

# Endocrine disruptors

The endocrine system consists of hormone-producing glands as well as receptors that enable organs and tissues throughout the body to respond to these hormones. The endocrine system helps regulate important bodily functions, including growth and development, metabolism, and reproduction.

Endocrine disruptors are chemicals that interfere with the body's endocrine system by disrupting hormone balance in the body and mimicking the effects of certain hormones. Normally, hormones bind to receptors in the body in order to elicit an appropriate response. When harmful endocrine-disrupting chemicals bind to hormone receptors instead, it can be harmful to organ systems and allow disease processes to ensue.

## Where are endocrine disruptors found?

[Endocrine disruptors](#) can be found in everyday products such as plastic containers and bottles, metal food cans linings, cleaning products, personal care products, flame retardants, toys, food, and pesticides. Some endocrine-disrupting chemicals break down gradually and remain hazardous to health over time as a result. Endocrine disrupting chemicals can enter the body through the skin (e.g., after applying certain deodorants), orally by consuming contaminated foods or drinking contaminated water, and through inhalation (e.g., perfumes, tobacco smoke).



# Adverse health effects of endocrine disruptors

Endocrine disruptors can have negative health implications on many body functions, including development, reproduction, immune function, and brain function. The following health effects or conditions may be associated with exposure to endocrine disruptors based on animal, in vitro, and in vivo studies:

- [Attention-deficit/hyperactivity disorder \(ADHD\)](#)
- [Infertility](#)
- Certain types of cancer
- Metabolic disorders (e.g., diabetes)
- Impaired growth and development

## Common endocrine disrupting chemicals

Endocrine disruptor	Description	Possible sources
Bisphenol A (BPA)	A chemical used to produce hard plastic such as polycarbonate	Canned beverages Canned food liners Dental sealants Kids toys Medical equipment Microwaveable food products Plastic food storage containers Plastic tableware Reusable water bottles Thermal paper receipts
Dioxins	Chemicals that have chlorine atoms as part of their structure, are commonly emitted during fuel-burning processes, and can be found in food, water, soil, and air	Air during iron and steel production Air during the combustion of coal, oil, or wood Contaminated drinking water Dairy products Electrical power generation Fish and shellfish Meat Tobacco
Fragrances	Chemicals that emit volatile organic compounds (VOCs), such as limonene	Air fresheners Cleaning products Hand sanitizers Laundry supplies Personal care products Soaps

<b>Parabens</b>	Chemicals that are used as preservatives	<ul style="list-style-type: none"> <li>Cosmetics</li> <li>Food products</li> <li>Personal care products</li> <li>Pharmaceuticals products</li> </ul>
<b>Perfluorinated chemicals (PFCs)</b>	A class of chemicals that contribute to greenhouse gas emissions	<ul style="list-style-type: none"> <li>Groundwater</li> <li>Firefighting foams</li> <li>Industrial products</li> <li>Microwave popcorn</li> <li>Non-stick cookware</li> <li>Paper</li> <li>Soil</li> <li>Textile coatings</li> <li>Waterproof clothing</li> </ul>
<b>Phthalates</b>	A group of chemicals used to make plastics flexible	<ul style="list-style-type: none"> <li>Detergents</li> <li>Diapers</li> <li>Food packaging</li> <li>Kids toys</li> <li>Personal care products (e.g., cosmetics nail polish, shampoo)</li> <li>Sanitary napkins</li> <li>Vinyl flooring</li> </ul>
<b>Polybrominated diphenyl ethers (PBDE)</b>	A chemical that's used as a flame retardant	<ul style="list-style-type: none"> <li>Adhesives and sealants</li> <li>Appliances</li> <li>Automobile materials</li> <li>Carpet underlay</li> <li>Building materials</li> <li>Electrical equipment</li> <li>Furniture foam</li> <li>Mattresses</li> <li>Rubber products</li> </ul>
<b>Polychlorinated biphenyls (PCB)</b>	Chemicals that break down slowly, are traditionally found in industrial materials, and are used to manufacture coolants or lubricants for electrical equipment such as capacitors and transformers	<ul style="list-style-type: none"> <li>Adhesives and tapes</li> <li>Caulking</li> <li>Electrical equipment</li> <li>Fiberglass</li> <li>Fluorescent light ballasts</li> <li>Foam</li> <li>Oil-based paint</li> <li>Inks</li> <li>Plastics</li> <li>Sealants</li> </ul>

**Triclosan**

A chemical with antimicrobial and antifungal activity

- Liquid body washes
- Hand sanitizer
- Household products
- Mouthwash
- Surgical soaps
- Toothpaste

**Xenoestrogens**

Chemicals that may mimic estrogen in the body and interfere with the hormone's intended actions

- Coolants
- Food preservatives
- Personal care products
- Pesticides
- Pharmaceuticals
- Plasticidants
- UV filters



## Tips to reduce exposure

### Reducing exposure to endocrine disruptors



Avoid scented products such as candles, perfumes, and air fresheners.



Avoid using pesticides in the garden.



Buy organic food when possible, and peel your fruits and vegetables.



Choose personal care and cleaning products that don't contain toxic chemicals.



Invest in a reusable glass or metal water bottle.



Never reheat food in plastic containers.



Opt for fresh foods instead of canned or microwavable meals.



Replace your nonstick pots and pans if they become damaged.



Store food and beverages in glass containers instead of plastic.



Wash your vegetables and fruit before eating them.



Use an app to help you evaluate ingredients for safety.



## Helpful apps

- [Detox Me](#)
- [EWG's Healthy Living App](#)
- [Think Dirty](#)
- [Yuka](#)

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