

# Disruptors of endocrine system

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The term 'endocrine disruptor' was coined by Wisconsin in the Wingspread Conference Center, in 1991. EDCs are mixtures of chemicals that interfere with the body's hormones [1]. These are also called as hormonally active agents. These agents mainly interfere with the secretion, synthesis, transport, or elimination of natural hormones in the body which are responsible for development, behaviour, fertility, and maintenance of homeostasis.

### VARIOUS TYPES OF ENDOCRINE DISRUPTORS

Many of people were exposed to chemicals with estrogenic effects in their day to day life, because these chemicals are found in low doses in many of products. Some of these chemicals which are most commonly detected in people are:

- DDT, polychlorinated biphenyls (PCB's)
- Bisphenol A
- Polybrominated diphenyl ethers (PBDE's)
- Phthalates

#### Bisphenol A

Practically all plastic items, including those publicized as "BPA free"[2], have been found to filter endocrine-disturbing synthetic. Bisphenol S and Bisphenol F are correlative of bisphenol A. They are commonly found in plastics, and house hold dust. Traces of BPS have also been found in personal care products and it is more presently being used because of the ban of BPA

#### Dichlorodiphenyl-trichloro ethane DDT

DDT was first used as a pesticide because of increase in the incidence of malaria, led to its use against the mosquitoes and it was discovered that DDT interfered with reproductive development. This may decrease the fertility in adult males due to exposure.

### DIFFERENT SOURCES FOR ENDOCRINE DISRUPTORS

- Non-organic food can have pesticide residues
- Processed foods can contain traces of EDCs [3] that may leach out of materials used in manufacturing, processing, transportation, and storage
- Household dust can also contains EDCs such as lead, flame retardants
- EDS such as PCBs can also produce from weathering construction material or furniture

### EFFECTS OF ENDOCRINE DISRUPTORS

- Neurological changes and behavioural changes
- Ability to handle stress will be reduced
- Some of EDCs have been linked to obesity and type 2 diabetes

- Some industrial chemicals and flame retardants can interfere with thyroid function
- Some classes of EDCs (DDT, BPA, phthalates, PCBs, others) can affect reproductive health by mimicking or blocking the effects of male and female sex hormones
- During gestation, high exposures to EDCs can lead to low-birth weight
- Estrogen or androgen mimicking EDCs exposure can promote breast cancer and prostate cancer growth and interfere with hormonal cancer therapy
- Sometimes exposure at prenatal time may led to the breast cancer after mammary gland development

### HOW TO AVOID ENDOCRINE DISRUPTORS?

There are many adverse effects related to Endocrine disruptors, so measures have to be taken in order to overcome these effects

- Fruits and vegetables has to be washed thoroughly before consuming them
- For hot food and drinks glass, porcelain, or stainless-steel containers should be used whenever possible
- Try to purchase organic produce, meat, and dairy products
- Exercises have to be avoided near high traffic areas.
- Always Choose the routes away from busy roads and vehicles
- Before preparing and eating food don't forget wash your hands
- Avoid hand-me-down plastic toys
- Use toys that are labelled "BPA-Free infant formula bottles
- Always clean your floors regularly and remove dust from your house
- Plant trees, which will filter out airborne gases and particulate matter from the air
- Avoid products containing phthalates and read the labels compulsory on products
- Older non-stick pans should be replaced with newer ceramic-coated pans

Production of plastics grew from 50 million tons to nearly 300 million tons today globally. So, necessary steps need to be followed to decrease the usage of plastic.

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Received: March 02, 2021; Accepted: March 16, 2021; Published: March 23, 2021



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