

Prenatal exposure to BPA and DES may increase breast cancer risk

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Exposure in the womb to chemicals like Bisphenol-A (BPA) and Diethylstilbestrol (DES) can increase an offspring's risk of breast cancer, researchers at Yale School of Medicine report in a study published in current issue of *Hormones and Cancer*, a journal of The Endocrine Society.

BPA, DES and similar compounds are known as endocrine-disrupting chemicals, which are substances in the environment that interfere with the proper functioning of hormones. This disruption results in adverse developmental, reproductive, neurological and immune effects in both humans and wildlife.

[BPA](#) is a weak [estrogen](#) and DES is a strong estrogen, but both have a profound effect on [gene expression](#) in the breast throughout life, according to lead author of the study Hugh S. Taylor, M.D., professor in the Department of Obstetrics, Gynecology & Reproductive Sciences at Yale School of Medicine. Taylor and his colleagues treated pregnant mice with BPA or DES and then studied the adult [offspring](#). They found that the mammary glands in these offspring produce higher levels of EZH2, a protein that controls the expression of all genes. Higher EZH2 levels are associated with an increased risk of [breast cancer](#) in humans. The team demonstrated a mechanism by which endocrine-disrupting chemicals regulate developmental programming in the breast.

"These results show that all estrogens, even weak ones can alter the development of the breast and place our children at risk," said Taylor, who is also a member of Yale Cancer Center. "We may not be able to see the final effects of these exposures until our children reach the age when breast cancers start to appear."

"The data, coupled with our data on DES and BPA effects on the uterus, clearly demonstrate a lasting effect of prenatal exposure to estrogens on the breast and uterus," Taylor added. "This study

generates important safety concerns about exposures to environmental endocrine disruptors such as BPA and suggests a potential need to monitor women exposed to these chemicals for the development of breast lesions as adults."

More information: Citation: *Hormones and Cancer* [doi:10.1007/s12672-010-0015-9](https://doi.org/10.1007/s12672-010-0015-9)

Provided by Yale University

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