

## **Minimising exposure to common hormone-disrupting chemicals may reduce obesity rates**

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Everyday products carry environmental chemicals that may be making us fat by interfering with our hormones, according to research presented in Barcelona at the [European Society of Endocrinology](#) annual meeting, [ECE 2018](#). Following recommendations on how to avoid these chemicals could help minimise exposure and potentially reduce the risk of obesity and its complications.

Obesity increasingly affects millions of people worldwide, with cases rising sharply in young children and babies - a trend which is not explained by evolving diets and lifestyles alone. The condition contributes to an estimated 2.8 million deaths per year worldwide and leads to many other health complications, which are a large financial burden on healthcare systems.

Chemicals that interfere with how our bodies store and process fat are referred to as 'obesogens', and have been suggested as a possible contributor to the increasing number of obesity cases. Obesogens reprogram how our cells work in two main ways: they can promote fat accumulation through increasing the number and size of fat cells or by increasing appetite, or they can make it more difficult to lose fat by changing our ability to burn calories. Previous studies have identified these chemicals in many everyday products, such as pesticides, plastics, flame retardants, repellent coatings on kitchen utensils and clothes, and artificial sweeteners. This comprehensive analysis aims to highlight to health professionals, and the public, the main sources of obesogens, and includes specific recommendations on minimising exposure.

Dr Ana Catarina Sousa and her research group, from the Universities of Aveiro and Beira Interior, Portugal, reviewed existing and new epidemiological surveys and animal studies, and showed that the most important sources of exposure to obesogens indoors are diet, house dust, and everyday products such as cleaning chemicals, kitchenware or cosmetics. Diet samples in some of the studies showed, for example, that obesogens such as tributyltin - a chemical in anti-fouling paint banned a decade ago, and cadmium - a metal widespread in the environment associated with certain cancers, can still be found in food products, in some cases at high concentrations.

"Obesogens can be found almost everywhere, and our diet is a main source of exposure, as some pesticides and artificial sweeteners are obesogens. Equally, they are present in plastics and home products, so completely reducing exposure is extremely difficult – but to significantly reduce it is not only feasible, but also very simple", Dr Sousa says.

Based on the findings of the review, the researchers suggest specific recommendations to reduce obesogen exposure. The recommendations include:

- Choosing fresh food over processed products with long lists of ingredients on the label – the longer the list, the more likely the product is to contain obesogens

- Buying fruit and vegetables produced without pesticides, such as certified organic or local pesticide-free products
- Reducing the use of plastic, especially when heating or storing food. Instead, use glass or aluminium containers for your food and drinks.
- Removing shoes when entering the house to avoid bringing in contaminants in the sole of shoes
- Vacuuming often, using high-efficiency particulate air (HEPA) filters and dust your house frequently using a damp cloth.
- Removing or minimising carpet at home or work, as they tend to accumulate more dust
- Avoiding cleaning products when possible, or choose those that do not contain obesogens

Further studies are needed in order to provide unequivocal evidence of how obesogens contribute to the obesity epidemic. “These are baby steps to achieve an obesogen-free lifestyle but a really good start. Essentially, watch your diet and get rid of the dust at home”, Dr Sousa comments. “Adults ingest about 50mg of dust every day, and children twice as much, so keeping the house clean is a very effective measure. And use a humid cloth to dust your furniture, rather than a cleaning product that may contain more of these chemicals.”

Further work in Dr. Sousa’s research group includes a case control study to evaluate obesogen levels in Portuguese obese patients. Additionally, they intend to launch a new cohort study to monitor obesogen levels in urine and hair of pregnant women, and in their children, to further determine how obesogens affect their obesity risk.

## Abstract

### Symposium 4.3

#### Environmental contaminants and endocrine disruption: The story of obesogens

Ana Sousa (Portugal)

According to the World Health Organization, obesity is one of the most important public health challenges of the 21st century. There is no doubt that excessive calories intake and lack of exercise, are important factors, and that genetics plays a critical role. However, because genes in the population do not change fast enough, other causes must be involved. The involvement of other causes in the etiology of obesity is further strengthened by the fact that obesity is increasing sharply in young children, including babies for whom changes in exercise and eating patterns are unlikely to have occurred in the past decades. Furthermore, increases in body weight have also been reported in laboratory, domestic and wild animals. Such evidences strengthen the hypothesis that environmental factors are at play. In 2006, a new theory on the role of environmental contaminants in the etiology of obesity was proposed by Dr. Bruce Blumberg. This theory, known as the “obesogen effect” postulates that environmental chemicals are able to promote obesity by increasing the number of fat cells and/or the storage of fat into the existing adipocytes. It was originally proposed for tributyltin (TBT), a potent endocrine disrupting chemical responsible for sex changes in marine gastropods. This endocrine disruptor was responsible in vitro and in experimental animals for the induction of adipogenesis; furthermore, prenatal exposure to TBT in mice was associated with adiposity later in life and in future generations. Since the obesogen theory was proposed, compelling evidences from in vitro, in vivo and epidemiological studies arose in the scientific literature and today several chemicals are considered as obesogens. This presentation will provide an overview of the implications of obesogens in metabolic disorders, while explaining the major classes of obesogenic compounds to which we are continuously exposed. Preventive measures to reduce exposure to these toxic chemicals will be described and the future perspectives in this exciting emerging field will be discussed.

## Notes for Editors

1. The symposium “Environmental contaminants and endocrine disruption: The story of obesogens” will take place on 20 May 2018, at the European Congress of Endocrinology at the Centre Convencions Internacional Barcelona, Spain.
2. For other press enquiries please contact the ECE 2018 press office:

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3. The European Congress of Endocrinology is held at Centre Convencions Internacional Barcelona, Spain on the 19-22 May 2018. See the [full scientific programme](#).
4. The [European Society of Endocrinology](#) was created to promote research, education and clinical practice in endocrinology by the organisation of conferences, training courses and publications, by raising public awareness, liaison with national and international legislators, and by any other appropriate means.