

Exposure to BPA has been underestimated, new research says

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A new University of Missouri study shows that the exposure to the controversial chemical Bisphenol A (BPA) through diet has been underestimated by previous lab tests. In the study, researchers compared BPA concentrations in mice that were given a steady diet supplemented with BPA throughout the day, compared to the more common lab method of single exposure, and found an increased absorption and accumulation of BPA in the blood of mice.

This is the first study to examine concentrations of BPA in any animal models after exposure through a regular, daily diet, which is a better method to mirror the chronic and continuous exposure to BPA that occurs in animals and humans. Cheryl Rosenfeld, associate professor in [biomedical sciences](#) and Bond Life Sciences investigator, is the corresponding lead author of the study published in [Environmental Health Perspectives](#) on June 6.

The authors continuously exposed the mice to BPA through their feed, which is considered the primary route of exposure to this chemical in animals and humans. In previous studies examining the effects of BPA, mice were exposed to BPA only through a one-time administration. Following the exposure through the diet, a significantly greater increase in the active form of BPA, which is the greatest threat as it is the form that can bind to sex steroid receptors and exert adverse effects, was absorbed and accumulated in the animals.

"People are primarily and unknowingly exposed to BPA through the diet

because of the various plastic and paper containers used to store our food are formulated with BPA," Rosenfeld said. "We know that the active form of BPA binds to our steroid receptors, meaning it can affect [estrogen](#), thyroid and testosterone function. It might also cause [genetic mutations](#). Thus, this chemical can hinder our ability to reproduce and possibly cause [behavioral abnormalities](#) that we are just beginning to understand."

The study notes that more than 8 billion pounds of BPA are produced every year, and more than 90 percent of people in the United States have measurable amounts of BPA in their bodies.

"We believe that these mouse model studies where the BPA exposure is through the diet is a more accurate representation of what happens to BPA as the human body attempts to process this toxic substance," said Rosenfeld. "When BPA is taken through the food, the active form may remain in the body for a longer period of time than when it is provided through a single treatment, which does not reflect the continuous exposure that occurs in animal and human populations. We need to study this further to determine where the ingested [BPA](#) becomes concentrated and subsequently released back into the bloodstream to be distributed throughout the body."

More information: The study, "Comparison of Serum Bisphenol A Concentrations in Mice Exposed to Bisphenol A through the Diet versus Oral Bolus Exposure," is available online starting June 6.

Provided by University of Missouri-Columbia

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