



How to Reduce Exposure to Hidden Hormones



Contributor: [Tamarra James-Todd, PhD, MPH](#)

Tamarra James-Todd, PhD, MPH, an associate epidemiologist in the Division of Women's Health at Brigham and Women's Hospital (BWH).

Twenty years ago, a pediatric endocrinologist published a medical report about a group of young girls with early onset puberty. Aged four months to four years, these girls had developed breasts and grown pubic hair.

When he examined the girls' medical histories, a common theme emerged. They were all using a similar brand of hair product. He sent the product to an independent laboratory for testing. The products contained three forms of estrogen, all of which weren't listed on the products' labels.

According to [Tamarra James-Todd, MPH, PhD](#), an associate epidemiologist in the [Division of Women's Health Research at Brigham](#) and Women's Hospital (BWH), the report raised questions. What was being put in our consumer products? Were they being regulated? What other synthetic chemicals mimicked naturally occurring hormones? And did these chemicals impact human health?



Tamarra James-Todd, MPH, PhD, speaking at the Women's Health Luncheon.

The state of affairs

“Regarding safety and testing of chemicals in personal care products, due to trademark agreements, our laws haven’t changed much since the 1930s. We still don’t require companies to disclose information about the substances they put in products,” said Dr. James-Todd during her talk about “hidden” hormones in our personal care products at the 13th annual [Women's Health Luncheon](#), a fundraiser benefitting the [Connors Center for Women's Health and Gender Biology](#).

The medical report about the four young girls was published when James-Todd was studying public health at Boston University. For her doctoral project at Columbia University, she conducted a study called the Greater New York Hair Products Study that asked women about the hair products they were using in adulthood and childhood.

“We found that young girls who used hair oils for a longer period and more frequently had a significantly higher risk of starting their periods earlier than girls who had never used these hair oils. We know that each year earlier a girl begins her period, the risk for developing breast cancer is increased,” says James-Todd.

Our chemical world

Countless consumer products, from food packaging to beauty products to furniture and electronic equipment, contain [endocrine disruptors](#). Many of these chemicals are put in products for a variety of reasons, such as to create fragrance. According to James-Todd, just because a personal care product is on a shelf in the drug store doesn't mean it's safe.

For example, phthalates are compounds added to plastics to increase their flexibility, transparency, durability, and shelf life. They can be found in personal care products, such as perfumes or cosmetics. Many studies have linked phthalates to obesity, an increased risk of diabetes and metabolic syndrome, and cardiovascular disease, as well as infertility, preterm birth, preeclampsia, and risk factors associated with gestational diabetes. A [2009 report from the CDC](#) has shown that most Americans have phthalates in their urine.

Synthetic compounds known as phenols, such as bisphenol A (BPA) and parabens, are used as plastics, epoxy resins, and preservatives in many consumer products. BPA can be found in beverage containers, the linings of cans, and toys. Parabens are added to hair products, body lotions, cosmetics, and food preservatives. By mimicking estrogen, these compounds can disrupt hormone function, which may increase the risk of breast cancer and reproductive toxicity.

“Some chemicals can be hard to avoid, even if you try. For example, many manufacturers no longer make plastics with BPA, which has many health effects in humans. However, some chemical companies are playing a game of whack-a-mole with chemicals. For instance, a BPA substitute may be bisphenol S (BPS), but many substitutions have similar, and perhaps worse, adverse health effects as the original chemical,” says James-Todd.

The health effects of “hidden hormones”

In her own research, Dr. James-Todd has shown that women are disproportionately exposed to endocrine disruptors, such as certain phthalates. These exposure patterns are likely due to differences in the use of cosmetic products, such as perfume, nail polish, lotions, and hair products, including hair relaxers, oils, moisturizers, lotions, leave-in conditioners, and gels.

“We’ve shown that the use of hair product oil is associated with a two-fold increase in starting your period earlier. These products often contain endocrine disruptors like phthalates and phenols. We’ve also found that phthalates and phenols are associated with many adverse outcomes during pregnancy,” says James-Todd.

The pregnancy complications associated with phthalates include:

- An increased risk of infertility, including a three-fold increase in the risk of pregnancy loss and two-fold increase in the risk of preterm birth and small-for-gestational-age (SGA)
- A two-fold increase in risk for preeclampsia
- An increased risk of higher blood glucose levels during pregnancy
- An increased risk of excessive gestational weight gain

Higher exposure to certain endocrine disruptors is also associated with an increased risk of type 2 diabetes and obesity. A recent study showed that higher exposure to these chemicals following a dietary intervention for weight loss led to greater rebound weight in individuals with higher concentrations of these chemicals already in their systems.

For older women, there’s emerging evidence to suggest that higher exposure to endocrine disruptors may increase the risk of premature menopause and increased weight gain. Some studies have found associations between hair dyes and breast cancer incidence.

How to reduce your exposure to hidden hormones

There are many lifestyle changes that can help reduce your exposure to endocrine-disrupting chemicals. The first intervention James-Todd recommends is reducing the amount of fragrance you use on yourself and in your home, or even going fragrance-free.

“Regarding hair products, many people are embracing natural hair styles, which could reduce exposure to certain chemicals. You might also consider reducing your use of cosmetics. And consider monthly manicures over weekly manicures,” says James-Todd.

For storing and reheating food, consider replacing plastic containers with glass containers. Whenever possible, try to buy organic fruits and vegetables. Also, consider other products you use in your home. For example, instead of plastic blinds consider bamboo or a natural wood product.

There is still work to be done

“While there are many changes that individuals can make to eliminate sources of toxic chemicals, the onus cannot be on the individual alone, given that companies aren’t required to disclose information about the use of certain chemicals in their products,” says James-Todd.

This makes the need for policy-level changes more pertinent. Senators Dianne Feinstein of California and Susan Collins of Maine are writing a bill to strengthen regulations for testing and product safety of ingredients used in personal care products. Their Personal Care Product and Safety Act is helping reshape the process by which chemicals and ingredients are tested before they make it to our shelves.

After the pediatric endocrinologist found that the young girls’ hair products contained estrogen-like compounds, he strongly urged their mothers to stop using the hair products. Shortly after, the girls’ breasts regressed and the pubic hair fell out.

“Today, those hair oils don’t contain those forms of estrogen, but many hair products still contain phthalates, parabens, and other known endocrine disruptors. We’ve made progress, but there’s a lot of work to be done,” says James-Todd.

- Dustin G.



Tamarra James-Todd, MPH, PhD, an associate epidemiologist in the Division of Women’s Health Research at BWH, shares strategies for reducing exposure to hidden hormones in everyday products—including plastics, pesticides, flame retardants, and beauty products—at the 2018 Women’s Health Luncheon.