

Endocrine Disruptors – Primary Causes Include: Parben Preservatives, Benzophenone Sunscreens, and Anti-bacterial Agent Triclosan

COMMENTARY: Do Personal-Care Products Need a Makeover?

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In our looks-fixated, aging-averse society, we hold our personal-care products in great esteem. “Moisturize away dry skin and wrinkles!” We dutifully obey that marketing mantra as we apply these creamy concoctions into every crevice. However, now the emphasis on skin vigor is becoming tempered with worry over endocrine health as ingredients in these products are shown to be hormonally active.

And it's not just moisturizing lotion: cosmetics, fragrances, deodorant and even sun block need closer scrutiny. It can make average consumers feel they are awash in a sea, or at a least bathtub full, of toxic chemicals.



Most ingredients in lipstick are nontoxic, but the devil is in the details.

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As with many things, the devil is in the details and it's the small percentage items, some of which don't need labeling, which are most worrisome. The question is whether there is enough of a chemical dose in every squirt to add up to an endocrine-disrupting effect. Emerging evidence suggests that in certain cases, this in fact can occur.

What type of endocrine effect might arise from daily use of personal-care products? Chemicals could theoretically affect a wide variety of hormones and systems, but the predominant trend appears to be towards feminization: making boys less male and increasing a women's estrogen dose to the point where it becomes a risk for breast cancer. It turns out that the most common endocrine disruptors in our consumer products either mimic estrogen or inhibit testosterone, and thus have

the potential to tip the balance toward female traits. Reports of the feminization of fish in water bodies that receive sewer outfalls are increasingly common. The estrogens in sewage are varied, some appear to come from our cleaning products (e.g., nonylphenol ethoxylate), some from body products such as sunscreen, and some from the estrogens women excrete from taking birth control pills. Fish feminization is a hormonal message, a signal that we are using estrogenic products capable of shifting the balance of nature, both external and internal, to female traits.

This is not good news for the male of our species, whose earliest sexual development occurs in a female, estrogenic environment, the womb. To counteract this, there are critical periods in which the primitive fetal testes secretes testosterone; these exquisitely timed pulses of male hormone ensure proper development of the penis and testicles. Unfortunately, an ingredient that is quite common in fragrances, cosmetics, deodorant and lotions—phthalates—impair the male gonad and prevents the secretion of testosterone; the result is that our boys may be less male (feminized) at birth. This is the tentative conclusion stemming from a 2005 study of 85 mother-child pairs in which the amount of phthalate in the mother during pregnancy was a good predictor of gonadal measurements in the male offspring. This association is strengthened by the similar findings in laboratory animals. Does this explain the increasing rates of penile birth defects (hypospadias) and male infertility? Clearly more study is needed, but the precautionary approach used by the Europeans to remove the most worrisome phthalates from personal care products is a step in the right direction.

Common estrogenic ingredients are **parabens** in adult and children's products and **benzophenones in sun block**. **Parabens have been used as preservatives for decades, but only recently have they been identified as hormonally active. Benzophenones are among the most commonly used absorbers of UV energy in sun block today. Recent biomonitoring data show that they are also among the most common estrogenic chemicals found in the bodies of teenage girls.** While parabens and benzophenones appear to be weak estrogens, they are used often and in relatively high quantity. In some cases this application is directly to the chest and armpit areas, leading to a potentially risky hormone dose to sensitive breast and nodal tissues. While no governments have banned these ingredients, some companies are

taking the prudent step of formulating away from parabens. Since they are a labeled ingredient, that is something the consumer can watch for.

I could go on to describe our **unnecessary exposure to the potentially toxic and poorly tested triclosan** (antibacterial in everything from **toothpaste to hand and dish soaps and deodorant**) and the still too prevalent bis-phenol A, a chemical that was designed in the early 1900s as a synthetic estrogen but instead has ended up in food can liners and polycarbonate bottles. The point is that when all these tiny doses of external estrogen are bundled together with the phytoestrogens naturally in food, we may be nudging girls towards breast cancer and boys towards infertility. U.S. officials so far seem to consider any one product or type of chemical too trivial to regulate. However, there is a clear need for wholistic thinking and an aggressive research program to determine if we have created an iceberg of disease in a sea of endocrine disruption.



Parabens and benzophenones, found in some sunblocks, could disrupt hormone development in children.

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