MINIMISING THE IMPACT OF ENDOCRINE DISRUPTING CHEMICALS ON HEALTH AND ENVIRONMENT

A scientific update following the Joint Congress of ESPE and ESE 2025

Legacy Event: 14 May 2025
Press briefing note: Per- and Polyfluoroalkyl Substances (PFAS)

Relevant presentations at event:

- "PFAS – challenges for children's health and neurodevelopment" – Prof Tina Kold Jensen, University of Southern Denmark
- "Testimonial: how EDC exposure has affected my life and that of my family and community" – Mr Kenneth Nielsen, Chairman of Korsør Cow Grazing and Nature Conservation Association

What are PFAS?

- PFAS are a group of over 10,000 synthetic chemicals used in products like cookware, carpets and textiles for their water- and oil-resistant properties. Because of strong bonds between carbon and fluorine molecules, they are extremely durable and do not break down easily, hence the nickname "forever chemicals." These properties are useful in manufacturing but have serious consequences for health and environment.
- Like other endocrine-disrupting chemicals (EDCs), humans can be exposed to PFAS in several ways: they transfer from mother to child via the placenta and breastmilk, and can be ingested through food, water, dust and non-stick cookware. Research suggests PFAS also spread through the air. A recent study found that nearly 60% of children's textiles labelled waterproof, stain-resistant or environmentally friendly contained PFAS.
- Exposure to PFAS can lead to health problems such as liver damage, thyroid disease, obesity, fertility issues and cancer. Research suggests that PFAS exposure may reduce fertility in women by as much as 40%. People most at risk of adverse health impacts are those exposed to high levels of PFAS and vulnerable population groups such as children and the elderly.
- Because PFAS accumulate over time, even small amounts of these "forever chemicals" can build up and cause long-term health problems. Even if they were completely banned now, they would remain in our environment for generations to come.
- A 2024 Eurobarometer study of citizens' views on the environment suggests that while the public has a general awareness that chemicals in everyday products have an impact on health and environment, more needs to be done to raise awareness of the dangers of PFAS:

- 84% of Europeans are worried about the health impact of harmful chemicals present in everyday products
- Only 29% of respondents had heard the term PFAS, while 71% had not.

PFAS "hotspots"

Often, these substances are concentrated in specific areas, known as PFAS hotspots, where contamination levels are high enough to pose a direct risk to human health. These hotspots are commonly located near industrial facilities or military sites and are often close to communities, particularly in Northern Europe, including parts of Denmark, the Netherlands and Belgium.

Le Monde's Map of Forever Pollution in Europe shows the scale and spread of PFAS contamination across Europe, including:

- 23,000 confirmed contamination sites where PFAS were detected in water, soil, or living organisms
- 21,500 presumptive contamination sites linked to industrial or military PFAS use (but not yet tested)
- Over 2,300 hotspots, where PFAS levels exceed health risk thresholds.

The cost of cleaning up PFAS contamination sites could reach €2 trillion over twenty years, if no action is taken to curb emissions.

What needs to happen?

As with other types of EDCs, we need coordinated action to tackle PFAS, including stronger laws, stricter industry oversight, better public information, coordinated monitoring and increased support for independent research. (See related press briefing note on Reducing Exposure to EDCs for more on each of these areas.)

More countries must follow the examples of Denmark and France, which both implemented PFAS bans at the national level. In 2020, Denmark banned PFAS in paper and cardboard food packaging, and from July 2026, will also ban the sale and import of consumer clothing, footwear and waterproofing products containing PFAS. In February 2025, France adopted new legislation banning PFAS chemicals in cosmetics, textiles and ski waxes, which take effect in 2026. Broader restrictions will follow in 2030. The restrictions require the elimination of industrial discharges within five years and more water monitoring.

ESPE published a scientific statement in 2024 outlining its position on PFAS.

Preventing early exposure

More must be done to prevent early and ongoing exposure by eliminating PFAS in food and products including cookware, food contact material, cosmetics, clothing, toys, food packaging and floors.

An encouraging step is the EU's adoption of the Packaging and Packaging Waste Regulation, which came into force in February 2025. This sets out targets for the recyclability of food packaging, restricts certain types of single-use plastic food packaging, and bans food packaging containing PFAS above specific thresholds.

The implementation of PFAS bans in 2025 and beyond

The European Commission is currently assessing a PFAS restriction proposal initiated by the national authorities of Germany, Denmark, the Netherlands, Norway and Sweden, which aims to reduce PFAS emissions in the environment. The proposal has been met with extensive lobbying by industry groups seeking exemptions to any potential ban. ESE and its partners are of the view that the Commission should only provide exemptions for society-critical products, rather than entire sectors. Thorough measures are essential to reduce the number and impact of PFAS hotspots in Europe where high levels of pollution pose a threat to human health.

The endocrine community continues to push for the urgent publication of an ambitious proposal and for limited exemptions.

Increasing understanding of impact of PFAS

More research is needed to understand how PFAS affect human health and support tailored policies to reduce exposure.

In Denmark, a new PFAS research centre in collaboration between DTU, University of Copenhagen, University of Southern Denmark and Aarhus University will gather new knowledge about the effects of PFAS.

More generally, the EndoCompass Research Roadmap, led by ESPE and ESE, is a major new initiative to improve hormone health in Europe by shaping the future of endocrine research. Developed by 228 experts from across Europe, and covering all major endocrine fields, the roadmap identifies research priorities in endocrinology with the greatest potential to improve health in Europe. It aims to improve the visibility, coordination and impact of endocrine research.

PFAS are also likely to be an important topic of discussion at the ESE-ESPE Joint Congress. A relevant poster abstract published at the Joint Congress is:

- *Higher PFAS exposure associated with lower 24h urine aldosterone in pregnant women (Odense Child Cohort)* – Richard Christian Jensen, Denmark.

(Searchable abstracts will be available on the Endocrine Abstracts platform from 9 May. Press may access abstracts from 5 May if they are registered for the Joint Congress.)

As noted, Kenneth Nielsen will speak at the Legacy Event to share his personal experience of EDC exposure.

Key studies

Rodgers K. et al. (2022) 'How Well Do Product Labels Indicate the Presence of PFAS in Consumer Items Used by Children and Adolescents?'

Seyyedsalehi MS et al. (2024) 'Per- And Poly-Fluoroalkyl Substances (PFAS) Exposure and Risk of Breast and Female Genital Cancers: A Systematic Review and Meta-Analysis'

Blake BE et al. (2020) 'Early life exposure to per- and polyfluoroalkyl substances (PFAS) and latent health outcomes: A review including the placenta as a target tissue and possible driver of peri- and postnatal effects'

Perez F et al. (2013) 'Accumulation of perfluoroalkyl substances in human tissues'

Bignami M et al.(2020) 'Risk to human health related to the presence of perfluoroalkyl substances in food'

Useful links

- Information from the European Chemicals Agency on proposal to reduce emissions from polyfluoroalkyl substances (PFAS)
- European Environment Agency briefing on PFAS
- Le Monde Map of Forever Pollution in Europe
- European Chemicals Agency – information on PFAS and REACH