

Human & Environmental Health Risks from Food Containers

Common chemicals of concern in food packaging such as BPA, PFA/PFOA “forever chemicals,” phthalates and D4/D5 silicones can migrate from packaging into our food and environment. These substances have been linked to hormone disruption in both men and women, reproductive challenges, immune system dysfunction and other chronic health effects. The discovery of plastic particles in human organs and the brain shows how deeply plastic pollution penetrates into our biology. These same materials contribute to long-lasting contamination in our environment’s soil, water and air.

HUMAN HEALTH

A group of 33 international scientists found around 12,000 chemicals in food contact materials that likely have not been tested adequately for toxicity.

These scientists pushed decision makers in government to reduce exposure to harmful chemicals in food contact materials. They highlighted areas of improvement such as elimination of hazardous chemicals in food contact articles, development of safer alternatives, modernizing risk assessment, consideration of endocrine disruption, addressing mixture toxicity, improving enforcement and establishing a multi-stakeholder dialogue to find practical solutions. There is also a presumably high number of unintentional substances added to food packaging that could be absorbing into our food from recycled materials.

A plastic spoon’s worth of microplastics is making its way into the brain.

While the effects of microplastics on humans is not fully understood, researchers have been working to figure it out and there is speculation that it can cause harm to human health. U.S. toxicologist, Matthew Campen estimated that researchers could isolate about 10 grammes of plastic in the brain, comparing it to an unused crayon.

Dining out may significantly contribute to cumulative, biologically relevant phthalate exposure in the U.S.

Two-thirds of the U.S. population eat food outside of the home every single day. Sandwiches and cheeseburgers purchased outside of the home were associated with high increase of phthalate exposure in children and adults. Children typically have higher levels of phthalates than adults.

A study found that microplastics building up in blood vessels are linked to increased risk of heart attack, stroke and death in patients with clogged arteries.

Microplastics and nanoplastics were found embedded in arterial plaque increasing risk of stroke and heart attack. Researchers discovered microplastics in blood vessels of more than half the patients studied.

In a study, patients with carotid plaque containing microplastics and nanoplastics (MNPs) faced a greater risk at a 34-month follow up of heart attack, stroke or death than those without MNPs.

There were 304 patients involved in the study, 312 were screened and 257 completed a 34-month follow up. 150 patients had polyethylene detected in carotid artery plaque, 31 patients had measureable amounts of polyvinyl chloride and 8 patients had a stroke or died. Other studies have shown that MNPs enter the human body through ingestion, inhalation and skin exposure.

Fast food packaging is a significant source of fluorinated compounds such as PFAs/PFOAs.

A study with nearly 400 samples of fast food contact papers, paperboard containers and drink containers in the U.S. found that 46% of food contact papers and 20% of paperboard containers had detectable levels of fluorine, indicating a presence of PFAs, which are persistent chemicals that migrate into food and contribute to dietary exposure.

Exposure to endocrine disrupting chemicals is linked to declining sperm counts.

There has been a shocking 52% decrease in sperm concentration in Western countries between 1973 and 2011. Experts are concerned that the decrease is due to endocrine disrupting chemicals.

Chemicals with endocrine activity cause many adverse effects at low doses in fetal and juvenile mammals.

Chemicals with endocrine activity have been linked to early puberty in females, reduced sperm count, altered functions of reproductive organs, obesity, altered sex-specific behaviors and increased rates of some breast, ovarian, testicular and prostate cancers.



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ENVIRONMENTAL IMPACT

In 2015, 448 million tons of plastic were added into our world. If current production and waste management trends continue, we'll increase to 12,000 metric tons by 2050.

Plastic's largest market is packaging food and other products, and about 91% of plastic isn't recycled. Most of the monomers that make up plastic, such as ethylene and propylene, are not biodegradable.

Microplastics from farming practices and waste sources are contaminating soil, where their concentration and shape is disrupting soil microbial diversity.

Aside from the pollution in our atmosphere, microplastics are leaching into our soil from mulching, sewage sludge, organic fertilizers, farm equipment and more. The effects of microplastics on soil microbes are influenced by concentration and shape, with fibers and films having the highest impact on microbial diversity.

Microplastics contribute to greenhouse gas emissions through environmental degradation.

Microplastics from common plastics such as PET and HDPE release gases such as methane and carbon dioxide as they break down in the environment. Reducing microplastic pollution could help limit these emissions.

SOURCES

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