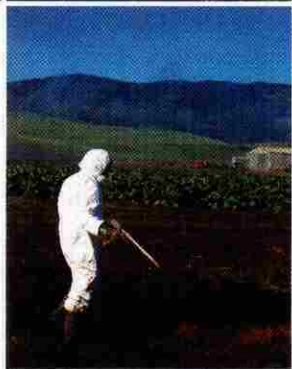




Toxic environment, toxic bodies

Karen Jensen, ND

Insidiously hidden in food, water and air, endocrine-disrupting chemicals can affect us without our knowledge.



Persistent organic pollutants? Endocrine disruptors? You may not know what these are, but chances are you're being affected by them.

Persistent organic pollutants (POPs) are found in industrial chemicals and pesticides, and 7,000 are registered for use in Canada. These pollutants do not break down for years, decades or never and are found in our air, water and food supply. To date,

about 60 have been identified as endocrine disruptors that interfere with normal hormone functioning. Scientists worry about the effects these have on our bodies, which makes awareness and taking protective measures incredibly important.

The tale of Lake Apopka

In the early 1970s, scientists began counting alligators in Lake Apopka, Florida, an ideal place to hatch baby alligators. In the early 1980s, they would often see up to 2,000 alligators a night. However, by the late 1980s, they



How can you reduce your risk of chemical exposure and related health conditions?

A good multivitamin and mineral is essential to supply the body's systems with protective nutrients.

Vitamin C is important to help the body fight off the effects of environmental toxins. Take 500-1500 milligrams daily.

Vitamin E is fat-soluble and can help to prevent negative effects of endocrine-disrupting chemicals, which have a specific affinity for fat cells. Take 400-800 IU daily.

Indole-3-carbinol (I3C) is an anti-cancer phytonutrient found in cruciferous vegetables (broccoli, cabbage, cauliflower). Research has shown that I3C helps break down cancer-causing estrogenic endocrine disruptors to non-toxic forms. Take 300-400 mg daily.

Support the liver with herbs that enhance detoxification of endocrine disruptors and other chemicals. **Calcium D-glucarate:** 400 mg daily. **Milk thistle:** 150 mg daily. **Dandelion:** 400-500 mg daily. **Curcumin (turmeric):** 200-400 mg three times daily.

Green tea extract contains polyphenols, catechins and flavonoids, which are shown to be

protective against estrogen-related cancers. Try to drink three to six cups daily. As a supplement, take 50 to 100 mg daily.

Eat more cruciferous vegetables. Broccoli, cabbage, cauliflower, watercress, bok choy and others, contain sulphurophane, which has been shown to stimulate the body's production of detoxification enzymes that eliminate harmful endocrine disruptors.

Lycopene—found in tomatoes, pink grapefruit, papaya, guava and watermelon—has been shown to reduce the risk of breast and prostate cancers.

Avoid foods and products containing endocrine-disrupting chemicals. Opt for a pure quality drinking water source, and whenever possible buy organic vegetables and fruits and hormone- and pesticide-free animal products. Many plastics contain the chemical bisphenol A, which is a known endocrine disruptor. Store foods in glass containers instead.

Specifically for children: Children's multi-vitamins/minerals are specifically formulated to provide them with needed nutrients. It's also a good idea for them to have 200-300 mg of vitamin C daily.

were finding at most only 150 per night. What could be going on? It was then realized that metabolites of DDT had spilled into Lake Apopka in the 1980s. The chemical not only created serious problems in the sexual development of male alligators, but it also interfered with the healthy development of female alligators. The result? No more baby alligators. The

alligators were living in a sea of gender-bending chemicals—but then, so are we.

Beyond alligators: What's happening in Canada

Pesticides are found in ecosystems considered pristine and far from active pesticide use. The highest levels of alpha, beta and gamma beta-hexachlor-

benzenes (HCH) in the world's oceans are found in the Canada Basin and Canadian Arctic Archipelago, and the infamous DDT is still widespread in the Arctic. Osprey eggs in the Queen Charlotte Islands, polar bear fat in the Arctic, and blubber of whales in all oceans of the world are contaminated with pesticide residues. The breast milk of Inuit women contains much



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higher pesticide levels than milk of women in southern Canada.

