

Xenohormones and Your Environment

PART II: XENOHORMONES IN YOUR ENVIRONMENT

Rounding Up the Usual Suspects

When it comes to chemicals, assume the worst and when in doubt, don't.

While hundreds of thousands of chemicals on the market are virtually unstudied for their toxic effects, scientists have identified classes of compounds that present the most widespread exposures and the highest toxicity. Pesticides are by far the worst offenders, but the following xenohormones are worth avoiding whenever possible.

Phthalates: These are the most pervasive synthetic chemicals, found in most plastics, inks, adhesives, vinyl flooring and some paints. For years they have been present in baby teething rings and children's toys. **The highest exposure probably comes from the soft plastics our food is wrapped in, which leach phthalates directly into the food.**

According to an EPA study published in the March issue of *Toxicology and Industrial Health*, when female rats were exposed to phthalates, their offspring showed a wide variety of abnormalities. Most striking were their effects as androgen (male hormone) blockers in male offspring, which included a reduction of testosterone levels, abnormalities in the male reproductive tract, and testicular tumors among adult animals. **Women exposed to high levels of phthalates have a higher risk of miscarriage.** Most of Europe has already wisely phased out phthalates.

The same research group has also found that two fungicides, vinclozolin and procymidone, an herbicide (linuron), and an insecticide (methoxychlor) also cause reproductive abnormalities in rodents. Linuron not only caused male reproductive tract abnormalities that were not readily visible until autopsy, but exposure to the herbicide just before puberty dramatically delayed the maturation of male sexual organs. The dosages at which these chemicals had their effects were close to the dosages at which humans are exposed.

Alkylphenols and nonylphenols: These xenohormones are found in detergents, shampoos, cosmetics, spermicidal lubricants, pesticides, and clear plastics. They are washed into municipal sewage systems and are not broken down during treatment, so they enter the food chain. In waterways that receive municipal water treatment runoff, highly concentrated amounts have been found in the flesh of fish and birds. **Much of the tap water in the U.S. contains alkylphenolic compounds so you can be sure they are also accumulating in human flesh.** These chemicals increase the growth rate of human breast cancer cells, and pregnant rats exposed to alkylphenol breakdown products had male offspring whose reproductive organs didn't develop properly. Much of Europe is already banning these substances.

Bisphenol A (BPA): The key component of polycarbonate resins, which are used in hard plastics. **Those we are most exposed to include dental sealants primarily used on children's teeth, and the hard plastics used in food and drink containers** and to coat the inside surfaces of water pipes and metal food packages. BPA has potent estrogenic effects

in extremely small amounts, and seems to have an especially potent estrogenic effect on the prostate. The argument is over how much BPA is actually leached out by these plastics. Some researchers report finding no BPA in tests but a paper in the journal *Environmental Health Perspectives* by Nagal et al, found that "...the amount of bisphenol A required to cause significant prostate change is comparable, relative to body weight, of the amounts... found in saliva of children two years after the application of a polycarbonate dental sealant... and the amount recovered in the liquid portion within food cans lined by polycarbonate sealants."

Natural Alternatives to Pesticides

There are dozens of simple, practical and inexpensive ways to deter insects without pesticides. One of the most effective ways to protect both your outdoor plants, your vegetable garden and your home from most insects is a simple solution of Dr. Bronner's Pure-Castile Peppermint Soap and water: five drops of liquid soap to 1 quart of water. You can find the liquid Dr. Bronner's at your local health food store; a four to five dollar bottle could last years! This works for everything from ants to aphids to whiteflies.

Another simple solution for some of the tougher insects such as fleas, termites and cockroaches is boric acid, which is sold in tubs at most pet stores these days. It is benign to humans but very effectively kills these pests. It can be sprinkled at the edges of rooms where cockroaches are coming in, it can be dusted in carpets and furniture and then vacuumed up (enough will remain to kill insects for about a year), and can be sprinkled under houses to kill termites.

Two excellent online sources of information on natural pest control are Gardens Alive! at <http://www.gardens-alive.com> and Andy Lopez' website, <http://www.invisiblegardener.com>. Andy is the author of the wonderful book *Natural Pest Control*.

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