avoid processed and packaged foods and eat primarily fresh, whole and preferably organic foods.
- Store your food in glass containers and if you cover food with plastic wrap, don't let it touch the food. Never microwave or heat food in a plastic container.
- Invest in a good water filter rather than buying bottled water. (Please change the filter regularly or you will create other health problems.)
- If you build a new home, do it without particle board, laminated wood and wood veneers, or other materials that out-gas chemicals. Find carpets that are free of fumes and toxic adhesives.
- Use detergents, soaps and shampoos that are "eco-friendly."
- Avoid solvents. If you must use them, protect your skin (they enter the bloodstream quickly through the skin) and don't breathe the fumes. There are solvents in nail polish and nail polish remover, which are very popular among young teens, who are vulnerable to reproductive damage.
- Don't buy soft plastic toys for children, especially if they are at an age where everything is still going into their mouth.

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