

Environmental pollutant linked with overweight

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The levels of the environmental pollutant perfluorooctanoic acid (PFOA) that mothers had in their blood during pregnancy increased the risk of obesity in their daughters at 20 years of age. The findings come from a recent study of Danish women in which the Norwegian Institute of Public Health participated.

In recent decades, there has been a sharp increase in the number of [overweight children](#) and adults worldwide. It is suspected that diet and exercise alone cannot explain this large weight increase.

Researchers suggest that the increasing levels of endocrine disrupters in the environment may be a possible contributing factor. Therefore, this study was established and discovered the following:

- Daughters of mothers with the highest concentrations of PFOA in the blood during [pregnancy](#) were three times as likely to be overweight at the age of about 20 years as daughters of mothers with the lowest PFOA levels.
- The calculations took into account many variables, such as maternal weight and [lifestyle factors](#).
- An association was also found between PFOA exposure before birth and elevated levels of [insulin](#) and leptin, two hormones that are linked to obesity.
- Levels of insulin and leptin were also elevated in the sons of mothers with high PFOA, but the relationship was weaker than

for girls.

- There was no increased risk of development of obesity among the sons.

What does this mean for us?

It is still too early to say what this might mean for us. The study indicates that factors such as [environmental pollutants](#), in addition to diet and [physical activity](#), play a role in the [obesity epidemic](#) seen today although this remains to be confirmed by similar studies.

In 1988-1989, around 1,000 pregnant women in Aarhus, Denmark were recruited for a study where a sample of blood of women in week 30 of pregnancy was collected and frozen. In 2008-2009, the children from these pregnancies were contacted and asked to participate in a follow-up study in which, for instance, [body mass index](#) and waist circumference were recorded. Approximately 650 of the children agreed to participate.

Employees at the Norwegian Institute of Public Health analysed the levels of a variety of PFCs in the mothers' blood.

PFOA belongs to a group of environmental pollutants known as per-and polyfluorinated compounds (PFC). These compounds are used or have been used in a variety of consumer products and industrial processes such as impregnation, textiles, carpets and fire-fighting foam. Concerns about the use of these substances arose at the millennium as one of the substances, perfluorooctyl (PFOS), was found to be ubiquitous in wildlife and human populations worldwide.

Studies have shown that food is the major source for most of us, but that the indoor environment can be an important source for others. PFCs are transferred from mother to child through the placenta during pregnancy and in breast milk after birth. Many of the PFCs are persistent and can

harm living organisms, which means they must be considered as environmental contaminants.

More information: Halldorsson TI, Rider D, Haug LS, Bech BH, Danielsen I, Becher G, Henriksen TB, Olsen SF. Prenatal Exposure to Perfluorooctanoate and Risk of Overweight at 20 Years of Age: A prospective cohort study. *Environmental Health Perspectives*. DOI: [dx.doi.org/10.1289/ehp.1104034](https://doi.org/10.1289/ehp.1104034)

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