

## Choosing Life

### What You Can Do About Hormone-Disrupting Chemicals in the Environment

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You may know that toxins harmful to human health abound in your everyday environment. You may even be aware that many of these toxins can disrupt human hormonal systems. What you may not realize is the extraordinary number of seemingly small choices you make during every hour of your day that can positively or negatively affect your health, your family's health, and the health of the natural world that supports your well-being. Why are these choices so important?

During this past half-century, Americans began the large-scale production, use, and disposal of man-made chemicals into our environment. Most of these chemicals have not been adequately tested to determine their long-term health effects in humans. But studies that have been done show that human exposure to chemicals—such as pesticides, solvents, herbicides, insecticides, plastics, and manufacturing by-products—can cause adverse health effects. Since these chemicals interfere with our hormonal processes, they are referred to as hormone-disrupting compounds.

A hormone disruptor is any substance that alters normal hormone levels or activity in the body.<sup>1</sup> Synthetic chemicals can disturb the normal activity of estrogens, androgens, thyroid, and other hormones.<sup>1</sup> They do this by binding to hormone receptors; this activates the hormones and sets off a chain of events as if the hormone itself were binding to the receptor.<sup>1, 2, 3</sup> By binding and occupying the receptor, these toxic chemicals may block normal hormonal activity, or interfere with proteins that regulate the activity of hormones.<sup>1, 2, 3, 4, 5</sup> The effects of these toxic chemicals may be associated with the development of breast cancer, fibroids, endometriosis, ovarian cysts, chronic fatigue, hypothyroidism, and fibromyalgia, among other diseases.<sup>6, 7, 8, 13</sup>

We come into contact with hormone-disrupting compounds every day, often without knowing we are being exposed. We touch pesticide residues on many fruits and vegetables that we purchase in grocery stores.<sup>9</sup> Animal products are often tainted with dioxins and dioxin-like compounds and frequently have been injected with hormones and antibiotics.<sup>9</sup> Certain fish have high levels of mercury and pesticides.<sup>9, 14</sup> The plastic containers that we use for food storage leach out harmful chemicals.<sup>10</sup> Hormone-disrupting compounds may be found in both well water and city water.<sup>9</sup> We inhale toxic compounds, or absorb them through the skin, when we use most house-



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hold cleaning products, cosmetics, perfumes, dry cleaning, carpet, vinyl floors, copy machines, furniture glues, air fresheners, mattresses, shampoos, and so on.<sup>11, 12</sup>

The most common hormone-disrupting compounds are dioxins, polychlorinated biphenyls, bisphenol-A, phthalates, pesticides, and formaldehyde. All have been shown to cause adverse health effects.<sup>2, 3, 15</sup> *Dioxins* are a by-product of industrial incineration and combustion, produced by the manufacture of products that contain chlorine, such as pesticides, wood preservatives, and bleached paper. Dioxins persist in the environment for years and accumulate in the fat of farm animals that eat contaminated feed or water. Dioxins decrease thyroid hormones and testosterone, and have both estrogenic and anti-estrogenic effects.<sup>26</sup> Dioxins are linked to endometriosis in women as well.<sup>16, 17, 18, 19, 20, 21</sup>

*Polychlorinated biphenyls (PCBs)* are used as coolants, lubricants, and insulation for electrical equipment, and in paints, plastics, dyes, wood, and rubber. PCBs accumulate in human fat and are found in rivers and lakes and throughout the food chain. Behaving like estrogen, PCBs weaken the immune system and affect neurological development.<sup>22, 23</sup> *Bisphenol-A*, a compound found in plastics, is used in the manufacture of such items as the lining of metal food cans, plastic bottles, compact disks, and dental sealants. It leaches out of plastics and into food and the environment. Bisphenol-A has estrogen-like effects on estrogen-receptor-positive breast cancer cells, decreases sperm count, and increases prostate size.<sup>24, 25</sup>

*Phthalates* are additives to plastics to make them strong, soft, and flexible. It is also used in carpet backing, paints, glues, insect repellants, hair spray, and nail polish. Phthalates have hormone-disrupting effects and can suppress ovulation, estradiol production and contribute to a condition called polycystic ovarian syndrome.<sup>10, 27, 28</sup> Harmful pesticides such as DDT, and its metabolite DDE, have been banned in this country but their effects still linger in our environment. DDT was an insecticide used in agriculture and for mosquitoes. It has estrogen effects and anti-androgen effects as well as negative effects on cognition. DDT still persists in the environment, accumulated in adipose tissue and in the food chain.<sup>29, 29, 30, 31, 32</sup>

*Formaldehyde* is another common compound originally used in homes in the 1970s as a form of insulation. The fumes caused depression, fatigue, poor memory, headaches, asthma, cough, skin rashes, and much more.<sup>12</sup> Formaldehyde is no longer used in insulation but is still found in shampoo, conditioners, cosmetics, construction materials, cleaning supplies, carpet, paper products, plastics, to name a few.<sup>12, 33</sup> It has been linked to reduced fertility, spontaneous abortion, and endometriosis.<sup>21, 34, 35</sup> Generally, these products do not disclose these chemicals on their labels.

