

HORMONES AND ENDOCRINE DISRUPTING CHEMICALS

WHAT YOU NEED TO KNOW

The endocrine system is a network of glands and organs that produce, store, and secrete hormones. When functioning normally, the endocrine system works with other systems to help maintain the body's health. Endocrine disrupting chemicals (EDCs) are substances in the environment (air, soil or water supply), food sources, personal care products, and manufactured products that may interfere with the normal function of your body's endocrine system.

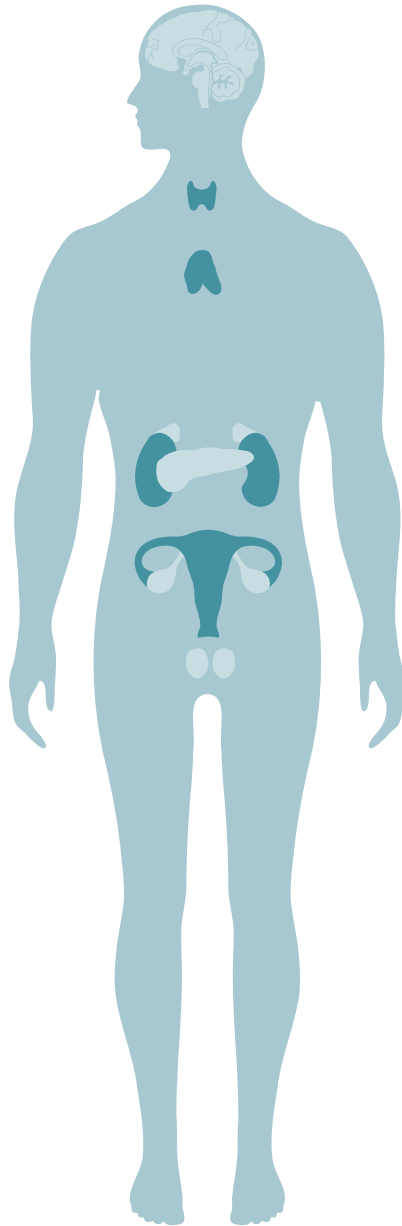
WHAT ARE EDCS

EDCs, a broad category of compounds used in consumer products, electronics and agriculture, have been associated with a diverse array of health issues. These non-natural chemicals or mixtures of chemicals can mimic, block, or interfere with the way the body's hormones work.

They have been linked to human health issues related to **sperm quality, fertility, abnormalities in sex organs, endometriosis, early puberty, nervous system function, immune function, cancers, breathing problems, metabolic issues, obesity, heart health, growth, neurological and learning disabilities, and more.**

Exposure to EDCs can happen anywhere and come from the air we breathe, the food we eat, and the water we drink. EDCs can also enter the body through the skin and by transfer from mother to fetus (across the placenta) or mother to infant (via breast feeding) if a woman has EDCs in her body.

Examples of EDCs include **bisphenol A (BPA), phthalates, pesticides, and pollutants such as dioxin and polychlorinated biphenyls (PCBs).**



COMMON EDCS

Some common EDCs and their uses include the following:



PESTICIDES

Example EDCs: DDT, Chlorpyrifos, Atrazine, 2,4-D, Glyphosate



CHILDREN'S PRODUCTS

Example EDCs: Lead, Phthalates, Cadmium



INDUSTRIAL SOLVENTS OR LUBRICANTS AND THEIR BYPRODUCTS

Example EDCs: PCBs and Dioxins



PLASTICS AND FOOD STORAGE MATERIALS

Example EDCs: BPA, Phthalates, Phenol



ELECTRONICS AND BUILDING MATERIALS

Example EDCs: Brominated Flame Retardants, PCBs



PERSONAL CARE PRODUCTS, MEDICAL TUBING

Example EDCs: Phthalates, Parabens, UV Filters



ANTI-BACTERIALS

Example EDCs: Triclosan



TEXTILES, CLOTHING

Example EDCs: Perfluorochemicals

Visit endocrine.org for more information.

Editor: Heather Patisaul, PhD

EDCS FACTS

EDCs often disrupt the endocrine system by mimicking or interfering with a natural hormone. These “hormone mimics” can trick the hormone receptor into thinking the EDC is the hormone, which can trigger abnormal processes in the body.

Studies support a link between EDCs and harm to human health, but the cause-and-effect relationship is not yet fully understood. Still some EDCs are known to pose a threat to people who have excessive exposure to them.

