



Newsletter

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A North Carolina research study assessing exposure to GenX and related chemicals in people living in the Cape Fear River Basin.

From the Principal Investigator

Dear GenX Exposure Study Members,

I hope you and your families are continuing to stay safe and healthy in 2021.

Last October, we started enrolling for our study expansion as part of the NC State Superfund Center (superfund.ncsu.edu) which will fund another five years of research and allow us to follow over 1,000 people in the Cape Fear region. We held two sampling events in Wilmington in November. Unfortunately, we made the difficult decision to pause our sampling efforts during the pandemic. We had all the appropriate safety measures in place, but felt that waiting until later would make people more comfortable participating in the study.



We are working with health officials and community leaders on when people will be interested in going out and taking part in community activities. We plan to restart our recruitment when most people feel comfortable being out in the community.

While we wait to go back in the field, we will be analyzing the samples we have from people in Fayetteville, conducting statistical analyses of the data we have in hand, and continue to keep you updated about study activities.

In addition to keeping you informed about the study, we also want to provide you information about what is known and not known about PFAS (per- and poly-fluoroalkyl substances) and their health effects. In this issue, we share what is known about PFAS and cholesterol. High cholesterol is an important part of our health because it is linked to heart disease, diabetes, and high blood pressure.

We keep in touch using the contact information we have, so if your mailing address, phone number, or email address has changed, be sure to let us know at genx-exposure-study@ncsu.edu or 855-854-2641. Make sure to also keep an eye on our website (genxstudy.ncsu.edu) for study updates.

Best wishes for good health,

Jane Hoppin, ScD

What we know about PFAS health effects so far - Cholesterol

PFAS (per- and poly-fluoroalkyl substances) are a group of human-made chemicals that protect products from water and stains. Older, or “legacy,” chemicals like PFOS and PFOA have been studied the most. Researchers use the lessons learned from the legacy chemicals to study newer chemicals like GenX and Nafion byproduct 2.

One of the health outcomes associated with legacy PFAS is higher cholesterol. This has been seen both in lab animal studies and studies in human populations (epidemiological studies).

Epidemiological studies (observing health effects of exposed communities) have looked at the connection between PFAS levels and cholesterol levels in different populations. Some studies looked at people at one point in time (cross-sectional) and measured both PFAS and cholesterol, while others have followed people over time (longitudinal) with PFAS measured first and cholesterol measured later. Longitudinal, or follow-up studies, are more likely to suggest causation because the exposure happens before the outcome.

Most studies have focused on the chemical PFOA, and looked at national representative samples of adults, groups of workers, and contaminated communities like the Mid-Ohio Valley. This community was contaminated due to chemical production at Dupont on the Ohio River. In these groups, the levels of PFOA measured in blood ranged from low background levels to higher levels in exposed communities.

In a majority of the epidemiological studies, researchers found a link between PFOA and higher cholesterol. In the largest study to evaluate PFOA and health, the C8 Science Panel looked at 69,030 adults and children in the Mid-Ohio Valley. This cross-sectional study found that in people with higher levels of PFOA, cholesterol levels were also higher.

In the 2020 scientific paper, “Review: Evolution of evidence on PFOA and health following the assessments of the C8 Science Panel,” all published epidemiological studies were looked at together. Based on this evidence, the authors determined that there is a link between PFOA exposure and increased cholesterol in humans. In this same paper, researchers agreed with the earlier finding from the C8 Science Panel that PFOA exposure did not seem to increase risk of heart disease. Experiments in lab animals also show higher cholesterol with higher doses of PFOA.

Scientists are looking to see if this link to increased cholesterol also exists with newer PFAS. In the GenX Study, we are testing cholesterol levels to learn more about how this group of chemicals as a whole may affect cholesterol.

To read the full review paper cited here, visit: pubmed.ncbi.nlm.nih.gov/32950793/
To learn more about PFAS and cholesterol, visit: http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_Heart_Disease_29Oct2012.pdf

To learn more about potential health effects of PFAS, visit: atsdr.cdc.gov/pfas/health-effects/index.html

To learn more about high cholesterol, visit: mayoclinic.org/diseases-conditions/high-blood-cholesterol/symptoms-causes/syc-20350800

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