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PRESSREADER

Analysis Health

Are microplastics in ultra-processed foods harming your mental health? A bold proposal links two of the biggest health issues of our times, but is it correct, asks Carissa Wong

ULTRA-PROCESSED foods (UPFs) and microplastics have one thing in common: we don't actually know if or how they harm our health. But researchers have now proposed a link – UPFs might contain high levels of microplastics that worsen mental health.

How plausible is this idea, and can it be tested? Nicholas Fabiano at the University of Ottawa in Canada and his colleagues say their hypothesis hinges on a few key strands of emerging evidence.

The first is that UPFs contain high levels of microplastics. While defining a UPF is a murky business – some argue it includes anything that can't be made at home – it is generally taken to mean foods made mostly from ingredients extracted from other foods or synthesised in labs. These can include cookies, soft drinks and breakfast cereals.

Such industrial processing is likely to expose food to plastic machinery, conveyer belts and packaging that shed microplastic fragments – pieces that are less than 5 millimetres long – argue the researchers (*Brain Medicine*, doi.org/pn9p). Supporting this, the team points to a recent study that found highly processed protein products contain more microplastics than less-processed ones – for instance, chicken nuggets contain 30 times more microplastics than chicken breasts.

"It is very, very plausible that the more processed the food is, the more chemical contaminants and microplastics it's bound to have," says Jane Muncke at the Food Packaging Forum, a non-profit organisation based in Switzerland.

But she says we don't yet have enough evidence to say this definitively – the study highlighted by Fabiano and his colleagues only looked at 16 foods and only a handful of similar studies have been conducted, so larger studies are needed, she says. What's more, even if UPFs are generally rich in microplastics, that doesn't mean all of them are, or that all unprocessed foods are low in microplastics, she says.



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Your burger and fries may contain some extra ingredients

The next piece of the puzzle is whether UPFs harm mental health. Fabiano points to a review of observational studies that looked at UPF intake and mental health symptoms across 10 million people. It found that those who consumed high levels

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of UPFs had about a 20 per cent higher risk of depressive symptoms and were around 50 per cent more likely to experience anxiety compared with those whose diet contained no or low levels of UPFs.

While this suggests a link between UPFs and poor mental health, untangling causation is tricky. For instance, people with poorer mental health may be more likely to eat UPFs, rather than the other way around, says Fabiano.

Stronger evidence comes from about half a dozen randomised controlled trials. In these, people with depressive symptoms were randomly assigned to either eat their usual diet or switch to a Mediterranean one low in UPFs. Those who cut down on UPFs saw greater improvements in depressive symptoms.

Finally, if it turns out that UPFs do harm mental health, how likely is it that microplastics within them are to blame, rather than their nutritional content? There isn't yet evidence connecting microplastics to mental health outcomes, says Michael Berk at Deakin University in Australia. That's partly because it is so hard to accurately measure their levels.

"You've got to make sure you're not contaminating samples with the lab equipment," says Joe Yates at the London School of Hygiene & Tropical Medicine. Nevertheless, figuring out whether microplastics play a role in mental health – and to what degree – is crucial, he says. ▮