Taking control of your health

STEEP
Sources, Transport, Exposure & Effects of PFASs
UNIVERSITY OF RHODE ISLAND SUPERFUND RESEARCH PROGRAM

MEDICAL MONITORING OF PFAS ADVERSE HEALTH EFFECTS

What are PFASs?

PFASs (per- and polyfluoroalkyl substances) are a large class of chemicals used in a wide range of consumer products and industrial applications. There are thousands of different PFASs in use, but the most familiar types are PFOA and PFOS. PFASs are used to make products stain, water, and oil resistant and they remain in the environment for a long time. PFASs have been called "forever chemicals" and have been found all over the globe, even in places where they are not made or sold. Their usefulness in consumer products and the fact that they are so persistent means nearly everyone is exposed to them. PFASs have been detected in the blood of over 98% of the US population.

How am I exposed to them?

There are a number of ways people can become exposed to PFASs. They are commonly found in products that are stain or grease resistant, nonstick, or waterproof/water resistant. Because PFASs are so stable at high temperatures, they have been used in firefighting foam on many military bases and firefighting training centers. PFASs can also enter private well water or public drinking water sources. You can become exposed to PFASs through your diet (including what you drink), your clothing, items in your home, and even the related dust you breathe.

What are the effects of PFASs on the human body?

A number of studies have shown links between higher PFAS levels and the likelihood of adverse health effects. This does not mean that all people exposed to PFASs will develop these health problems, but the higher the levels in your blood, the more likely you are to experience some adverse effects. For example, some of the studies have shown links with high PFAS levels and:

- Elevated cholesterol ★
- Heart disease
- Thyroid disease ★
- Ulcerative colitis ★
- Liver problems
- Allergies and autoimmune diseases
- Lower immune protection from vaccination
- Elevated blood pressure during pregnancy ★
- Longer time to get pregnant
- Babies born with low birth weights
- PFASs transferred to infants during breastfeeding
- Decreased metabolism
- Increased body weight
- Increased risk of diabetes
- Kidney cancer ★
- Testicular cancer ★
- Prostate cancer
- Bladder cancer

★ See reverse for details regarding medical monitoring of these conditions

What levels of exposure can cause health effects?

The US Environmental Protection Agency (EPA) has set a lifetime health advisory level of 70 parts per trillion (ppt) for two of the most common PFASs found in drinking water (PFOA and PFOS). Seventy ppt is the equivalent of a tablespoon of salt in an Olympic swimming pool. It is still considered to be much too high by many scientists who believe that the current EPA standard is not sufficiently protective and that maximum exposure levels should be lowered to further help avoid adverse health effects. In fact, as more research around PFAS exposure is done, the levels once deemed safe continue to fall (https://www.ewg.org/news-and-analysis/2019/02/pfas-drinking-water-hazardous-ever-lower-levels).

In West Virginia, thousands of people were exposed to PFOA when DuPont used the chemical for over 50 years to manufacture Teflon. In a court-approved settlement, DuPont agreed to offer people who were exposed free screening tests for a range of diseases or conditions (identified by the ⋆ symbol in the list on page 1). These tests help exposed people get early treatment in order to minimize any possible adverse health effects. This option was offered to all who had been exposed to drinking water with PFOA concentrations of at least 50 ppt, which was the lowest level at which the chemical could be detected at the time (circa 2004).

Testing for PFASs in the Faroe Islands study site

If I was exposed to PFASs years ago, should I still be concerned about the adverse health effects today?

PFASs can remain in your body for many years and adverse health effects can appear years after you were first exposed. For example, if you were exposed to PFASs from contaminated drinking water over many years, you can still have high amounts of PFASs in your body and detected in your blood. This is why PFASs are called "forever chemicals."

What action can I take if I am worried about my PFAS levels?

Regular monitoring or screening is often used to identify early stages of disease development. For rare conditions, certain screening tests that would not be recommended for the general population may be advisable in PFAS-exposed people. If your community has higher levels of PFAS exposure, targeted medical monitoring may reveal early stages of the possible health effects listed on page 1 and thereby identify problems at an early stage that will allow medical professionals to help address them. Discuss the need for testing with your primary care doctor.

Will my insurance cover these tests?

Unfortunately, there is no single answer to this question. However, in several states, individuals or communities have filed legal actions that, if successful, would force industries to pay for medical monitoring of affected residents. These lawsuits emphasize the potential for harm related to PFAS exposure and require industries to pay for ongoing medical testing associated with the early detection of disease. For further information, see the STEEP website at **web.uri.edu/steep**.

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