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WVU study links chemical C8 to high cholesterol in children, teens

By [Ken Ward Jr.](#)

CHARLESTON, W.Va. -- Children and teens exposed to higher amounts of the toxic chemical C8 appear to be more likely to have elevated cholesterol levels, according to a landmark new study published by researchers from West Virginia University.

The study also found that some increases in cholesterol may occur at exposure levels in the range of those found in the general U.S. population.

Stephanie Frisbee, a WVU Department of Community Medicine researcher and lead study author, said the findings are particularly important because of the potential effects higher cholesterol could have during a child's lifetime.

"The issue becomes important because of the cumulative effect of that level of elevated cholesterol over a 30-year-period," Frisbee said in an interview last week.

The study is being published in this month's edition of the peer-reviewed journal Archives of Pediatrics and Adolescent Medicine. It partly includes data that was previously made public by WVU's C8 Health Project and by the C8 Science Panel, but is also a more detailed and refined analysis of that information.

C8 is another name for ammonium perfluorooctanoate, or PFOA.

DuPont Co. has used the chemical since the 1950s at its Washington Works plant south of Parkersburg. C8 is a processing agent used to make Teflon and other nonstick products, oil-resistant packaging and stain-resistant textiles. While industry has promised to phase out C8 and some related chemicals, scientists are still concerned that exposures continue from chemicals already emitted and distributed in a wide range of consumer products.

Researchers are finding that people around the world have C8 in their blood in low levels. Evidence is mounting about the chemical's dangerous effects, but regulators have not set a federal standard for its safety.

At WVU, Frisbee and other researchers are poring over blood tests and other data assembled as part of a huge study of C8's possible impacts on the health of nearly 70,000 residents near the Washington Works plant.

The C8 Health Project is a multi-year effort to examine the chemical's possible effects on mid-Ohio Valley residents. It is funded by major portions of a \$107.6 million settlement paid by DuPont to settle a lawsuit alleging the company poisoned residents' drinking water with C8. The settlement is also funding a related examination by a three-person science team of possible C8 links to adverse health effects.

In the new study, Frisbee and her colleagues studied blood samples from nearly 12,500 children and teens from the C8 Health Project data.

They found that higher PFOA levels were associated with increased total cholesterol and LDL or "bad" cholesterol. Higher levels of a related chemical, PFOS, were associated with increased total cholesterol, LDL cholesterol and HDL or "good" cholesterol.

On average, the one-fifth of children and teens with the highest PFOA levels had total cholesterol levels 4.6 milligrams per deciliter higher and LDL cholesterol levels 3.8 milligrams per deciliter

higher than the one-fifth with the lowest PFOA levels.

"The non-linear nature of the observed associations, particularly for PFOA, suggests a possible saturation point in an underlying physiologic mechanism," the study authors wrote. "PFOA and PFOS specifically, and possibly perfluoroalkyl acids as a general class, appear to be associated with serum lipids, and the association seems to exist at levels of PFOA and PFOS exposure that are in the range characterized by nationally representative studies."

Learn about the C8 Health Project at <http://www.hsc.wvu.edu/som/cmed/c8/>

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