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Reducing microplastic intake

Micro- and nanoplastics are being increasingly found in our bodies. Here are tips to prevent their consumption.

By SIMONE HUMML

Researchers have found a dramatic increase in microplastic concentration in the human brain within just eight years. – StarGraphics

TINY plastic particles are everywhere – both in nature and the human body.

"Microplastics are pervasive in the food we eat, the water we drink, and the air we breathe," three Canadian researchers write in the journal *Brain Medicine* in a commentary on several previous studies.

They point out possible dangers, but above all, they explain how the intake of such particles can be reduced: by avoiding plastic bottles, using ceramic dishes for the microwave and using plastic-free tea bags.

Another team recently found significantly more tiny plastic particles in liver and brain samples from deceased people in 2024 than in those from 2016.

In the brain, the concentration was also much higher than in the liver or kidneys, reported the group led by Prof Dr Matthew Campen of the University of New Mexico, United States, in February in the journal *Nature Medicine*.

The drastic increase in plastic concentration in the brain within just eight years is extremely worrying, said the commentary lead author Dr Nicholas Fabiano from the University of Ottawa's Department of Psychiatry.

Particularly small particles were discovered in the brain, measuring less than 0.2 micrometres in size.

They consisted mainly of polyethylene, which is found in numerous everyday objects.

Due to their tiny size, they can cross the so-called blood-brain barrier – with an impact that is still unclear.

Avoiding intake

Microplastics are particles between one micrometre (0.001 millimetres) and five millimetres.

Nanoplastic particles are even smaller.

Everyone can reduce their own intake of nano- and microplastics, the trio of researchers explains.

> If a person only drinks water from plastic bottles, they can ingest more than 20 times as many particles as someone who only drinks tap water, the researchers write, referring to an earlier study.

Even water from glass bottles contains more plastic particles than tap water, as researchers write in an analysis of 21 studies.

This could be caused by the bottling process, among other things.

> Another source of micro- and nanoplastics is plastic tea bags.

Steeping a plastic tea bag at 95°C could release significant quantities of plastic, according to the commentary by the trio of researchers.

Look for brands that don't use plastic tea bags or switch to loose tea.

> Avoiding plastic food containers can also be effective.

Heating food in plastic containers – especially in the microwave – can release large amounts of micro- and nanoplastics, warns co-commentator Dr Brandon Luu from the University of Toronto.

Even long-term storage at room temperature or in the refrigerator can lead to a significant release of particles, according to the researchers.

"Using glass or stainless steel containers instead of plastic is a small, but significant measure to minimise exposure," says Dr Luu.

Food in cans may contain substances that originate from plastics, such as bisphenol-A (BPA).

In one study, subjects were given canned soup five days in a row, after which BPA levels in their urine increased many times over.

At the same time, the trio of researchers emphasises: "These BPA spikes' duration and health impact remain unclear, warranting further research."

Another American study has shown that highly-processed foods contain significantly more microplastics than minimally processed foods.

Possible consequences

There are indications from cell culture and animal experiments that the plastic particles may promote inflammation, immunity disorders, an altered metabolism, abnormal organ development and cancer, the commentators write.

However, the research is still limited.

Large-scale studies with humans are needed to determine the possible health risks posed by microplastics.

At the same time, further research needs to better evaluate the effectiveness of various reduction strategies.

There are only a few studies on the effects of microplastics in the brain.

Prof Campen's team discovered an increased concentration in 12 further brain samples from people with proven dementia.

However, the researchers said that the study does not prove a direct cause-and-effect relationship.

It is also conceivable that dementia weakens the blood-brain barrier, allowing more microplastics to enter, the three commentators write.

The trio sees at least one positive finding though: "One of the most hopeful aspects of the findings to date is the lack of correlation between age and microplastic accumulation."

This suggests that "despite ongoing environmental exposures, the body has mechanisms to clear these particles over time through sweat, urine and faeces". – dpa

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