

EU closes in on hormone-disrupting chemicals

June 15 2016

The European Union set broad criteria Wednesday for identifying potentially harmful chemicals which can interfere with the normal functioning of human hormones and cause a range of health problems.

Consumer and environmental advocates wanted European regulators to crack down on these potentially harmful, mostly manmade substances called endocrine disruptors.

EU rules in 2013 targeted suspected disruptors and the European Commission, the bloc's executive, agreed to define the criteria for identifying them that year.

But the sensitive decision was delayed until this week after calls for more research from concerned chemicals companies that have insisted existing rules were adequate in most cases.

Some background:

What is the endocrine system?

The body's endocrine tissues—in the ovaries and testes, as well as the adrenal, pituitary and thyroid glands—produce hormones that are secreted into the bloodstream to control and coordinate a range of critical body functions.

These hormones help regulate energy levels, reproduction, growth,

development, as well as our response to stress and injury.

Where are endocrine disruptors?

Everywhere. People are exposed to hormone-disrupting chemicals through everyday products, including food and drink, medications, pesticides, cosmetics, plastics, detergents, flame retardants, and toys—to name a few.

They can even be found in air and dust and can enter our bodies via the skin, breathing, drinking or eating. These chemicals can also be transferred from a woman to their child via the placenta or breast milk.

There are thousands of chemicals that can—alone or in combination with others—potentially disturb our hormonal and immune systems.

What are the impacts?

The suspect compounds have been linked to altered reproductive function in males and females, increased incidence of breast cancer, disturbance of the nervous and immune systems, abnormal growth, and stunted development in children.

The endocrine disrupting capacity of some chemicals—the pesticide DDT, dioxins and toxic compounds called PCBs—are well known, but for thousands of others the impacts are still unproven. While many molecules have been individually tested for safety, few studies have examined how they interact with others.

Impacts—including spontaneous sex changes—have also been observed in amphibians exposed to synthetic hormones, such as oestrogen, in their water.

Concrete examples?

Bisphenol A (BPA) is used in large quantities to produce polycarbonate plastics and epoxy resins. The US National Toxicology Program (NTP) has expressed "some concern" for impacts at current levels of exposure on the brain, behaviour, and prostate glands of foetuses, infants and children.

Di(2-ethylhexyl) phthalate (DEHP) is a mass-produced chemical widely used in consumer food packaging, some children's products, and some PVC medical devices. The NTP has said it might pose a risk to human development, especially in critically ill male infants.

How do disruptors work?

From animal studies, researchers have learned that [endocrine disruptors](#) can mimic naturally occurring hormones such as the female sex hormone oestrogen, and the male hormone androgen.

They bind to a receptor within a human cell and block the natural hormone from binding to it. This blocks normal signalling, causing malfunctions within the body.

Disruptors can also influence the way natural hormones and their receptors are made and controlled, altering the metabolism of the liver, for example.

Sources: US National Institute of Environmental Health Sciences, World Health Organization.

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Citation: EU closes in on hormone-disrupting chemicals (2016, June 15) retrieved 4 February

2024 from <https://medicalxpress.com/news/2016-06-eu-hormone-disrupting-chemicals.html>

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