

Webinar Highlights

Kids and Chemicals: PFAS Exposure and the Metabolism

Per- and polyfluoroalkyl substances (PFAS) are used in numerous consumer products such as food packaging, textiles, apparel, and non-stick cookware. PFAS are linked to adverse health outcomes, including liver and kidney damage, reproductive and developmental harm, immune system impairment, and certain cancers. Due to their persistence in the environment, these toxic chemicals have been dubbed "forever chemicals."

PFAS exposure during key developmental periods (such as adolescence or childhood) is a particular concern because of important metabolic tissue growth. During this crucial period, cells become specialized to carry out distinct functions. Examining the effects of PFAS on metabolisms is key to fully comprehending consequences of exposure.

In this webinar, **Dr. Jesse Goodrich** discusses a recent study, [Metabolic Signatures of Youth Exposure to Mixtures of Per- and Polyfluoroalkyl Substances: A Multi-Cohort Study](#). This is the first study to comprehensively examine effects of exposures to PFAS mixtures on human metabolisms.

Featured Speaker: Jesse Goodrich, PhD, Assistant Professor of Population and Public Health Sciences at the University of Southern California, speaking June 07, 2023.

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The Problem

Obesity rates in the US have been steadily increasing. Increased obesity is driving increases in many major chronic diseases. Previous studies have shown that PFAS act as obesogens, disrupting weight regulation and metabolism. While many studies have shown associations between PFAS and metabolic disruption, exactly how PFAS impact metabolic health is not fully understood.

Dr. Goodrich's study looked for associations of PFAS exposure with alterations in metabolic pathways in study participants. Each metabolic pathway represents an important chemical reaction that occurs within our cells. These are crucial biological processes. Understanding how PFAS impact these processes can help us more clearly understand the effects that PFAS can have on human health.

The study looked at the effects of PFAS on two independent cohorts of children and young adults. The study used two cohorts in order to identify the associations between PFAS mixtures and metabolic pathway alterations that were consistent across people of different ages.

Key findings:

- The study found that PFAS exposure was associated with alterations in multiple metabolic pathways.

“We found that PFAS exposure alters critical biological processes that are linked to a lot of different diseases.”

- PFAS exposure had a greater impact on children than on young adults.
- No individual PFAS drove these associations. This points to the need to regulate PFAS as a class of chemicals.

The metabolic pathways being altered by PFAS include processes that regulate the body's metabolism, how much fat the liver produces, and kidney and thyroid functions. This study shows how PFAS exposure could lead to a range of chronic conditions, including thyroid disease, kidney disease, fatty liver disease, and some cancers.

Recommendations

Tracking people's exposure levels and health over longer periods would give a clearer picture of the health impacts of PFAS. More research could also point the way to new interventions to reduce the harm from PFAS. Because of the greater risks to children shown here, public health interventions should focus on protecting kids from exposure. Goodrich stressed that more research needs to be done.

Most PFAS stay in the body for a long time, so reducing exposure is key to minimizing health harms. Contaminated water is a major source of exposure. Many public utilities are now testing their water, so individuals can find out if their water supply is safe. Certain foods are another common source of PFAS exposure. Resources are available online (including in

the links below) for people to find out which foods are most likely contaminated. Maintaining a healthy lifestyle can also help to mitigate the health effects of exposure.

While individuals can strive to protect their own health from the effects of PFAS, we also need stronger regulations to stop PFAS from getting into products and the environment in the first place.

“PFAS should be regulated as a class, instead of taking this one-by-one approach.”

The most effective way to prevent harm from PFAS would be to ban their use.

To Find Out More

- Watch the June 07, 2023 webinar: [Kids and Chemicals: PFAS Exposure and the Metabolism](#)
- Read the study: [Metabolic Signatures of Youth Exposure to Mixtures of Per- and Polyfluoroalkyl Substances: A Multi-Cohort Study](#)
- Read a recent Washington Post article about avoiding PFAS-contaminated food: [How can I avoid eating food with ‘forever’ chemicals?](#)
- Learn more about PFAS: [Per- and Polyfluoroalkyl Substances \(PFAS\) and Your Health](#)
- Find products that are PFAS-free: <https://pfascentral.org/pfas-free-products/>

About the Speaker



Jesse Goodrich, PhD is Assistant Professor of Population and Public Health Sciences at the University of Southern California. His current research focuses on using metabolomic measures to understand the biological mechanisms underlying the relationship between exposure to persistent organic chemicals and susceptibility to Type 2 diabetes in children and young adults.