

Parental exposure to BPA during pregnancy associated with decreased birth weight in offspring

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Parental exposure to bisphenol A (BPA) during pregnancy is associated with decreased birth weight of offspring, compared with offspring from families without parental BPA exposure in the workplace, according to Kaiser Permanente researchers.

The observational study is published in the current online issue *Reproductive Toxicology*.

Researchers explained that there was a greater magnitude of decrease in birth weight in children whose mothers were directly exposed to high BPA levels in the workplace during pregnancy, followed by those whose mothers were exposed to low levels of BPA in the workplace, then by those whose mothers had BPA exposure through father's high occupational BPA exposure, and finally, the least decrease in birth weight in the [offspring](#) whose mothers had BPA exposure through father's low [occupational exposure](#).

Although the finding needs to be confirmed by additional studies, the study provides preliminary evidence that [maternal exposure](#) to BPA during pregnancy may have an adverse effect on [fetal growth](#), said De-Kun Li, MD, PhD, the principal investigator of the study, senior author of the new publication, and a reproductive and perinatal [epidemiologist](#) at the Kaiser Permanente Division of Research in Oakland, Calif.

Exposure to BPA has been reported to reduce birth weight in animal studies at relatively high levels of exposure. Both animal and human studies have shown that BPA can pass through the placental barrier and that [fetuses](#) are likely to be exposed to similar (if not higher) levels of BPA as those of mothers, explained the researchers.

The study population was identified from a larger study of more than 1,000 male and female workers in factories in China. It compared workers in BPA-exposing facilities with a control group of workers in factories where no BPA was present. BPA-exposed (from the manufacturers of BPA and [epoxy resin](#)) and unexposed workers (from industries without BPA exposure), including their spouses and offspring, were recruited from 2003-2008.

Mothers in the mother-exposed group worked for at least three months during pregnancy. The researchers explained that it is possible that offspring in this group had relatively higher levels of in-utero BPA exposure than those in other groups. Spouses of exposed fathers, although not directly exposed to BPA in the workplace, were more likely to have a higher BPA exposure level than women in the unexposed group. Exposure in this group could occur through exposure to contaminated clothing, through workplace visits with spouses, and through residence proximity to factories, explained the researchers.

This study is the fourth in a series published by Dr. Li and his colleagues that examine the effect of BPA in humans. The first study, published in November 2009 in the Oxford Journals' Human Reproduction, found that exposure to high levels of BPA in the workplace increases the risk of reduced sexual function in men. The second study, published in May 2010 in the *Journal of Andrology*, found that increasing BPA levels in urine are associated with worsening male sexual function. The third study, published in *Fertility and Sterility*, showed that an increasing urine BPA level was significantly associated with decreased sperm

concentration, decreased total sperm count, decreased sperm vitality and decreased sperm motility.

Funded by the U.S. National Institute of Occupational Safety and Health, this latest study adds to emerging human evidence questioning the safety of BPA, a chemical created in the production of polycarbonated plastics and epoxy resins found in baby bottles, plastic containers, the linings of cans used for food and beverages, and in dental sealants.

The researchers explained that BPA is believed by some to be a highly suspect human endocrine disrupter, likely affecting both male and female reproductive systems. These findings provide epidemiological evidence that has been lacking as the U.S. Food and Drug Administration and various other U.S. government panels have explored this controversial topic.

The present study was limited by the small sample size in the exposed group. Due to the retrospective nature of the study, estimated exposure levels in the past, rather than maternal urine BPA level, was used to classify the exposure dosage during the index pregnancy. Although researchers have demonstrated that the estimated BPA exposure was correlated with current urine BPA, it is still possible that the association between BPA exposure and [birth weight](#) was impacted due to inaccurate classification of [BPA](#) exposure categories.

Provided by Kaiser Permanente

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