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Chemicals in non-stick pans may retard babies' growth;  
Toxin in daily use in the home should be phased out, says researcher

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Chemicals used in non-stick pans, fast-food containers, carpets, furniture and a host of other everyday household products are retarding babies' growth and brain development, two startling new studies suggest.

The studies - from the United States and Denmark, both published in the past month - found that babies with increased levels of the chemical in their umbilical cords were born smaller and with reduced head sizes. Though the changes were small, reductions in weight and brain development at birth have been associated with health problems throughout life.

The chemical - perfluorooctanoic acid (PFOA) - has been used so widely and is so persistent in the environment that it has been found all over the world - even in the Arctic and in remote Pacific atolls - in rain and water supplies, food, wildlife and human blood.

One of the studies, carried out by researchers at the blue-chip Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland, found the chemical in every single one of the 299 umbilical cords analysed, suggesting that every baby is born already contaminated by it. Similar levels have been found in babies in Europe and Japan.

It also found that the babies whose cords had the highest concentrations of PFOA were born lighter, thinner and with smaller head circumferences than others. The second study - carried out in the US and Denmark, with babies drawn from the Danish National Birth Cohort - came up with similar findings for birth weight, the only measurement it made.

The studies, published in the prestigious journal Environmental Health Perspectives, are important because they measure effects on people, and suggest that PFOA is damaging at far lower levels in the blood than had been realised. Laboratory research has previously shown that the chemical causes rats to be born smaller, but only at levels many thousands of times higher.

The results are bound to cause increasing controversy over the chemical, which is used to make non-stick pans and stain resistant coatings for fabrics. It has already been under attack as a suspected cause of cancer , but this is the most damning evidence of damage to date.

Non-stick pans left accidentally on rings and in ovens to heat up without food in them are known to give off the chemical at high temperatures, and it has also been found in household dust - but nobody yet knows how it is getting into women's blood and being passed on to their babies. The results are bound to increase pressure for it to be banned.

Professor Lynn Goldman, the main author of the Baltimore study and a former head of toxic substances at the official US Environmental Protection Agency - calls for the chemical to be phased out and "not released to the environment".

And Dr Gwynne Lyons, the director of Chem Trust, a new British charity for protecting people and wildlife from harmful chemicals, says that failing to do so would be "sheer folly".

DuPont, the only US manufacturer of PFOA, has announced plans to phase it out - but not until 2015. The company says it is taking the step merely because of the chemical's persistence and as a result of public concern.

DuPont has long insisted that "there are no human health effects known to be caused by PFOA", and now adds: "Our position is that the studies have not changed our position.