

Study reveals link between man-made chemicals in everyday products and later puberty

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Children exposed to higher levels of synthetic chemicals in everyday products, such as water-resistant clothes, umbrellas and food packaging, are more likely to mature later during puberty, according to research presented at the [61st Annual European Society for Pediatric Endocrinology Meeting](#) in The Hague. The findings may help better regulate the industrial production and use of these chemicals on a national and international level.

Perfluoroalkyl and polyfluoroalkyl substances (PFAS), also known as 'forever chemicals' which make surfaces resist stains, water and grease, are man-made chemicals extremely persistent in the environment and in our bodies. These chemicals are considered endocrine disruptive, meaning they interfere with the body's hormones and could have harmful effects on [puberty](#) and [childhood development](#). PFAS have previously been associated with reduced fertility, thyroid disease, and obesity.

In this study, Dr. Ingvild Halsør Forthun and colleagues in Norway analyzed 19 different PFAS chemicals in 420 boys and 618 girls aged six to 16 years, as part of the Bergen Growth Study 2. They also measured the children's breast development and testicular size using ultrasound, and found that boys had smaller testicles while girls had less advanced breast development when they were exposed to higher levels of a number of PFAS chemicals.

Previous studies have also shown the same association between PFAS chemicals and later puberty. However, up until now, information on [pubertal development](#) was mostly self-reported.

"This is the first study exploring the link between PFAS exposure and pubertal development using ultrasound as a novel and more objective method," said lead author Dr. Forthun, a Ph.D. candidate at the Haukeland University Hospital in Bergen. "Our findings could contribute

to the national and international regulatory decisions authorities make about these chemicals."

The team is now planning to investigate how hormones involved in puberty and body composition are associated with PFAS levels within the Norwegian child population.

"Our findings provide further evidence for the [harmful effects](#) of PFAS on childhood development, but it is still unclear how these chemicals impact puberty-related hormones and body composition in children. This could shed light on reproductive issues and contribute to better regulation making," says Dr. Forthun.

More information: The study "Exposure to Per- and Polyfluoroalkyl Substances and Pubertal Assessment by Ultrasound in Norwegian Boys and Girls: Data from the Bergen Growth Study 2" will be presented on Friday 22 September 2023 at the 61st Annual Meeting of the European Society for Paediatric Endocrinology (ESPE 2023) at the World Forum in The Hague, Netherlands:

<https://abstracts.eurospe.org/hrp/0097/hrp0097rfc6.3>

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