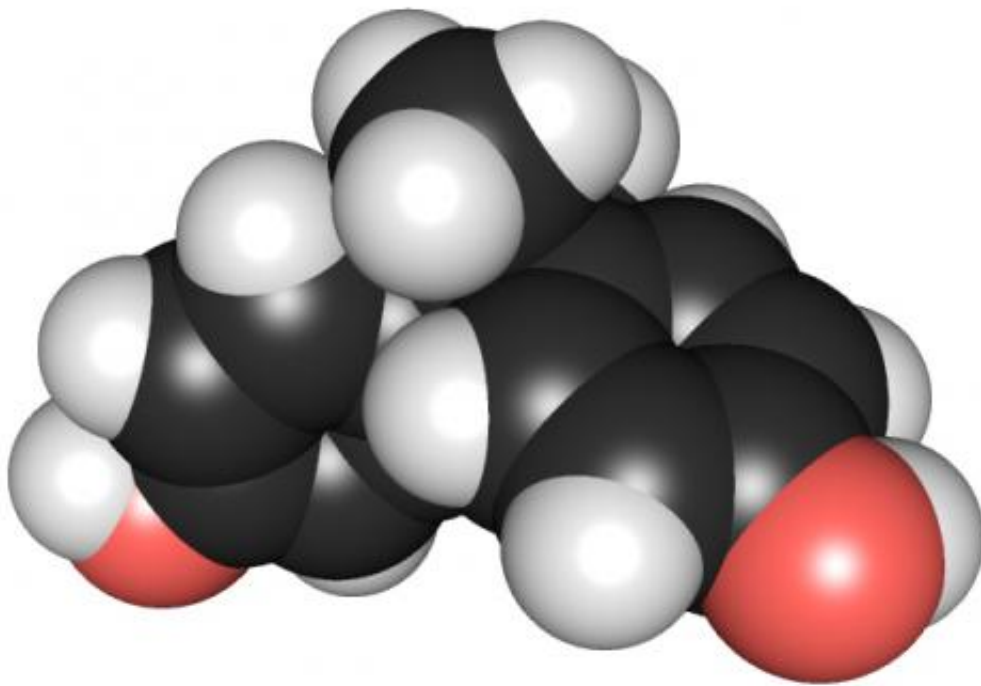


BPA exposure by infants may increase later risk of food intolerance

October 30 2014



3D chemical structure of bisphenol A. Credit: Edgar181 via Wikimedia Commons

If it seems like more people are allergic to, or intolerant of, more and different kinds of foods than ever before, there might be a reason why. A new research published in November 2014 issue of *The FASEB Journal*, scientists show, for the first time, that there is a link between

perinatal exposure to Bisphenol A (BPA) at low doses and the risk to develop food intolerance in later life. This research involving rats suggests that early life exposure at a dose significantly below the current human safety limit set by the FDA affects developing immune systems, predisposing offspring to food intolerance in adulthood.

"Food contributes over 80 percent of the population's [exposure](#) to BPA," said Sandrine Menard, Ph.D., a researcher involved in the work from the Department of Neuro-Gastroenterology and Nutrition at INRA in Toulouse, France. "On the basis of the susceptibility to food intolerance after perinatal exposure to BPA, these new scientific data may help decisions by public health authorities on the need of a significant reduction in the level of exposure to BPA in pregnant and breastfeeding women, to limit the risk for their children of adverse food reactions later in life."

To make this discovery, scientists used two groups of pregnant rats. The first group received BPA orally every day at a dose of 5 µg/kg of body weight/day, from gestational day 15 to day 21 of lactation, when pups were weaned. The second group (control) was daily treated throughout the same period with the BPA vehicle only. After weaning, offspring were kept untouched until adulthood, at day 45. At this age, only offspring female rats from each group were used. In animals perinatally exposed to BPA, feeding with a new food protein (ovalbumin) induced an exacerbated immune response toward ovalbumin, which was not observed in control rats. Furthermore, a repeated oral administration of ovalbumin in the BPA-exposed rats induced colonic inflammation, suggestive of food intolerance, not observed in control animals. This study provides strong rationale for preventive management of immune disorders, such as food intolerance, rather than therapeutic issues. This research may help public health authorities to identify the variety of effects of BPA on the immune system, at low levels of exposure, and during sensitive phases of an individual's development, especially during

fetal life and for the pregnant and breastfeeding women.

"We may look back one day and see BPA exposure as one of the more important [public health](#) problems of our time," said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*. "We know that too much exposure is bad, but exactly how much exposure is too much is still up for debate."

According to the U.S. National Institute of Environmental Health Sciences, NIH, BPA is found in polycarbonate plastics used in some food and drink packaging, impact-resistant safety equipment, and medical devices. Epoxy resins containing BPA are also used as lacquers to coat metal in items, such as food cans, bottle tops, and water supply pipes. Some dental sealants and composites may also contribute to BPA exposure. Most exposure occurs when BPA leaches into food from the protective internal epoxy resin coatings of canned foods and from consumer products such as polycarbonate tableware, food storage containers, water bottles, and baby bottles. The degree to which BPA leaches from polycarbonate bottles into liquid may depend more on the temperature of the liquid or bottle, than the age of the container. BPA has also been found in breast milk.

More information: Sandrine Menard, Laurence Guzylack-Piriou, Mathilde Leveque, Viorica Braniste, Corinne Lencina, Manon Naturel, Lara Moussa, Soraya Sekkal, Cherryl Harkat, Eric Gaultier, Vassilia Theodorou, and Eric Houdeau. Food intolerance at adulthood after perinatal exposure to the endocrine disruptor bisphenol A. *FASEB J.* November 2014 28:4893-4900; [DOI: 10.1096/fj.14-255380](https://doi.org/10.1096/fj.14-255380)

Provided by Federation of American Societies for Experimental Biology

Citation: BPA exposure by infants may increase later risk of food intolerance (2014, October 30)
retrieved 24 April 2024 from

<https://medicalxpress.com/news/2014-10-bpa-exposure-infants-food-intolerance.html>

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