

Bottle-fed babies ingest 'millions' of microplastics: study

October 20 2020, by Amélie Bottollier-Depois



Very little is known about the knock-on health consequences of microplastic consumption, and the study authors warned against undue alarm

Bottle-fed babies may ingest more than a million pieces of microplastics each day, new research showed Monday highlighting the abundance of

plastics in our food products.

There is growing evidence that humans consume huge numbers of the tiny particles, formed when larger pieces of plastic break down, but very little is known about the knock-on [health consequences](#).

Researchers in Ireland looked at the rate of microplastic release in 10 types of baby bottles or accessories made from polypropylene, the most commonly used plastic for [food containers](#).

They followed official guidelines from the World Health Organization on sterilisation and formula preparation conditions.

Over a 21-day test period, the team found that the bottles released between 1.3 and 16.2 million plastic microparticles per litre.

They then used this data to model the potential global infant exposure to microplastics from [bottle](#)-feeding, based on national average rates of breast-feeding.

They estimated that the average bottle-fed baby could be ingesting 1.6 million plastic microparticles every day during the first 12 months of their lives.

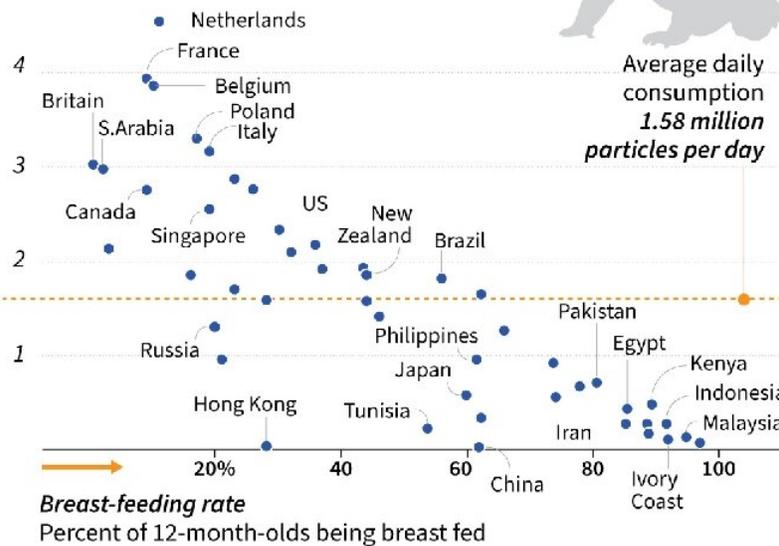
The authors of the research, published in the *Nature Food* journal, said that sterilisation and exposure to high water temperatures had the biggest effect on microplastic release, going from 0.6 million particles per litre on average at 25C to 55 million/litre at 95C.

The authors told AFP that the aim of the research was "not to worry parents" about the potential health risks of bottle microplastics.

Eating plastic: infant exposure via feeding bottles

Daily intake of microplastic particles by 12-month-olds

5 million



Based on:

- Analysis of polypropylene bottle types for release of microplastics via washing, sterilisation and shaking
- Size of baby bottle market per country
- Estimated breast-feeding rates
- Estimated milk intake volumes



Microplastics

Particles smaller than 20 microns

More than 50% of the microplastic particles detected were smaller than 1.6 microns

The average diameter of human hair is about 70 microns

Threshold of visibility to the naked eye is about 40 microns

Source: Li et al, October 19, Nature.com/industrialspec.com



Chart showing the estimated exposure of 12-month old babies to microplastics by country, according to new research

"We have communicated, as strongly as we can, that we do not know the potential health risks of infant ingestions of microplastics," said the team, from Trinity College Dublin.

"This is an area of research we are now actively pursuing."

'Urgent need for study'

The authors noted that it was in developed nations that babies were likely ingesting the most plastic—2.3 million particles daily in North America

and 2.6 million in Europe.

This was attributed to relatively low breast-feeding rates in richer countries.

They said the levels could easily be lowered by taking a few additional steps, including rinsing bottles with cold sterilised water and preparing formula milk in a non-plastic container before filling the bottle.

Fay Couceiro, Senior Research Fellow in Biogeochemistry, University of Portsmouth, said Monday's research highlighted the "urgency for studies on microplastic impacts on human health".

She said that it was important not to be "alarmist" when it came to bottle feeding, which many parents prefer for a variety of reasons.

"The risks from not sterilising bottles or using hot water are well understood and very real, and these known risks of disease must outweigh that of [microplastic](#) production until their health risks are understood," said Couceiro, who was not involved in the study.

More information: Microplastic release from the degradation of polypropylene feeding bottles during infant formula preparation, *Nature Food* (2020). [DOI: 10.1038/s43016-020-00171-y](https://doi.org/10.1038/s43016-020-00171-y) , www.nature.com/articles/s43016-020-00171-y

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