Perfluoroalkyl and Polyfluoroalkyl substances (PFAS) are manufactured chemicals found in Teflon and nonstick cookware, pizza boxes and other grease-resistant food containers, water-resistant clothing, stain-resistant coatings, and firefighting foam.



Polychlorinated biphenyls (PCBs) are manmade chemicals used in electrical equipment, including transformers.

Flame retardants. Many flame retardants, including PBDE, are endocrine disruptors.

Diethylstilbestrol (DES) is a synthetic form of the female hormone estrogen that was given to pregnant women up to the 1970s to prevent miscarriages. It is now banned.



Bisphenol A (BPA) is a manmade chemical used to harden plastics. It is also used in the lining of cans that are used for soups, sodas, canned fruits, and vegetables. BPA has been linked to breast cancer, diabetes, healthy brain function and obesity.

Dichlorodiphenyltrichloroethane (DDT) is an insecticide pesticide widely used before 1972. It is now banned in the U.S.

Phthalates are used to make plastics soft. They are also used to enhance fragrances and make the fragrances last longer.

Why reductions to EDs are important

Because endocrine disruptors are chemicals that are able to affect how your hormone system works and interfere with its natural regulation, it is very important to reduce your exposures to these chemicals wherever possible.

One critical time of exposure is during pregnancy because it has been proven that endocrine-disrupting chemicals cross the placenta and thus expose the unborn baby to these chemicals.

While it is true that endocrine-disrupting chemicals are now ubiquitous in our environment, understanding where they can be found makes it easier to avoid many of them and reduce exposures.

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ENDOCRINE DISRUPTORS

REDUCE EXPOSURES, ESPECIALLY DURING PREGNANCY



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What are endocrine disruptors?

Endocrine disruptors (EDs) are chemicals that interfere with the normal function of the endocrine system, which is a network of glands and organs that secrete hormones. The endocrine system works with other bodily functions to regulate the human body. Endocrine-disrupting chemicals (EDCs) interfere with the normal functions of the body. Endocrine disruptors are commonly found in food, personal care products, pesticides, plastics and many other commercial products.



What do exposures to EDs affect?

Breast Cancer

Breast cancer is the second most common cancer and the fifth deadliest in the world. Exposure to endocrine-disrupting pollutants has been suggested to contribute to the increase in incidence.



Attention-Deficit/Hyperactivity Disorder (ADHD)

Currently, ADHD is the most common childhood neurobehavioral disorder, impacting approximately 9.4% of children in the U.S. Scientists believe that prenatal and early childhood exposure to endocrine-disrupting chemicals can affect ADHD.



Early Puberty

The presence of endocrine-disrupting chemicals is suspected to contribute to the earlier onset of puberty. The persistent and long-term use of EDCs has harmful effects on human reproductive health by interfering with the synthesis and mechanism of action of sex hormones.

Low Sperm Count

Falling sperm counts have been linked to endocrine disruptors.

Obesity

Recent findings demonstrate that endocrine-disrupting chemicals can cause weight gain. Animal models and epidemiological studies have shown that an especially sensitive time for exposure to these chemicals is *in utero* or during the neonatal period.



Diabetes

Epidemiological studies indicate that the increased presence of endocrine-disrupting chemicals (EDCs) in the environment may play an important role in the incidence of metabolic diseases.



Endometriosis

Exposure to endocrine disruptors has been suggested to be one factor in the increasing incidence of endometriosis.



Where are endocrine disruptors found?

Endocrine disruptors include chemical compounds that people are exposed to in their daily lives, including industrial, household, and personal care products. Some endocrine-disrupting chemicals are found in dryer sheets, fragrances, pesticides, and plastics.

Dryer sheets often contain fragrances and endocrine-disrupting chemicals. A study in *Environmental Health Perspectives* showed that five dryer sheets emitted 15 endocrine-disrupting compounds (EDCs). Evidence from studies suggests that EDCs can affect developing reproductive and nervous systems, metabolism, and cancer.



Fragrances and scented candles commonly contain phthalates to help the scent last longer. Under current law, phthalates in fragrances can simply be labeled "fragrance," even though they may make up 20% or more of the product. Since laws protect perfume manufacturers from sharing "trade secrets," most perfumes sold commercially contain chemicals not listed individually on the ingredient label.



Pesticides

Pesticides include insecticides, for killing insects; herbicides, for killing weeds; fungicides for killing mold, mildew, and fungi (mushrooms); and rodenticides for killing mice and rats. Almost all pesticides are endocrine disruptors. Roundup, and all glyphosate products, are examples of pesticide endocrine disruptors. Inert ingredients are added to pesticides to make the pesticide work better. Most of the inert ingredients have also been proven to be endocrine disruptors.



Firefighting foam

Firefighting foams contain PFAS. They serve as surfactants that spread the foam to cool and suppress the fire. While they are extremely effective, they are also a major source of PFAS pollution around the world. An analysis of U.S. Environmental Protection Agency (EPA) monitoring data reported high levels of PFAS in groundwater and surface water at military bases and airports where the foam was used in training exercises. The country is working on finding replacement foams, but the ones currently available still have trace quantities of PFAS.

