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Why You Should Care About PFAS

On June 5th, 2021, a study was published on the presence of fluorinated compounds in cosmetics. The topic made headlines on many news channels and concern grew amongst cosmetic users. In short, the study had revealed two important findings: (1) the use of fluorinated compounds is not properly disclosed on many North American product labels; and (2) when present in cosmetics, fluorinated compounds gain direct access to your body, thereby imposing health risks (Whitehead et al., 2021).

The following article will describe what PFAS compounds are, why they are an alarming group of chemicals, and what you can do to protect yourself.

What Are PFAS?

Per- or poly-fluoroalkyl substances (PFAS) represent a group of man-made chemicals that are used in a wide range of products, from cosmetics to food packaging, and even furniture (Pelch et al., 2019). These chemicals are hydrophobic in nature, i.e., oil-like and fat-soluble. Thus, they can be used to create water-resistant products, lubricants, stain repellents, and surfactants.

PFAS INCLUDE:	PFAS ARE FOUND IN:
<ul style="list-style-type: none">• Perfluorooctanoic acid (PFOA)• Perfluorooctane sulfonate (PFOS)• GenX - (HFPO-DA) fluoride• And many more (4700+ types)	<ul style="list-style-type: none">• Non-stick cooking pans• Pizza boxes• Mascara, foundation, lipstick, etc.• Paints and waxes• Cleaning products• Water- or stain-repellent fabrics• Drinking water systems• Soil used to grow food• Industrial equipment• Living organisms like fish and other animals



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Why PFAS Compounds Are Bad News

The use of PFAS compounds has come under serious scrutiny after multiple studies found that their effects on human health and the environment are detrimental.

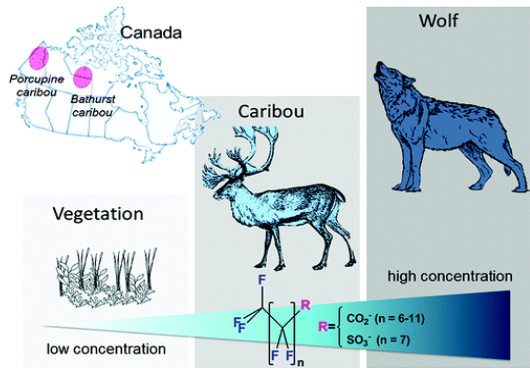
PFAS in Human Tissues. PFAS compounds are fat-soluble, and as such, they can easily integrate themselves into the tissues of living organisms including humans. A review by Jian and colleagues (2018) found PFAS compounds to be widely present in their studied population with data that indicated the significant occurrence of the chemicals in human blood, urine, milk, hair, and nails.



PFAS in Drinking Water, Soil, and Their Persistence. Studies from countries around the world have found that PFAS can enter the human body through indirect routes such as contaminated water and soil that is used to grow our food (Pitter et al., 2020). Furthermore, PFAS are highly persistent, i.e., non-biodegradable (Cousins et al., 2020). This implies that once an area is contaminated, it becomes extremely challenging to get rid of the dangerous chemicals. This leads to the next threat.

PFAS in the Food Chain. Biomagnification refers to the increasing concentration of a chemical in the body of organisms as we move up the food ladder. The higher an organism is in the food chain, the higher its exposure is to harmful chemicals. Unfortunately for humans who are at the top of the food chain, this is bad news as PFAS have been found in many common animal products as evidenced below:

- PFAS have been found to biomagnify from plants to caribous to wolves (Muller et al., 2011).
- PFAS have been found in fish and shellfish (Christensen et al., 2017).



- PFAS have been found in sheep liver (Zafeiraki et al., 2016).
- PFAS were found in cattle and cow milk (Moyer, 2020).
- PFAS were found in chickens, their eggs, and in pigs (Fernandes et al., 2019).



PFAS in Our Products, Continuous Exposures, and Adverse Health Effects. As mentioned previously, PFAS compounds are found in many products, including beauty products that consumers likely use daily. This widespread presence increases the total number of exposures, which in turn increases the concentration of the chemicals in the body. The effects of PFAS include:

- PFAS compounds have carcinogenic and immunotoxic effects (Grandjean et al., 2015).
- PFAS are a threat to thyroid, kidney, and placental function (Blake et al., 2020).
- PFAS have been found to have neurotoxic effects in animal studies, implying the potential for similar effects in humans (Foguth et al., 2020).
- PFAS can affect the development of important cognitive functions (e.g., learning and memory) in children (Anderko and Pennea, 2020).



- Multiple studies have found a link between PFAS exposure and increasing blood cholesterol levels in humans (Andersen et al., 2021).

PFAS Production. As many man-made inventions are, PFAS are also likely to be engineered and increase in number. As of now, there are more than 4700 different types of PFAS compounds and counting. If their use is not controlled and monitored cautiously, the consequences will be increasingly devastating.

How to Avoid PFAS

It is difficult to avoid a chemical that is present nearly everywhere, and completely avoiding it may be an unrealistic ambition; however, steps can be taken to reduce your exposure to PFAS compounds.

- **Adopting a mostly plant-based diet.** Although plants can contain PFAS compounds, the concentrations of the chemicals in them are significantly lower than in farm animals as plants are lower in the food chain.
- **Avoid packaged foods** as much as you can and do not buy microwavable popcorn bags.
- **Read product labels.** Avoid those with ingredients that include the word “fluoro” or “perfluoro”. Pay special attention to products that are supposed to be water-resistant (“waterproof”).
- **Make your own cleaning products or buy biodegradable products from trusted brands.**
- **Avoid non-stick cookware and utensils.**
- **Buy PFOA-free carpets and furniture.** These often contain PFAS and act as the most likely source of exposure for children (Malas, 2019).
- **Avoid stain-resistant fabrics and clothing items.**

Be sure to visit ecolivingguide.ca to discover what you can do to protect yourself.

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