

Endocrine Disruptors

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Many common household products contain chemicals that act as endocrine disruptors. These chemicals are similar in structure to natural hormones that our bodies produce and use such as estrogen. These chemicals can “mimic” the natural hormones, and disrupt their normal functions.

The Environmental Working Group (EWG) recently published a list of the 12 worst hormone-disrupting chemicals. They say:

“There is no end to the tricks that endocrine disruptors can play on our bodies: increasing production of certain hormones; decreasing production of others; imitating hormones; turning one hormone into another; interfering with hormone signaling; telling cells to die prematurely; competing with essential nutrients; binding to essential hormones; accumulating in organs that produce hormones.”

Health effects include:

- Non-descended testes in young males
- Developmental effects on the nervous system in children
- Prostate cancer in men
- Developmental effects on the nervous system in children
- Attention deficit /hyperactivity in children
- Thyroid cancer
- Breast cancer
- Obesity
- infertility or reduced fertility
- learning and memory difficulties
- adult-onset diabetes
- cardiovascular disease

Parabens

Parabens are not on the EWG list of the 12 worst hormone disruptors. However, the connection between endocrine disrupting chemicals and cancer is of particular concern, especially when it comes to children, whose exposure to these chemicals from a young age may predispose them to cancer at increasingly earlier ages. Currently, record numbers of women under the age of 50 are now being diagnosed with breast cancer. Could exposure to endocrine disrupting chemicals be to blame?

Recent studies are showing that higher concentrations of parabens were found in the upper quadrants of the breast and axillary area, where antiperspirants are usually applied. These paraben residues were found at concentrations up to **1 million times higher** than the estrogen (estradiol) levels naturally found in human breast tissue! Other studies have shown that women absorb an estimated *five pounds* of chemicals a year from their daily makeup routine alone.

Parabens inhibit the growth of bacteria, yeast, and molds, and are used as preservatives in countless consumer products, including:

- Deodorants and antiperspirants
- Shampoos and conditioners
- Shaving gel
- Toothpaste
- Lotions and sunscreens
- Make-up / cosmetics
- Pharmaceutical drugs
- Food additives

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Parabens are the most widely used preservatives in cosmetics, and they have no troubles penetrating your skin. The European Commission on Endocrine Disruption lists parabens as Category 1 priority substances because of evidence they interfere with hormone function.

Because parabens have gained such a bad rep, some companies now use phenoxyethanol, but phenoxyethanol has many of the same harmful effects. Japan recently banned phenoxyethanol in cosmetics, and the U.S. Food and Drug Administration put out a consumer alert warning that it can “depress the central nervous system and may cause vomiting and diarrhea” in infants.

Phthalates

Phthalates are a group of chemicals that may be disruptive to the endocrine system which can lead to developmental, reproductive, and neurological damage. The effects of phthalates may be related to their ability to mimic human hormones. Phthalates can trigger what’s known as “death-inducing signaling” in testicular cells, making them die earlier than they should. Studies have linked phthalates to hormone changes, lower sperm count, less mobile sperm, birth defects in the male reproductive system, obesity, diabetes and thyroid irregularities.

They’re used to plasticize products, making them more flexible or better able to hold in color and scent. These chemicals can be grouped under and listed as “fragrance.” Companies claim their fragrance formulas as “trade secret,” and thus don’t have to specify on the label what ingredients are included.

How to avoid it? Avoid plastic food containers, children’s toys (some phthalates are already banned in kid’s products), and plastic wrap made from PVC, which has the recycling label #3. Some personal care products also contain phthalates. Read the labels and avoid products that simply list added “fragrance,” since this catch-all term sometimes means hidden phthalates.

Fire retardants

These incredibly persistent chemicals, known as polybrominated diphenyl ethers or PBDEs, have been found to contaminate the bodies of people and wildlife around the globe – even polar bears. These chemicals can imitate thyroid hormones in our bodies and disrupt their activity. That can lead to lower IQ, among other significant health effects. Several kinds of PBDEs have now been phased out, but not all of them. Even if phased out, PBDEs are incredibly persistent, so they’re going to be contaminating people and wildlife for decades.

