

UNDERSTANDING ENDOCRINE DISRUPTION

What are endocrine disrupting chemicals?

Endocrine disrupting chemicals (EDCs) are chemicals made outside of the body that can block, mimic or otherwise disrupt normal hormone function. This can result in diseases, disorders, and poor health conditions. Importantly, because small amounts of hormones play a role in so many of life's functions, exposures to EDCs even at very low levels during certain times of life can have substantial and sometimes permanent impacts on health.

EDCs interact with the endocrine system, which is a complex chemical messaging system that is involved in every stage of life, from conception through gestation, birth, puberty, adulthood, and senescence. The endocrine system sends hormone signals such as estrogen, testosterone, thyroid hormone, and insulin from one organ to another and in turn controls cell function in the target organ. Thus it orchestrates vital functions including metabolism, immune function, reproduction, intelligence and a variety of behaviors.

How are humans exposed to endocrine disrupting chemicals?

We breathe, eat, drink, and touch EDCs every day. They are components of plastics, pesticides, flame retardants, fragrances and more. EDCs are in many common items in our homes, schools and workplaces, such as toys, clothing, cosmetics, sunscreens, electronics, furniture, cleaning products, lawn care products, automobiles, building materials, food, and food packaging. Some EDCs remain in the environment for many years and can build up in our bodies, others do not, but are always in us due to constant exposure. Research reveals numerous EDCs in most people who are tested, including newborns.



How do endocrine disrupting chemicals affect our health?



For some EDCs a vast body of scientific literature already exists on the health effects resulting from exposure, whereas for others there is very little research. Laboratory and epidemiological studies have confirmed that EDCs have a wide array of effects on humans and wildlife. Examples include reduced reproductive ability, changes to

secondary sex characteristics, certain cancers (such as breast, ovarian, prostate, and testicular), delayed cognitive development, altered response to stress, increased accumulation of fat and changes in sensitivity to insulin.

The effects of EDCs can vary depending on when in the lifetime exposure occurs. Fetal development, early childhood, and puberty are critical periods for exposure because events early in life set the stage for how the body responds to the environment throughout life. In the US, the disease burden and cost related to EDC exposure is estimated at \$340 billion a year. It is imperative that we take actions now to reduce exposures to EDCs and thereby ensure a healthy environment for future generations.

What can I do?

- Avoid buying and using products containing known EDCs (take advantage of product databases like those from the Environmental Working Group and others: <http://www.ewg.org/consumer-guides>)
- Encourage manufacturers and suppliers to use safer chemicals in consumer products (support campaigns like Mind the Store that advocate for safer chemicals policies: <http://saferchemicals.org/mind-the-store/>)
- Support legislation that limits the production and use of EDCs.