

Sperm may be harmed by exposure to BPA, study suggests

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(PhysOrg.com) -- In one of the first human studies of its kind, researchers have found that urinary concentrations of the controversial chemical Bisphenol A, or BPA, may be related to decreased sperm quality and sperm concentration.

However, the researchers are quick to point out that these results are preliminary and more study is needed. Several studies have documented adverse effects of BPA on semen in rodents, but none are known to have reported similar relationships in humans.

BPA is a common chemical that's stirred much controversy in the media lately over its safety. Critics say that BPA mimics the body's own hormones and may lead to negative health effects. BPA is most commonly used to make plastics and epoxy resins used in food and beverage cans, and people are exposed primarily through diet, although other routes are possible. More than 6 billion pounds of BPA are produced annually.

The new study suggests that more research should focus on BPA and health effects in adults, says John Meeker, assistant professor of Environmental Health Sciences at the University of Michigan School of Public Health.

Meeker is the lead author on the study, along with Russ Hauser, the Frederick Lee Hisaw Professor of Reproductive Physiology at Harvard School of Public Health. Colleagues at Massachusetts General Hospital

and the U.S. [Centers for Disease Control and Prevention](#) also contributed to the research.

"Much of the focus for BPA is on the exposures in utero or in early life, which is of course extremely important, but this suggests exposure may also be a concern for adults," Meeker said. "Research should focus on impacts of exposure throughout multiple life stages."

Meeker and Hauser recruited 190 men through a fertility clinic. All gave spot urine samples and sperm samples the same day. Subsequently, 78 of the men gave one or two additional urine samples a month apart. Researchers detected BPA in 89 percent of the urine samples.

Researchers measured sperm concentration, sperm motility, sperm shape and DNA damage in the sperm cell.

"We found that if we compare somebody in the top quartile of exposure with the lowest quartile of exposure, sperm concentration was on average about 23 percent lower in men with the highest BPA," Meeker said.

Results also suggested a 10 percent increase in sperm DNA damage.

The results are consistent with a previous study by Meeker and Hauser suggesting that certain hormones, specifically FSH (follicle-stimulating hormone) and Inhibin B, are elevated or decreased in relation to [BPA](#), respectively, a pattern consistent with low [sperm](#) production and development.

Meeker stressed that further study is necessary due to the study's relatively small sample size and design.

"The study from which these data came is currently in progress," Hauser

said. "With a larger sample size and enhanced study design, we will be able to more definitively investigate this preliminary association in the near future."

More information: The journal paper is available [here](#).

Provided by University of Michigan

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