How to avoid it? It’s virtually impossible, but a few things that can be done include: use a vacuum cleaner with a HEPA filter, which can cut down on toxic-laden house dust; avoid reupholstering foam furniture; take care when replacing old carpet (the padding underneath may contain PBDEs), and know that cloth airplane seats are full of these chemicals, but most are now made of leather.

Lead

Lead is toxic, especially to children. Lead harms almost every organ system in the body and has been linked to many health effects, including permanent brain damage, lowered IQ, hearing loss, miscarriage, premature birth, increased blood pressure, kidney damage and nervous system problems. Few people realize that one other way that lead may affect your body is by disrupting your hormones. In animals, lead has been found to lower sex hormone levels. Research has also shown that lead can disrupt the hormone signaling that regulates the body’s major stress system (called the HPA axis). Lead is found in public and some private drinking water systems due to old pipes that contain lead or lead solder. Lead is also naturally occurring in soils and rock formations.

How to avoid it? Keep your home clean and well maintained. Crumbling old paint is a major source of lead exposure, so get rid of it carefully. A good water filter can also reduce your exposure to lead in drinking

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water. Many cosmetics contain lead. Also studies have also shown that children with healthy diets absorb less lead.

Perfluorinated chemicals (PFCs)

Perfluorochemicals are so widespread and persistent that 99 percent of Americans have these chemicals in their bodies. One compound called PFOA has been shown to be “completely resistant to biodegradation.” In other words, PFOA doesn’t break down in the environment – ever. That means that even though the chemical was banned after decades of use, it will be showing up in people’s bodies for countless generations to come. PFOA exposure has been linked to decreased sperm quality, low birth weight, kidney disease, thyroid disease and high cholesterol, among other health issues. Scientists are still figuring out how PFOA affects the human body, but animal studies have found that it can affect thyroid and sex hormone levels. Chemicals used to keep grease from leaking through fast food wrappers — are being ingested by people through their food and showing up as contaminants in their blood. One common source of these hazardous chemicals is microwave popcorn bags.

How to avoid it? Eliminate the use of non-stick pans and avoid stain and water-resistant coatings on clothing, furniture and carpets. Avoid microwaveable bags for food and don’t eat fast food wrapped in lined wrappers (or any fast food!)

Butylated Compounds (BHT, BHA)

TBHQ and BHT are used as preservatives in dozens of products.

In food:

- chips
- baked goods
- butter
- meats, sausage, poultry
- chewing gum
- vegetable oils
- beer

In makeup and skin care products:

- eyeliners, eye shadows
- lipsticks, lip glosses,
- blushes, foundations
- perfumes
- moisturizers
- skin cleansers
- diaper creams

These chemicals are endocrine disruptors, may induce skin allergies, and are linked to organ, developmental, and reproductive toxicity. The E.U. prohibits the use of BHA as a fragrance and the European Commission on Endocrine Disruption lists it as a Category 1 priority substance due to evidence that it interferes with hormonal function.

There’s evidence that suggests BHT mimics estrogen, which can throw off hormonal function in both men and women. This additive can promote the growth of tumors. Both BHT and BHA bioaccumulate. Given the wide variety of food and cosmetic products they are used in, accumulation over time could lead to serious health consequences.

Octinoxate

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Found in makeup foundations, this is an unstable chemical linked with endocrine disruption and thyroid disorders.

Siloxanes

Used in cosmetics to soften, smooth, and moisten, they disrupt the endocrine system and are toxic to the reproductive system. Avoid ingredients that end in -siloxane or -methicone .

Triclosan

Some of the most obvious ones include soaps and antibacterial wipes, but you can also find it in toothpaste, cutting boards, toys, clothing, household furnishings, pet food dispensers, and much more. Research has shown that triclosan can alter hormone regulation and may interfere with fetal development. Animal studies have also raised concerns about its ability to affect fertility, and bacteria exposed to triclosan may also become resistant to antibiotics. Even an increased cancer risk has been suggested. Some animal studies showed that triclosan caused fetal bone malformations in mice and rats.

Bisphenol-A (BPA)

BPA has been linked to everything from breast and others cancers to reproductive problems, obesity, early puberty and heart disease, and according to government tests, 93 percent of Americans have BPA in their bodies!

