

Higher levels of BPA in children and teens significantly associated with obesity

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Researchers at NYU School of Medicine have revealed a significant association between obesity and children and adolescents with higher concentrations of urinary bisphenol A (BPA), a synthetic chemical recently banned by the U.S. Food and Drug Administration (FDA) from sippy cups and baby bottles. Still, the chemical continues to be used in aluminum cans, such as those containing soda.

The study appears in the September 19 issue of *JAMA* ([Journal of the American Medical Association](#)), dedicated to the theme of obesity.

"This is the first association of an environmental chemical in [childhood obesity](#) in a large, nationally representative sample," said lead investigator Leonardo Trasande, MD, MPP, associate professor of pediatrics and [environmental medicine](#). "Our findings further demonstrate the need for a broader paradigm in the way we think about the [obesity epidemic](#). Unhealthy diet and lack of physical activity certainly contribute to increased fat mass, but the story clearly doesn't end there."

BPA, a low-grade estrogen, was until recently found in plastic bottles labeled with the number 7 recycling symbol, and is still used as an internal coating for aluminum cans. Manufacturers say it provides an antiseptic function, but studies have shown the chemical disrupts multiple mechanisms of [human metabolism](#) that may increase body mass. BPA [exposure](#) has also been associated with cardiovascular disease, [breast cancer](#), prostate cancer, neurological disorders, diabetes

and infertility.

"In the U.S. population, exposure [to BPA] is nearly ubiquitous, with 92.6 percent of persons 6 years or older identified in the 2003-2004 National Health and [Nutrition Examination Survey](#) (NHANES) as having detectable BPA levels in their urine. A comprehensive, cross-sectional study of dust, indoor and outdoor air, and solid and liquid food in preschool-aged children suggested that dietary sources constitute 99 percent of BPA exposure," the investigators wrote.

Using a sample of nearly 3,000 children and adolescents, ages 6 through 19 years, randomly selected for measurement of urinary BPA concentration in the 2003-2008 NHANES, Dr. Trasande and his co-authors, Jan Blustein, MD, PhD, and Teresa Attina, MD, PhD, MPH, examined associations between urinary BPA concentrations and body mass.

After controlling for race/ethnicity, age, caregiver education, poverty to income ratio, sex, serum cotinine level, caloric intake, television watching, and urinary creatinine level, the researchers found children with the highest levels of urinary BPA had 2.6 times higher odds of being obese than those with the lowest measures of urinary BPA. Among the participants with the highest levels, 22.3 percent were obese compared with 10.3 percent of the participants with the lowest levels.

Further analyses showed this association to be statistically significant in only one racial subpopulation, white children and adolescents. The researchers also found that obesity was not associated with exposure to other environmental phenols commonly used in other consumer products, such as sunscreens and soaps.

"Most people agree the majority of BPA exposure in the United States comes from aluminum cans," Dr. Trasande said. "This data adds to

already existing concerns about BPA and further supports the call to limit exposure of BPA in this country, especially in children. Removing it from aluminum cans is probably one of the best ways we can limit exposure. There are alternatives that manufacturers can use to line aluminum cans."

The researchers wrote in their study that advocates and policy makers have long been concerned about BPA exposure. "We note the recent FDA ban of BPA in baby bottles and [sippy cups](#), yet our findings raise questions about exposure to BPA in consumer products used by older children. Last year, the FDA declined to ban BPA in aluminum cans and other food packaging, announcing 'reasonable steps to reduce human exposure to BPA in the human food supply' and noting that it will continue to consider evidence on the safety of the chemical. Carefully conducted longitudinal studies that assess the associations identified here will yield evidence many years in the future."

More information: *JAMA*. 2012;308[11]:1113-1121.

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