It is easy to feel fearful or powerless about the prevalence of such toxins in our everyday world, but there are many actions you can take, both to reduce your personal risk and to reduce the amount of dangerous chemicals that enter the environment to begin with. Points of choice occur throughout your day that will allow you to live in a less toxic home, office, town. Even before breakfast, you can use beauty or health care products—cosmetics, shampoos, conditioners, perfumes, dental sealants, hair spray, nail polish, and so on that are more or less likely to contain toxins. Do you only take medications that are absolutely necessary, after determining whether a more natural approach might address your health issue(s)? Are your mattresses and house fresheners free of toxic elements? To let in the day's light do you pull up plas-

tic blinds or curtains made of more sustainable materials? For breakfast and other meals, organically grown foods are available. You can choose to buy clothing that doesn't need to be dry cleaned, or use an eco-friendly dry cleaner. Switch to storing food in glass, ceramic, or metal rather than toxic plastic containers. When remodeling, purchase non-toxic carpet, vinyl, and furniture; purchase fiber rather than plastic shower curtains. Choose eco-friendly cleaning supplies and cloth bags for grocery shopping.

Avoiding hormone-disrupting compounds begins simply, with the choices we make at home and the store. As we purchase healthier products in the marketplace, the demand for safer alternatives will increase. There are many resources for educating yourself and your community about ways to minimize exposure to these compounds, and how to support the body in toxic compound metabolism and elimination. We can also support or join one of the many organizations that are taking effective action on this issue, as well as contact legislators and others who are in a position to make broader changes in the production and use of these chemicals.

### Supporting Your Body

The human body uses a process called detoxification to metabolize and eliminate toxins. However, because we are bombarded with so many chemicals each day from so many sources, the body becomes overburdened with toxins. There are some simple ways to help your body metabolize toxins and support natural hormone balance. The first is through diet. Certain foods support liver metabolism and detoxification. Cruciferous vegetables—such as broccoli, brussel sprouts, cabbage, kale, collards,

*continued on page 12*





## Avoiding Hormone Disruptors

### YOUR HEALTH

#### **Avoid plastics as much as possible:**

- Drink filtered water out of glass cup or jars
- Store food in glass or ceramic containers
- Buy condiments in glass containers instead of plastic
- Use an organic fiber shower curtain instead of plastic
- Carry cloth bags in your car for groceries

#### **Eat fish low in mercury and fat.**

Generally, small fish that that don't live on the bottom of waterways are safer:

#### *EAT*

- Anchovies
- Atlantic herring
- Atlantic mackerel
- Sardines
- Alaskan sablefish/black cod

#### *AVOID*

- Tilefish
- Tuna
- Swordfish
- Shark
- King mackerel
- Red snapper
- Orange roughy
- Moonfish
- Bass
- Marlin
- Trout

- Buy local, organic fruits and vegetables
- Avoid commercial canned foods
- Buy organic, grass-fed, low-fat (toxins accumulate in the fat), hormone-free meats, eggs, and dairy products
- Buy natural, chemical-free soaps, detergents, and cleaning supplies
- Use natural pest control instead of pesticides and instead of herbicides for lawns
- Find earth-friendly or green supplies for building or remodeling
- Replace vinyl blinds with linen curtains
- Use metal hangers instead of plastic

### YOUR ENVIRONMENT'S HEALTH

Learn more about the issue from the following websites:

- Natural Resources Defense Council – [www.nrdc.org/breastmilk](http://www.nrdc.org/breastmilk)
- Our Stolen Future – [www.ourstolenfuture.org](http://www.ourstolenfuture.org)
- PAN Pesticide Database – [www.pesticideinfo.org](http://www.pesticideinfo.org)

Consider supporting organizations that are working to reduce hormone-disrupting chemicals in the environment. A few of these organizations are:

- Pesticide Action Network North America [www.panna.org](http://www.panna.org)
- Commonweal [www.commonweal.org](http://www.commonweal.org)
- Environmental Working Group [www.ewg.org](http://www.ewg.org)



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and cauliflower—contain liver-detoxifying nutrients. Flax seeds and psyllium seed husk powder are sources of fiber that bind and support the bowel in elimination of toxins.<sup>36</sup>

Among the herbs that support liver function are milk thistle, dandelion root, burdock root, beet root, fenugreek, greater celandine, juniper, and fringe tree. Also, commercially available products such as “detox teas” combine many of these herbs.<sup>37</sup>

We get amino acids, the basic building blocks of proteins and necessary for liver detoxification, from eating plants or animals. The most important amino acids are glutathione, cysteine, glycine, glutamine, taurine, and methionine. Whey protein powder is a convenient source of glutathione, and many soy and rice protein powders have amino acids added to them. Selenium, vitamin-C, and vitamin-E and alpha-lipoic acid are antioxidants that protect us from toxic overload. A good multiple vitamin/mineral is an important supplement, because it provides necessary co-factors for liver detoxification.<sup>9, 12</sup>

Health care professionals offer testing for exposure to many of the hormone-disrupting chemicals, and treatment is individualized utilizing more complex methods. Those who are experiencing chronic health problems or conditions related to hormone disruptors should seek the advice and expertise of a health care professional who specializes in environmental medicine.

The evidence is building every day of the adverse health effects hormone-disrupting compounds have in humans. While we may not be able to completely eliminate these toxic compounds from our lives, we now know of ways to avoid exposure and protect against toxic overload. Also, there are many organizations we can support who are working to dramatically reduce how many of these toxins enter our environment to begin with. The suggested reading list here, and the small steps suggested in the section (page 11), “Avoiding Hormone Disruptors,” are a great start for you, your family and your friends, to be part of making a big difference.

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**Recommended Reading**

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- *The E. I. Syndrome: An RX for Environmental Illness*, by Sherry Rogers. Dallas, TX: Prestige; 1995.
- *Our Stolen Future: How We Are Threatening our Own Fertility, Intelligence, and Survival: A Scientific Detective Story*, by Theo Colburn. New York: Plume/Penguin; 1997.
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