Microplastics are widespread across our food supply. Are they a health hazard?

A new study by CSIRO, Australia's national science agency, is one of the first to analyze the available academic literature about microplastics and their effect on food safety and security.

There are many ways [micro- and nanoplastics, or] MNPs can enter the human food chain. The most well-known way is by a process called trophic transfer. Animals carry microplastics in their bodies, so when other animals eat them, the microplastics are ingested too and transferred up the food chain to humans.

But recently, food processing and packaging processes have been identified as a source of MNPs.

The researchers considered past studies on MNP toxicity in human cells and model organisms. Some effects included mitochondrial dysfunction, inflammation, cell death, and toxicity in the heart, lungs and reproductive organs. Other studies showed that plastic nanoparticles can pass through the blood-brain barrier in fish and mice, causing brain toxicity.

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Diverse microbes can attach themselves to plastic particles, forming colonies that can be transferred through the environment from wastewater to the human gut, affecting food safety. Moreover, studies have shown that MNPs can lead to antibiotic resistance.

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