How to avoid it? Go fresh instead of canned – many food cans are lined with BPA – or research which companies don't use BPA or similar chemicals in their products. Say no to receipts, since thermal paper is often coated with BPA. And avoid plastics marked with a "PC," for polycarbonate, or recycling label #7. Not all of these plastics contain BPA, but many do.

Steps to Reduce Your Toxic Body Burden

1. I recommend using the EWG's Skin Deep Cosmetics Database⁷ to research the potential toxicity of ingredients. Products bearing the USDA 100% Organic seal are safest bet.
2. Another alternative—and perhaps both the safest and easiest one—is to make your own personal care and household cleaning products.
3. Buy and eat organic produce and free-range, organic meats to reduce your exposure to added hormones, pesticides and fertilizers. Also avoid milk and other dairy products that contain the genetically engineered recombinant bovine growth hormone (rBGH or rBST).
4. Conventional or farm-raised fish are often heavily contaminated with PCBs and mercury. Instead of eating fish, supplement with a high-quality purified fish or krill oil, or eat fish that is wild-caught and lab tested for purity.
5. Buy products that come in glass bottles rather than plastic or canned, since chemicals can leach out of plastics and into the contents. Bisphenol A (BPA) is a serious concern; make sure plastic containers and canned goods are BPA-free. (Especially canned tomatoes because of the acid)
6. Also store your food and beverages in glass rather than plastic, and avoid using plastic wrap.
7. Use glass baby bottles and BPA-free sippy cups for children.

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8. Eat mostly raw, fresh foods. Processed, prepackaged foods (of all kinds) are a common source of chemicals such as BPA and phthalates.
9. Replace your non-stick pots and pans with ceramic or glass cookware.
10. Look for products that have a Compact for Safe Cosmetics signature.
11. Filter or purify your tap water—both for drinking and bathing. In fact, if you can only afford to do one, filtering your bathing water may be more important, as your skin absorbs contaminants. To remove the endocrine disrupting herbicide Atrazine, make sure the filter is certified to remove it. According to the EWG, perchlorate can be filtered out using a reverse osmosis filter.
12. When buying new products such as furniture, mattresses, or carpet padding, ask what type of fire retardant it contains. Be mindful of and/or avoid items containing PBDEs, antimony, formaldehyde, boric acid, and other brominated chemicals. Select those that contain naturally less flammable materials, such as leather, wool and cotton.
13. Avoid stain- and water-resistant clothing, furniture and carpets to avoid perfluorinated chemicals (PFC's).
14. Make sure toys are BPA-free, such as pacifiers, teething rings
15. Only use natural cleaning products in your home, or make your own. Avoid products that contain 2-butoxyethanol (EGBE) and methoxydiglycol (DEGME)—two toxic glycol ethers that can damage fertility and cause fetal harm
16. Replace feminine hygiene products like tampons and sanitary pads with safer alternatives.
17. Avoid artificial air fresheners, dryer sheets, fabric softeners or other synthetic fragrances.
18. Look for products that are fragrance-free. One artificial fragrance can contain hundreds -- even thousands -- of potentially toxic chemicals.
19. Replace your vinyl shower curtain with one made of fabric.



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Donna Kasuska is Founder and CEO of ChemConscious, Inc., a company that is on a mission to create a healthier world by increasing chemical awareness. Donna provides consulting services to the chemical industry and also brings technical, yet practical information to the public.

Donna is dedicated to bridging the information gap between industry and the public. As a chemical engineer with over 30 years of experience, Donna has seen, first hand, how water is treated, food is processed and how many personal and household products are manufactured. Throughout the years, Donna has recognized that her experience could be useful, and in some cases, critical to the non-technical members of communities who need to understand the concepts of emergency prevention, safe drinking water, toxicity, indoor air quality and security.

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Donna continues to provide consulting services to her industrial clients and has extended her services to assist schools, small businesses, community organizations and parents in their understanding of these issues. Donna now dedicates much of her time to speaking, writing, and publically communicating an urgent message regarding the overuse of some chemicals. She speaks and writes passionately about the hidden hazards of chemicals in our environment. She will show you how to recognize and avoid the harmful chemicals by making better choices without significantly changing your life style. Information, articles and eBooks can be found at her website www.chemconscious.com