

Plastic Bottle Contaminants? No Reproductive Or Developmental Effects Found In Mice From Oral Exposure To Low Doses Of Bisphenol A

ScienceDaily (July 23, 2008) — A new multigenerational reproductive toxicity study of dietary Bisphenol A (BPA) in mice conducted by researchers at RTI International found no adverse effects of BPA on parents or offspring at dietary concentrations and doses comparable to those estimated for human exposure levels.

These findings suggest that oral exposure to BPA is not harmful to children or adults at the low doses to which people are exposed.

The study, published in the August issue of the peer-reviewed journal *Toxicological Sciences*, and funded by the American Plastics Council, American Chemistry Council, assessed human health risks of oral exposure using a two-generation reproductive toxicity study of dietary BPA in mice.

The study is the largest and most comprehensive study to date that assessed the potential health risks of oral or dietary exposure to BPA. Its findings were reviewed and accepted as part of the comprehensive European Union risk assessment.

"A number of small-scale basic research studies reporting adverse effects of BPA have generated significant news coverage and public concern in recent months, resulting in an incomplete picture," said Rochelle W. Tyl, Ph.D., a senior fellow at RTI who designed, conducted the new study. "To appropriately assess health risks, robust studies, performed under rigorous Good Laboratory Practice principles must be used."

Researchers conducting the RTI study administered oral dietary BPA (the human exposure route) to mice, over a wide range of BPA doses, and assessed the systemic, reproductive and developmental effects in parents and offspring over two generations.

The researchers found no evidence of reproductive or developmental adverse effects from dietary exposure to BPA at estimated human BPA exposure levels, ranging from one or a few micrograms (one-millionth of a gram) or less per day, to doses up to 50,000 times higher than the estimated human exposure levels.

The findings from this orally dosed multi-generation study in mice are consistent with results of an earlier RTI multi-generation study of orally dosed BPA in rats (published in *Toxicological Sciences* in 2002), as well as those for an orally dosed BPA multi-generation study in rats, funded by the Japanese government. All three studies found no adverse health effects from BPA at low oral doses, equivalent to those estimated for human infants and children.

Two aspects of BPA exposure support the idea that BPA is not indicated to cause adverse effects in people. First, the oral exposure of BPA in the human population is very low, in both infants and for adults. Second, BPA administered orally is rapidly and efficiently metabolized in the intestines and liver even before it reaches the bloodstream. This means that at these low human exposures BPA is rapidly and completely eliminated from the body in urine, in both newborns and adults. This results in little or no internal systemic exposure from low oral doses.

"We conducted these studies in response to the continuing societal, scientific and international regulatory concerns about the safety of BPA," Tyl said. "The low dose effects of exposure to BPA reported in small, basic research studies

have not been replicated or validated in rigorous, governmental testing guideline studies using oral administration, such as the guideline multigenerational studies listed above."

The two RTI studies were funded by the American Plastics Council, American Chemistry Council, based in Arlington, Va.

Journal reference:

. Tyl et al. **Two-Generation Reproductive Toxicity Study of Dietary Bisphenol A in CD-1 (Swiss) Mice.** *Toxicological Sciences*, 2007; 104 (2): 362 DOI: [10.1093/toxsci/kfn084](https://doi.org/10.1093/toxsci/kfn084)

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