

Heavy Metals (Toxic Elements) in Food and Beverages



Research on reducing heavy metals in food and beverages is a complex task as these metals are often found in nature and can enter the food supply from the soil, water, and air.

- Answering questions and supporting research collaborations that reduce and mitigate heavy metals - to advance public health.

Heavy metals such as lead, cadmium, mercury and arsenic can accumulate in the environment as they naturally occur (e.g., in agricultural soils) and may also result from human activities. This complicates reductions of heavy metal concentrations in food and beverages as these metals—sometimes called toxic elements—can enter the food supply from soil, water and air, among other sources.

IAFNS' work includes a unique scientific focus and outreach on minimizing exposure to heavy metals in human diets, particularly for young children. IAFNS Food and Chemical Safety Committee—which is comprised of food and beverage companies, ingredient companies, university researchers, and government liaisons from FDA, EPA and USDA—continues to advance this work.

IAFNS collaborated with the FDA/University of Maryland Joint Institute on Food Safety and Applied Nutrition (JIFSAN) to develop an interactive, web-based Metal Dietary Exposure Screening Tool. The tool can rapidly evaluate potential health risks associated with heavy metals in foods and ingredients. The metal screening tool integrates Federal reference values for the toxicity of several metals with updated dietary background levels.

With input from FDA, USDA, and other stakeholders, IAFNS is launching a new research initiative focused on reducing heavy metal concentrations in foods and beverages in support of FDA's 'Closer to Zero' campaign. These research projects, awarded to public institutions, seek to establish a framework for identifying and prioritizing critical heavy metal/food/ingredient combinations for targeted reductions. By leveraging both a thorough analysis of agricultural practices and supply chains, and dietary exposure trends, the projects will identify feasible and workable mitigation practices to reduce the occurrence of heavy metals in foods and ingredients.

- IAFNS connects and collaborates with government, industry, and academia – catalyzing science that matters – for evidence-based decision making.

Reducing and Mitigating Risk



Learn more at www.iafns.org - Food & Chemical Safety

Reducing and Mitigating Risk Of Toxic Elements

- **Answering questions and supporting research collaborations that reduce and mitigate heavy metals – to advance public health.**

IAFNS has had a sustained focus on reducing and mitigating risk of toxic elements – including heavy metals in foods and ingredients.

In 2014, IAFNS sponsored the development of a [Metal Dietary Exposure Screening Tool](#) (MDEST) allowing risk assessors and risk managers to rapidly evaluate potential health risk when select heavy metals in foods and food ingredients have been detected. IAFNS prioritized the development of the tool to provide additional context of risk to these metals in food ingredients and to support a comprehensive decision-making process by all sectors. The MDEST and supporting research was presented at the 2016 Society of Toxicology symposium ‘Scientific and Regulatory Advances in Safety Evaluation of Heavy Metals in Food’ in a talk titled: ‘Case Studies Demonstrating the Utility of Metal Dietary Exposure Screening Tool.’

In 2017, JIFSAN approached IAFNS with a request to collaborate on developing an updated version of the MDEST in the form of an online, interactive, risk-based screening tool. This new tool was termed the [Heavy Metal Screening Tool](#) (HMST).

In 2019, IAFNS funded a summer fellow who conducted a detailed review of new toxicology reference levels or health guidance values for heavy metals. These values were then integrated into the HMST, hosted by JIFSAN, along with the latest public surveys of dietary consumption data. Results were recently [published](#) in the journal *Regulatory Toxicology and Pharmacology* and is now a free resource for the food and beverage ecosystem..

Join Us! For additional information on how IAFNS connects, collaborates, and catalyzes science that matters, please connect with us! wendelyn@iafns.org.

Reducing Heavy Metals