The breast milk of women from Quebec's Gaspé and Hudson Bay regions is also among the most toxic in the world, containing 25 times more POPs than the World Health Organization considers acceptable. A study by Greenpeace analyzed the levels of POPs in human tissue and noted Canadians have the highest levels in the world of three types of POPs: dioxin, PCBs and chlordane. Other common POPs include: DDT and DDE, HCH, tributyltin and dieldrin.

What goes around comes around: organic pollutants and other banned substances are making their way into our lives due to the melting of glaciers. However, it is not just older banned substances that are of concern. The production and use of new organic chemicals, including new generation pesticides, are identified as potential threats. A renowned Columbia ice-field scientist, the University of Alberta's D. Schindler, says, "Every day I see new environmental mistakes being made in a very cavalier fashion."

We cannot escape our past. However, we can learn from it.

How do endocrine-disrupting chemicals affect hormones?

Environmental chemicals enter us when we eat, drink or breathe, and are distributed throughout the body by the blood. Chemicals not removed efficiently by detoxification pathways accumulate in the body; those that are fat-soluble accumulate in fat stores. Fat stores are mobilized and enter blood circulation during stress, malnutrition, pregnancy or perspiration. Our bodies' own hormones are modified by hormone-binding substances (SHBG) that reduce their activity. However, endocrine-disrupting chemicals bind far less to these substances, leaving more free chemicals available to modify our natural hormone metabolism.

There is an ever-growing body of evidence to support the negative effects of endocrine-disrupting chemicals on the human hormonal system. In 1994, the research of a Danish endocrinologist indicated that sperm counts in men in the United States and 20 other countries have decreased by an average of 50 per cent and testicular cancer rates have tripled since 1938.

Women who eat meat high in endocrine disruptors have sons with testicular and penis malformations, low sperm counts and who are at greater risk for testicular cancer. A German study published in 1994 reported that women with endometriosis were more likely to have high levels of endocrine-disrupting chemicals in their blood. A study published in 1993 by New York's Mount Sinai School of Medicine found women with the greatest number of DDE markers (a DDT metabolite) are four times more likely to get breast cancer.

The Collaborative on Health and the Environment states that health concerns linked to endocrine-disrupting chemicals include: asthma, brain cancer, breast cancer, childhood leukemia, endometriosis, infertility, learning/behaviour disorders, prostate cancer and testicular cancer. The US Environment Protection Agency found the effects of endocrine disruptors include cancer, reproductive disorders, neurological impairment, immune dysfunction, hearing loss and thyroid disorders. Numerous studies have also implicated these chemicals as possible cause for the alarming increase in breast cancer. And if this is not enough...

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The effects of endocrine-disrupting chemicals on children

Recent studies show that puberty is occurring at an increasingly earlier age in children. The average age of onset of puberty is 10 for girls and 12 for boys. In 95 per cent of cases of precocious puberty, there is no underlying medical problem. However, the increasing number of overweight children and the estrogenic effects of many endocrine disruptors have been cited as possible causes.

Children and, in particular, unborn and newborn babies are at highest risk from chemicals of this type. During critical development stages, imbalances of hormones can have pronounced effects, some of which do not reveal themselves until much later in life. These chemicals can also disrupt neurological processes, resulting in brain tumours and significant defects in sensory, motor and cognitive function. The National Institute of Environment Health Sciences reported in 1999 that the greatest reduction of childhood brain tumours was seen in children whose mothers used supplements during all three trimesters.

The average Canadian breastfed baby, meanwhile, consumes almost 15 times more of certain POPs than the World Health Organization considers acceptable. Are we listening? Do your part by following the steps outlined here. Be informed and pro-active rather than reactive when it comes to your health and that of your children. **F**

References available.

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