

Breastfeeding may expose infants to toxic chemicals

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Image: Wikimedia Commons

A widely used class of industrial chemicals linked with cancer and interference with immune function—perfluorinated alkylate substances, or PFASs—appears to build up in infants by 20%-30% for each month they're breastfed, according to a new study co-authored by experts from Harvard T.H. Chan School of Public Health. It is the first study to show the extent to which PFASs are transferred to babies through breast milk, and to quantify their levels over time.

"We knew that small amounts of PFAS can occur in [breast milk](#), but our serial blood analyses now show a buildup in the [infants](#), the longer they are breastfed," said Philippe Grandjean, adjunct professor of environmental health at Harvard Chan School.

The study appeared online August 20, 2015 in *Environmental Science &*

Technology. Other study authors were from Danish universities and the Faroese Hospital System.

PFASs are used to make products resistant to water, grease, and stains. They've been in use for more than 60 years in products such as stain-proof textiles, waterproof clothing, some food packaging, paints, and lubricants, and are known to contaminate drinking water in the U.S. near various production facilities. These compounds—which tend to bioaccumulate in food chains and can persist for a long time in the body—are found regularly in the blood of animals and humans worldwide, and have been linked with reproductive toxicity, endocrine disruption, and immune system dysfunction.

The researchers followed 81 children who were born in the Faroe Islands between 1997-2000, looking at levels of five types of PFASs in their blood at birth and ages 11 months, 18 months, and 5 years. They also looked at PFAS levels in mothers of the children at week 32 of pregnancy.

They found that, in children who were exclusively breastfed, PFAS concentrations in the blood increased by roughly 20%-30% each month, with lower increases among children who were partially breastfed. In some cases, by the end of breastfeeding, children's serum concentration levels of PFASs exceeded that of their mothers'.

One type of PFAS—perfluorohexanesulfonate—did not increase with breastfeeding. After breastfeeding was stopped, concentrations of all of five types of PFASs decreased.

The results suggest that breast milk is a major source of PFAS exposure during infancy.

"There is no reason to discourage breastfeeding, but we are concerned

that these pollutants are transferred to the next generation at a very vulnerable age. Unfortunately, the current U.S. legislation does not require any testing of chemical [substances](#) like PFASs for their transfer to babies and any related adverse effects," Grandjean said.

More information: "Breastfeeding as an Exposure Pathway for Perfluorinated Alkylates," Ulla B. Mogensen, Philippe Grandjean, Flemming Nielsen, Pal Weihe, and Esben Budtz-Jørgensen, *Environmental Science & Technology*, August 20, 2015, [DOI: 10.1021/acs.est.5b02237](#)

Provided by Harvard School of Public Health

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