

Hidden chemical menace



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Why patients wanting to conceive should avoid endocrine disruptors

EVERY day we are exposed to many different chemicals through the products we use, the food we eat and the air we breathe. Mounting evidence suggests that a particular group, endocrine disrupting chemicals (EDCs), can affect reproductive health.

Research shows that 95% of tested people have EDCs in their bodies. Although the effects are subtle, it is important to be aware of EDCs, what they do and how exposure to them can be reduced when planning a pregnancy.

These chemicals are present in the air, soil, water, food and in many products. They can interfere with the body's normal functioning, including male and female reproductive systems.

Some EDCs occur naturally in food. Soy beans and flax seeds, for example, are high in phytoestrogen, which mimics the effects of oestrogen. However, one would need to consume a large amount of these for the reproductive system to be affected.

Of more concern are the 800 or so artificial EDCs in items most people have in their homes and use daily, such as plastic food containers, personal-care items and processed foods. EDCs are present in many manufacturing, industrial and agricultural processes.

WHAT THESE CHEMICALS DO

Because we are exposed to combinations of so many different types of chemicals, it is not always possible to know whether individual chemicals affect our health. In the case of EDCs, studies have found



that they can affect reproductive health by mimicking or blocking oestrogen and testosterone.

This can cause:

- Changes in hormone levels;
- Decreased sperm and egg quality;
- Damage to the DNA in sperm;
- Longer menstrual cycles;
- Longer lead time to achieve pregnancy;
- Increased risk of miscarriage; and
- Earlier menopause.

People who struggle to conceive often have higher levels of some EDCs and

people who are exposed to high levels of some EDCs through their work have more fertility difficulties.

Among couples who use assisted reproductive technology to conceive, higher levels of some EDCs have been shown to decrease the chance of pregnancy.

HOW TO DECREASE EXPOSURE

It is not possible to completely avoid EDCs, but some simple steps can be taken to limit exposure. This is especially important for women and men who plan to have



children. Practical tips for patients who might want to minimise exposure include:

- Wash fruit and vegetables and buy them from known local sources to reduce the intake of sprayed pesticides, fungicides, herbicides and other chemicals.
- Eat fewer processed, canned and pre-packaged foods to reduce intake of bisphenol A (BPA), phthalates and plasticisers. These chemicals coat the inside of tin cans and can be absorbed from plastic wrappings or cling wrap.
- Limit intake of oily fish (salmon, tuna,

EDCS THAT CAN AFFECT FERTILITY

EDC	Where it is found
Bisphenols (BPA/BPS/BPF)	Widely used in plastic products, lining of tin cans and thermal cash register receipts. Leaches from many products into food.
Phthalates	Added to plastics to increase flexibility and durability and found in toys, footwear, food packaging, medical devices, and personal care products.
Parabens	Used as a preservative and in anti-bacterial products, and found in food, cosmetics and personal care products.
Persistent organic pollutants (POPs)	Used in electrical devices and industrial lubricants and found in flame retardants in furniture. POPs are by-products of processes such as metal and paper production, wood incineration or heating plastics.
Pesticides, herbicides and insecticides	Found in most people's garden sheds and sprayed on many food products and crops sold commercially.
Heavy metals (eg, aluminium, arsenic, cadmium, chromium, lead, mercury)	Exposure occurs through smoking, air pollution, dental fillings, consumption of contaminated food and drink, and contact with petrol, industrial and household products.

sardines) and fatty meats to reduce consumption of persistent organic pollutants, pesticides, heavy metals and fat-soluble chemicals that can accumulate in animals.

- Avoid handling receipts on thermal paper. The coating that gives them a shiny texture contains BPA.
- Drink water and soft drinks from glass or hard plastic bottles rather than soft plastic bottles. Be particularly careful with soft disposable bottles that have been exposed to heat. Water in a bottle that has been sitting in the sun will have absorbed significant amounts of EDCs from the plastic
- Never heat food in soft plastic takeaway containers or those covered with cling wrap or tin foil. When heated, phthalates and bisphenols in plastic can easily be absorbed into the food, especially if it is fatty. Heating also releases dioxins from the plastics. To avoid this, food should be placed in a china or glass bowl before heating and covered with paper towel or a china plate
- Avoid air fresheners, smoke, strong chemicals, heavily perfumed products, plastic smells and fumes. If you can smell it, the chemicals are in high concentration.
- Air the home frequently to reduce the amount of inhalable chemical particles.
- Avoid use of pesticides and herbicides in the garden, at work or in the home.

Alternative 'green' chemicals, which utilise non-toxic agents to reduce pests and weeds, are available.

- Avoid potent household products such as detergents, hand sanitisers, cleaning agents including carpet cleaners, or strong chemicals such as glues, paints and varnishes. Alternative 'green' products utilising non-toxic agents, can be bought.
- Read the labels on all personal-care products such as cosmetics, shampoos, conditioners, hair colourings and body washes. Choose those with low amounts of parabens.
- Read the labels on foodstuffs and avoid those with additives, preservatives and anti-bacterial agents.

For more information about the impact of environmental chemicals on reproductive health, including fact sheets for health professionals and the general public, as well as other fertility-related topics, visit www.yourfertility.org.au ■

References on request.

*Dr Hammarberg is also a senior research officer at the Victorian Assisted Reproductive Treatment Authority.

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