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## Health Effects of PFAS

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### How can PFAS affect people's health?

Scientists are not yet certain about the possible health effects resulting from human exposure to PFAS at levels typically found in our water and food. Perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), perfluorohexane sulfonate (PFHxS), and perfluorononanoic acid (PFNA) have been more widely studied than other PFAS. For the most part, laboratory animals exposed to high doses of PFOA or PFAS, including the PFAS mentioned above, have shown changes in the liver, thyroid, and pancreatic function, as well as some changes in hormone levels. Because animals and humans do not always process chemicals the same way, scientific methods are used to account for these differences and ensure their conclusions about chemicals are protective of the public.

Some PFAS accumulate in the human body and the levels decrease slowly over time. The ability of these compounds to be stored in the body, also known as body burden, increases concerns about the possible effects on human health.

Some, but not all studies in humans have shown that certain PFAS may:

- affect the developing fetus and child, including possible changes in growth, learning, and behavior.
- decrease fertility and interfere with the body's natural hormones,
- increase cholesterol,
- affect the immune system, and
- increase cancer risk.

At this time, there is not enough information to evaluate the health effects of exposures to mixtures of PFAS. Further studies are needed to understand whether the same effects are caused by the same mechanism of action.

### How can people reduce the risk of exposure to PFAS?

PFAS are found in the blood of people and animals all over the world and are present at low levels in a variety of food products and in the environment (air, water, soil, etc.). Therefore, completely preventing exposure to PFAS is unlikely, and no effective recommendations can be made for reducing individual exposures in the general population. However, if you live near known sources of PFAS contamination, you can take steps to reduce your risk of exposure to PFAS.

Minnesota, Michigan, and Alabama have issued advisories cautioning consumers to either stop or limit eating fish from waters contaminated with PFOS or other PFAS. Check with your state public health and environmental quality departments for any advisories in place in your area and to learn the types and local sources of fish that are safe to eat.

A variety of consumer products such as non-stick coatings on cookware and surface-protective coatings on clothing, carpets, and paper packaging have contained different types of PFAS in the past. But recent efforts to remove PFAS in many of these products have reduced the likelihood of PFAS exposure. In addition, research has suggested that exposure from consumer products is usually low, especially when compared to the impact of exposure in contaminated drinking water or contaminated food such as fish.

You can contact CDC/ATSDR for updated information on this topic at 1-800-CDC-INFO.

If you have questions or concerns about the products you use in your home, contact the Consumer Product Safety Commission at (800) 638-2772.

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