WHERE ARE EDCS

- Industrial chemicals can leach into soil and groundwater and then make their way into the food chain and build up in fish, animals, and people
- Consumer products such as plastics, household chemicals, fabrics treated with flame retardants, cosmetics, lotions, products with fragrance, and anti-bacterial soaps
- Pesticides, fungicides, or industrial chemicals in the workplace

The best way to avoid exposure is to check labels and avoid products with known EDCs.

DID YOU KNOW?

A developing fetus or infant is more vulnerable to the effects of EDCs than an adult because organ systems are still developing.

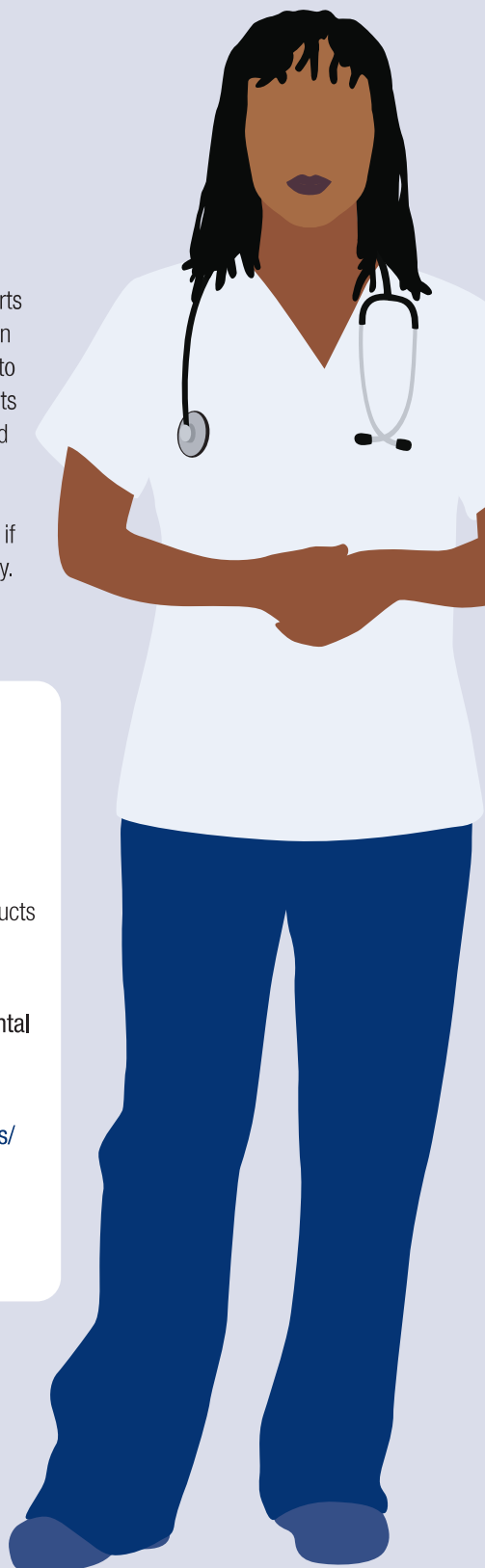
Of the hundreds of thousands of man-made chemicals, it is estimated that about 1,000 may have endocrine-acting properties.

Global production of plastics grew from 50 million tons in the mid-1970s to nearly 300 million tons today.

Source: Endocrine Society Introduction to EDCs, A Guide for Public Interest Organizations and Policy Makers

AVOIDING EDCS

Even if some health effects are not fully proven, taking precautions is wise. Become familiar with EDCs to which you and your family may be exposed. Try to avoid unnecessary, preventable exposure to EDC-containing consumer products. Experts suggest avoiding microwaving food in plastics to avoid leaching of EDCs into food, choosing personal care products and cleaners that are unscented, and replacing older non-stick pans with newer, ceramic-coated ones. These precautions are especially important if you are pregnant or planning a family.



RESOURCES

Research on EDCs is growing, so watch for new information on products to help your family's health. Learn more from the following:

- National Institute of Environmental Health Sciences: niehs.nih.gov
- Pediatric Environmental Health Toolkit: psr.org/resources/pediatric-toolkit.html
- Environmental Working Group: ewg.org

Patients have questions. We have answers.

Endocrine Society is your trusted source for endocrine patient education. Our free, online resources are available at endocrine.org/patient-engagement

ENDOCRINE
SOCIETY