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High Cholesterol Linked to Cookware Chemicals

Study Shows Possible Health Risks in Kids From Chemicals Used to Make Nonstick Cookware

By [Salynn Boyles](#)

WebMD Health News

Reviewed by [Louise Chang, MD](#)



Sept. 7, 2010 -- Exposure to chemicals used in the manufacture of nonstick cookware and waterproof and stain-resistant products could be raising cholesterol levels in children, a new study suggests.

Researchers analyzed blood levels of the chemicals perfluorooctanoic acid (PFOA) and perfluorooctanesulfonate (PFOS) in more than 12,000 kids living in West Virginia and Ohio.

Those with the highest blood levels of the chemicals were also more likely to have abnormally high total cholesterol and LDL "bad" cholesterol, study researcher Stephanie J. Frisbee, MSc, of the West Virginia University School of Medicine tells WebMD.

While the study does not prove exposure to PFOA and PFOS raises cholesterol, the findings warrant further study, Frisbee says.

"These chemicals are in the environment and they are in us," she says. "More than anything this study highlights that we had better figure out how we are being exposed and what this exposure is doing to us."

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Exposure Probably Not From Pots and Pans

The chemicals have been used for decades in the production of a wide range of everyday products. PFOA, also known as C8, is mainly used in the manufacture of nonstick cookware, while PFOS is mostly used to make clothing, fabrics, food packaging, and carpeting water-resistant and stain-resistant.

The route of human exposure is not well understood, but recent studies suggest that just about everyone has some PFOA and PFOS in the blood. Identified sources of exposure include drinking water, food packaging, microwave popcorn, and even air.

Cookware containing Teflon, made by DuPont, and similar nonstick surfaces are made using PFOA. But the cookware industry has long maintained that cooking in nonstick pots and pans is not a significant source of exposure to the chemical, and the science appears to back up the claim.

"PFOA is used in the manufacture of the coating used in nonstick cookware, but it does not exist in the coating when the products get to the consumer," Cookware Manufacturing Association Executive Vice President Hugh J. Rushing tells WebMD.

University of Pittsburgh emeritus professor of chemistry Robert L. Wolke, PhD, agrees that nonstick cookware contains little if any PFOA.

"Cooking with nonstick cookware could not possibly be the source of the exposures we are now seeing," he tells WebMD. "PFOA is now found in humans all over the world, including places where they have never heard of a Teflon pan."

High PFOS Linked to High LDL

The newly published study included children and teens enrolled in the C8 Health Project, a study of communities in the mid-Ohio River Valley exposed to high levels of PFOA through contaminated drinking water. The study resulted from a class-action lawsuit settlement against DuPont, which operated the manufacturing plant linked to the water contamination.

Between 2005 and 2006, blood samples from 12,476 children and teens were taken. PFOA concentrations were, on average, around seven times higher than those reported in a nationally representative survey, but PFOS levels were similar.

Compared to children and teens in the study with the lowest blood levels of PFOA, those with the highest levels were 20% and

40%, respectively, more likely to have abnormally high total cholesterol and LDL cholesterol, Frisbee says.

Those with the highest PFOS levels were 60% more likely than those with the lowest levels to have high total and LDL cholesterol.

The study appears in the September issue of the *Archives of Pediatric and Adolescent Medicine*.

Because the health effects of PFOA exposure are still unknown, the Environmental Protection Agency has asked DuPont and other chemical companies to stop using the chemical by 2015. DuPont agreed to the voluntary ban, and the company has pledged to phase out the chemical before the 2015 deadline.

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SOURCES:

Frisbee, S.J. *Archives of Pediatrics and Adolescent Medicine*, September 2010; vol 164: pp 860-869.

Stephanie J. Frisbee, MSc, research instructor, department of community medicine, Center for Cardiovascular and Respiratory Science, West Virginia University School of Medicine, Morgantown, W. Va.

Robert L. Wolke, PhD, professor emeritus, University of Pittsburgh.

Hugh J. Rushing, executive vice president, Cookware Manufacturers Association.

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