



Potential Health Effects Associated with PFCS:

- **ATSDR:** PFCS build up and remain in the human body and the amount reduces very slowly over time. So scientists and doctors are concerned about the effects PFCS have on human health.

Studies in humans have shown that certain PFCS may be associated with:

- increases in cholesterol levels
- increases in uric acid levels, which may affect blood pressure
- changes to liver enzyme levels
- decreased fertility and changes to the body's natural hormones (i.e., could affect reproductive development and puberty)
- changes in thyroid hormone levels
- changes to the immune system (lower antibody response to immunization)
- developmental delays in the fetus and child, including possible changes in growth, learning, and behavior
- prostate, kidney, and testicular cancer

Sources: http://www.atsdr.cdc.gov/pfc/health_effects_pfc.html
<http://www.dhhs.nh.gov/dphs/pfcs/pfc-health-effects.htm>

- **C8 Health Study:** During 2005-2013, the C8 Science Panel (formed as a result of a class action lawsuit) carried out exposure and health studies in the Mid-Ohio Valley communities on a population of almost 70,000 people which had been potentially affected by the releases of C8 (PFOA) emitted since the 1950s from DuPont's West Virginia Washington Works plant in southwest Parkersburg. The health project then assessed the links between C8 exposure and a number of diseases.

The C8 Science Panel concluded that there was a Probable Link to PFOA exposure for the following six disease categories:

- diagnosed high cholesterol
- ulcerative colitis
- thyroid disease
- testicular cancer
- kidney cancer
- pregnancy-induced hypertension

Source: <http://www.c8sciencepanel.org/>

- **Animal Health Effects:** Some studies with animals exposed to PFCS have shown adverse health effects.
 - RATS
 - Liver, thyroid and mammary gland tumors; thought to be carcinogenic to rats; newborn death (PFOS)
 - Testicular, liver and pancreatic tumors (PFOA)
 - Potential link between PFCS and tumor induction pathways
 - MICE
 - Liver toxicity (PFOS & PFOA) and developmental effects (PFOS)
 - Newborn death (PFOS)
 - Potential link between PFCS and tumor induction pathways

- RABBITS
 - Reduced fetal weight and developmental problems (PFOS)
- MONKEYS
 - Liver toxicity (PFOS & PFOA) and developmental effects (PFOS)
- FROGS
 - Delayed growth and longer time to metamorphosis (PFOS)

Source: Center for Health, Environment & Justice (www.chej.org) “PFC Fact Sheet: PFOS/PFOA Toxicity” (PDF)

Health Screening Recommendations For Populations Exposed to PFCs:

➤ C8 Medical Monitoring Program (SCREENING BY AGE)

< 15 years:

- High cholesterol
- Thyroid disease (at parents’ discretion)
- Testicular cancer

15-18 years:

- High cholesterol
- Thyroid disease (at parents’ discretion)
- Ulcerative colitis
- Testicular cancer

18-19 years:

- High cholesterol
- Thyroid disease
- Ulcerative colitis
- Testicular cancer

20 or older years:

- High cholesterol
- Thyroid disease
- Ulcerative colitis
- Testicular cancer
- Kidney cancer

Pregnant Females:

- Blood pressure & urine protein should be measured at each prenatal visit (these tests are part of standard prenatal care)

Source: <http://www.c-8medicalmonitoringprogram.com>

➤ Vermont Department of Health (Facing a PFOA contamination in Bennington and North Bennington)

PFOA levels in serum are related to increased serum lipid levels, increased uric acid levels, and liver enzymes. These changes may or may not be biologically relevant. Providers may want to consider a liver panel, lipid panel and a uric acid analysis for patients who have drinking water contaminated with PFOA.

Source :

http://healthvermont.gov/advisory/2016/documents/20160411_pfoa_blood_testing_clinics_nbenn_benn.pdf