

New research reveals prenatal exposure to PFAS is associated with lower birth weight

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A new study evaluated the association between early pregnancy exposure to eight PFAS compounds respectively and birth weight in 1,533 mother child pairs in the Swedish Environmental Longitudinal, Mother and child, Asthma and allergy (SELMA) study, specifically focusing on differences according to sex of the child.

Researchers found significant associations between higher prenatal exposures for five different PFAS (PFOS, PFOA, PFNA, PFDA och PFUnDA) and lower [birth weight](#), and the associations were more pronounced in girls than in boys. In utero exposure to [perfluorooctanoic acid](#) (PFOA) within the highest quartile of exposure was in girls associated with 136 gram lower birthweight when compared to the lowest quartile. For a comparison, this association is in the same range as the effects from tobacco smoke exposure during pregnancy.

Perfluoroalkyl substances (PFAS) are [organic compounds](#) with stain, grease and water repellent properties that are used in textiles, pans and food packaging such as grease-proof paper. Several

PFAS are bio-accumulating and are extremely persistent in the environment.

"We are not surprised about these results," says Dr. Sverre Wikstrom, pediatrician at Örebro University in Sweden and responsible for the study. "There are several other studies that have shown similar results. New in this study was that we also found that prenatal PFAS exposure increased the risk of being born small for gestational age, something that poses threats of clinical consequences also to infants born at term pregnancy, such as post-natal growth and metabolic syndrome and cardiovascular complications later in life."

Carl-Gustaf Bornehag, professor at Karlstad University, Sweden, and leader of the SELMA study, is very concerned about this kind of chemical. His team is now receiving more and more data showing that humans are all exposed to PFAS and that such exposure is associated with health consequences for humans and animals.

"Some of these compounds (PFOS and PFOA) have been voluntarily phased out of production—which of course is good—but even if they are banned and not used in production they will remain in our bodies for a very long time since they are so persistent and bioaccumulating," says Bornehag. "And this is clearly showing the danger of introducing chemicals to the market without a proper risk evaluation from the beginning."

More information: Sverre Wikström et al. Early pregnancy serum levels of perfluoroalkyl substances and risk of preeclampsia in Swedish women, *Scientific Reports* (2019). [DOI: 10.1038/s41598-019-45483-7](https://doi.org/10.1038/s41598-019-45483-7)

Provided by Karlstad University

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