Baby Bottles Release Substantial Bits of Plastic During Formula Prep

Warmed formula or heated water used to sterilize these infant-feeding containers unleash the most microplastic particles.

October 29, 2020 By Alicia Green

New findings published in the journal Nature Food show that baby bottles made from polypropylene release high levels of microplastics (MPs)—very small plastic pieces—during meal preparation, according to a news release by Trinity College Dublin in Ireland.

For their study, researchers checked the release of microplastics from plastic baby bottles when formula was prepared using international guidelines. In addition, the research team estimated the exposure to microplastics experienced by 12-month-old infants in 48 countries and regions.

Findings showed that plastic baby bottles release up to 16 million MPs and trillions of smaller nanoplastics per liter. Furthermore, sterilization and high water temperature increased microplastic release from 0.6 million to 55 million particles per liter. (Kettles and lunchboxes containing polypropylene release similar microplastic levels.)

When following current preparation guidelines for bottle sterilization and feeding formula, scientists noted that babies' average daily exposure to MPs exceeded 1 million. Oceania, North America and Europe showed the highest levels of potential exposure to plastic particles each day, at 2.1 million, 2.28 million and 2.61 million, respectively.

Scientists stressed that they are proceeding cautiously so parents won't become unduly alarmed, especially since they don't have sufficient information on the potential consequences of microplastics on infants' health.

"We are calling on policy makers, however, to reassess the current guidelines for formula preparation when using plastic infant feeding bottles," said John Boland, a professor at Trinity's School of Chemistry and a lead scientist on the research team. "Crucially, we have found that it is possible to mitigate the risk of ingesting microplastics by changing practices around sterilization and formula preparation."

To that end, the researchers released their own set of safety recommendations. Scientists advised parents to follow World Health Organization (WHO) procedures for sterilization and formula prep:

Remove microorganisms from bottles using WHO guidelines and then allow them to cool; boil water in glass or stainless steel kettles rather than plastic; and rinse sterilized bottles with room temperature sterilized water at least three times.

Scientists also advised parents to prepare infant formula in a nonplastic kettle or other cooking appliance using water of at least 70°C before cooling it to room temperature and pouring it into a high-quality plastic bottle. In addition, they offered general precautions, such as not reheating formula in plastic containers or microwave ovens, not shaking bottles of formula and not cleaning bottles in ultrasound devices.

For related coverage, read "95% of Baby Foods Tested Contain Toxic Metals."

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