

# Perfluorinated Compounds (PFCs) and your health

## What is a health advisory?

The EPA develops health advisories to provide information about substances that can cause human health effects and are known (or anticipated) to occur in drinking water.

## What is the EPA health advisory for PFCs?

To provide Americans, including the most sensitive populations, with a margin of protection from exposure to specific PFCs (PFOA and PFOS) in drinking water, EPA established health advisory levels for both PFOA and PFOS at 70 parts per trillion. When these two substances are found in drinking water, the combined concentrations should be compared with the health advisory level.

There is very limited scientific information on the health effects of other PFCs, such as PFHxS, and PFBS. Due to some information suggesting that PFHpA may have similar effects, CDPHE is including this third substance along with PFOA and PFOS to compare with the health advisory level. It is possible that the other PFCs may have health effects similar to PFOA and PFOS, but there is not enough scientific information to be sure at this time.

## How can PFCs affect my health?

If you are exposed to PFCs, whether or not you may experience health effects depends on how much PFC you are exposed to, how long you are exposed, and personal factors including age, lifestyle and how healthy you are.

Overall, we don't know a lot about the health effects of PFCs. We know the most about PFOA and PFOS. Recent information has strengthened the link between exposure to PFOA and PFOS and developmental effects including low birth weight and accelerated puberty. Low birth weight can contribute to many long-term health and behavioral risks, including diabetes and obesity. Some human studies show that increased exposure to PFOA and PFOS might increase the risk for certain health problems such as changes in blood cholesterol, liver enzymes, and uric acid levels, which may be linked with an elevated risk of heart disease, liver disease or high blood pressure. Other studies show a possible link - but not a cause-and-effect relationship - between levels of PFOA and PFOS in the blood and thyroid disease, some immune system effects, kidney cancer and testicular cancer.

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The state health department analyzed historical data in the areas where PFCs have been detected and found no significant difference regarding low birth weight as compared to the rest of El Paso County. The department will continue to review health data in the area.

## Health advisory level = 70 parts per trillion or 0.07 parts per billion

How much is a part per billion or trillion?  
One part per billion = 1 ug/L (microgram per liter)

This amount is equal to:

- One drop of ink in a backyard swimming pool.
- One grain of sand in a child's sandbox.
- One second in 32 years.

One part per trillion = 1 ng/L (nanogram per liter)

This amount is equal to:

- One drop of detergent in enough dishwasher to fill a string of railroad tank cars ten miles long.
- One square inch in 250 square miles.
- One second in 32,000 years.

## Do PFCs affect children differently?

Infants may be at higher risk of health problems from PFCs because they drink much more water compared to their body weight than older people. While what we know about the health effects of PFCs in children is limited, some studies show links between levels of PFCs in the blood and lower birth weight, problems with cognitive and behavioral development, immune system effects, and cholesterol levels.

## What does it mean when levels of PFCs are higher than EPA's health advisory value?

When levels of PFCs in water are higher than the EPA health advisory level, this tells us to initiate actions to protect humans from coming in contact with the substance. These actions could be taken at the water company by changing how different sources of water are blended or by the consumer by using bottled or treated water. A health advisory value is not a clear line between drinking water levels that cause health effects and those that do not.

## What should I do?

**PRIVATE WELL** - As a precaution, individuals who have private wells in the Security/Widefield/Fountain area that have not been tested or exceed the new health advisory may consider other sources of water. This especially is important for women who are pregnant, planning to become pregnant, or breastfeeding as well as bottle-fed infants. Alternate sources of water include bottled water or water that is treated under the sink by a reverse osmosis system. El Paso County Public Health currently offers free water tests for residents who use private wells and live in the mapped area. Call 719-575-8602 to set up an appointment.

**PUBLIC WATER SYSTEM** - Please consult with your water system or the state health department's table of water systems and map if indicated to determine the PFC levels where you live. If PFC levels are above the health advisory - you may consider other sources of water. This especially is important for women who are pregnant, planning to become pregnant, or breastfeeding as well as bottle-fed infants. Alternate sources of water include bottled water or water that is treated under the sink by a reverse osmosis system.

## How can PFCs be removed from my water?

PFCs are not removed from water by boiling. Certain treatments can remove PFCs from drinking water. One treatment that works is reverse osmosis, which can be installed under your sink. Reverse osmosis equipment can be purchased at local home improvement stores.

## Should I see a doctor?

If you or your family are concerned about your health or have symptoms you think are caused by PFC exposure, you should discuss your concerns with your health care provider.

## Is there a medical test to show if I have PFCs in my body? What would the test tell me?

PFCs can be measured in your blood, but this is not a routine test that most doctors know how to order. PFCs are found at low levels in almost everyone's blood. PFCs can stay in the blood for several years after you were exposed. Testing can tell if a person's PFC level is lower than, similar to, or higher than the blood levels of the general population. However, results of blood tests don't show whether you might have health problems from exposure to PFCs.

## More information



Colorado Department  
of Public Health  
and Environment

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## Web resources

- Colorado Department of Public Health and Environment:  
[www.colorado.gov/cdphe/pfcs](http://www.colorado.gov/cdphe/pfcs)  
[www.colorado.gov/cdphe/low-birth-weight](http://www.colorado.gov/cdphe/low-birth-weight)
- El Paso County Public Health:  
[www.elpasocountyhealth.org](http://www.elpasocountyhealth.org)
- Environmental Protection Agency (EPA):  
[www.epa.gov/chemical-research/perfluorinated-chemical-pfc-research](http://www.epa.gov/chemical-research/perfluorinated-chemical-pfc-research)  
[www.epa.gov/wqs-tech](http://www.epa.gov/wqs-tech)
- Agency for Toxic Substances & Disease Registry:  
[www.atsdr.cdc.gov/Toxfags/](http://www.atsdr.cdc.gov/Toxfags/)
- Center for Disease Control:  
[www.atsdr.cdc.gov/pfc/index.html](http://www.atsdr.cdc.gov/pfc/index.html)  
[www.cdc.gov/biomonitoring/PFCs\\_FactSheet.html](http://www.cdc.gov/biomonitoring/PFCs_FactSheet.html)