

Widespread PFC substances increase risk of breast cancer

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(Medical Xpress) -- A new research project involving Greenland women with breast cancer shows for the first time a clear link between the risk of breast cancer and exposure to perfluorocarbons found in products such as raincoats, pizza trays and baking paper. More substances ought to be prohibited according to the Aarhus University (Denmark) researcher behind the study.

Breast cancer is the most common form of cancer in women in the Western world. In [Denmark](#) alone, approximately 4,000 women are diagnosed with [breast cancer](#) every year, and the number is growing. Research results from Aarhus University indicate that the commonly used perfluorocarbons, also known as PFC [substances](#), can be a risk factor for developing breast cancer. PFC substances belong to the group of so-called POPs ([persistent organic pollutants](#)), which are resistant to degradation.

“Our studies show that, compared with women in the control group, the women with breast cancer in the study had significantly higher blood levels of not only PFC substances, but also chemicals such as PCB and organic pesticides known to be resistant to [degradation](#) in the environment. It appears that the high levels of these substances cause hormonal disturbances in addition to presenting a risk for the development of breast cancer,” says Centre Director and Professor in Human Environmental Toxicology, Eva Bonefeld-Jørgensen from Aarhus University, who continues:

“We already know that a number of environmental chemicals, including PCB, cause hormonal disturbances, and that high levels of the substances constitute a risk factor for developing breast cancer. However, it hasn’t previously been documented that PFC substances, which are commonly used in the industrial sector, constitute a significant risk factor in the development of breast cancer, probably because it was generally believed that the substances didn’t accumulate in the body due to their insolubility in fat.”

Professor Bonefeld-Jørgensen has researched hormone-disturbing substances for the last fifteen years. She and a number of other researchers from Aarhus University, Greenland and Canada studied thirty-one Greenland women diagnosed with breast cancer during the period 2000–2003. This corresponds to more than 80% of all Greenland women diagnosed with breast cancer during that period.

More knowledge about risk factors

In the study, the researchers compared questionnaires and blood samples from women suffering from breast cancer with a control group of 115 healthy Greenland women. The blood samples were analysed for hormone-disturbing substances and the amount of POP substances, including PFCs.

Professor Bonefeld-Jørgensen reports that breast cancer was a relatively unknown phenomenon in Greenland until 1966, but there has been a significant increase in the number of cases since then. One of the reasons for studying breast cancer in Greenland women was thus the opportunity to learn more about the causes of the disease.

“There’s no doubt that the [Greenland](#) population in the last 40–50 years has increasingly adopted the Western lifestyle, and that this to some extent explains the increase. However, after correction for known [risk](#)

[factors](#) such as smoking, a high BMI and age, our figures also show that PFC substances play a major role in the risk of developing breast cancer,” she says.

Researchers now plan to conduct similar studies with Danish [women](#).

PFC substances are difficult to avoid

PFC substances can be found in products such as raincoats, Teflon coating, pizza trays, potato crisp bags, baking paper, impregnating agents, nail polish, dental floss and even in meat and other foodstuffs, so they are difficult to avoid.

“These substances are so enormously useful in our daily lives. Greaseproof paper is perfect for packed lunches for the kids, impregnation makes jackets waterproof, and the Teflon coating prevents steaks from sticking to the frying pan. The problem is just that the PFC substances in such products now turn out to be absorbed and stored in the body, and this really has consequences for our health,” Professor Bonefeld-Jørgensen explains.

Labelling of food packaging

According to Professor Bonefeld-Jørgensen, the new knowledge about PFC substances means that food packaging should also be labelled in the future.

“Now that we know the packaging itself can also be harmful to health, it’s obviously important that consumers are informed from now on about the substances contained in the packaging. Today you can buy eco-labelled baking paper without perfluorocarbons, for example. However, in most cases, consumers don’t have the slightest chance of knowing

whether the packaging contains PFC substances,” she concludes.

The results of the study have just been published in the international journal [Environmental Health](#).

Provided by Aarhus University

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