

## A Health Scare That Stinks?

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*Should you be worried about phthalates in cosmetics and toys?*

While too much fragrance has always spelt trouble, especially in a downwind, a coalition of activists and environmentalists has been warning that perfume and makeup are putting women and children in grave risk of cancer and reproductive harm. The reason is that they contain phthalates (the “ph” is silent), a family of colorless oil-like substances that prolong the scent of perfume, make nail polish flexible, and prevent children’s toys from cracking under the pressure of being chewed.

The “Campaign for Safe Cosmetics” kicked off in Marin County, California on Valentines day with “Operation Beauty Drop,” an educational project designed to make school kids aware that cosmetics containing phthalates and other supposedly deadly chemicals should be swiftly dumped. As Judi Shils, director of the Marin Cancer Project told the Bay City News Wire: “If we make the public aware that the personal care and cosmetic products they are being sold may be promoting cancer, and educate them about healthier choices, the hope is that they will stop buying products that are probably contributing to spiraling rates of cancer throughout our communities.”

Actually, cancer rates are declining; it just looks as if they are “spiraling” because the population of the United States is aging, and cancer is much more common among those over 50 than those under. When you adjust for age, cancer rates have been dropping since 1990. (As for cancer rates in Marin County, they’re comparable to the rest of the country, according to the National Cancer Institute, although some types of cancer are below national levels and falling.)

But paying close attention to the actual scientific data has never been a strong suit of health scare activists, who have been on a mission to tar phthalates as deadly since 1998, even though almost every regulatory body that has looked at the research has found them to be without risk.

### Scare Tactics

In 2000, for example, the Environmental Working Group (EWG) warned that women of childbearing age should stop wearing nail polish because they had higher levels of phthalates in their bodies than the rest of the population – and phthalates had been linked to birth defects in animals. In other words, because “high levels” of phthalates damaged animals, the EWG invited people to believe that “high levels” of phthalates in humans must also be dangerous.

But it’s nothing more than a scare tactic to say that there are “high levels” without mentioning that there are no adverse health consequences associated with these levels (the highest of all the estimated exposures was still 400 times below the Environmental Protection Agency’s safety levels, which are among the most stringent regulatory standards in the world.

Indeed, the “high” exposure levels found by the Centers for Disease Control were congruent with those found by the World Health Organization and the Center for Evaluation of Risks to Human Reproduction, which is part of the National Toxicology Program, and neither of these institutions found any cause for alarm. And while the U.S. National Toxicology Program report on the safety of DBP did find that high doses of DBP led to developmental damage in rats, the authors had “minimal concern about effects to human development and development of the reproductive system from current estimated exposure.”

Unfortunately, that sort of balance tends to be lost when health scare stories start making the news.

### Phthalates and Genital Defects

The latest push to have phthalates banned has been driven by research, which claims, if you believe the headline in USA Today that phthalates “may cause defects in baby boys.”

As astonishing as it may sound, the study didn’t show what virtually all of the media reports said it did. None of the baby boys in the study had defective or malformed genitals. Nor did the researchers prove that there was a correlation between phthalates (as present in the mother’s urine before birth) and the length or volume of the penis or the size of the scrotum. (See [STATS](#)

[Media Claims Phthalates \(Might\) Cause Genital Defects](#) for a longer critique.)

Instead, they measured something called the anogenital index – the distance between the base of the penis and the anus divided by the child’s weight. They found a correlation between a narrow gap and a high level of four out of eight different phthalates, and then noted that rats fed high doses of phthalates (much higher than those absorbed by humans) have both low anogenital indices and genital defects.

So does that mean that much lower doses will produce similar if lesser effects in male fetuses? The study couldn’t say. Nevertheless, the media made it seem as if sexual deformity lies in wait for future generations of boys if we don’t curb phthalate use now, which is something the Massachusetts legislature is currently considering.

### Follow the Numbers

One of the problems with activist-driven health scares is that they look at toxicology from only one perspective. Laboratory tests involve giving animals huge daily doses of a chemical to determine its toxicity. But the problem is that everything becomes toxic if the dose is too high. Instead of looking at the amount of a substance that can

be consumed without adverse effect — the “No Observable Adverse Effect Level” (NOAEL) — health activists pin their fears on cases where animals became ill at very high doses. They assume that we, as humans, metabolize very low doses of a chemical in the same way the animals that became sick metabolized very high doses. But if this were true, the trace amounts of organic arsenic in root vegetables would be lethal.

Not all toxic risks are linear, which means that as the degree of exposure to a given chemical decreases the risk of cancer or other damage decreases — but it does not wholly disappear. Unfortunately health activists seem to believe that the risk from all carcinogens is linear. Most toxicologists, however, understand that such risks can be linear or non-linear. A non-linear risk means that there is a threshold below which trace amounts of the chemical will have no adverse effect (damaged cells will be able to repair themselves). This is why it is important to look at the NOAEL for any chemical before panicking.

For example, the highest concentration of the phthalate DEP found in perfume was 28,000 milligrams per liter, according to the Environmental Working Group. The NOAEL for DEP works out at 750 milligrams per kilo of bodyweight per day, so an adult weighing 70 kilos (154-pounds) could safely, if not happily, ingest 52,500 mg of DEP daily.

Divide this number by the concentration of DEP in the perfume and you could — drum roll — douse yourself with a half a gallon every day without any ill effect (at least from the DEP — you might suffocate yourself and those around you from the stench). And what’s more, this is a conservative estimate, as it would mean absorbing every single phthalate molecule in the perfume.

A similar calculation can be performed with DBP, which is present in nail polish. According to research by the Cosmetic Ingredient Review Expert Panel, an independent, non-profit organization charged with monitoring the safety of cosmetics, the highest concentration of DBP found in a bottle of nail polish was 15 percent, which amounts to approximately 1950 milligrams of DBP per bottle.

The most conservative No Observable Adverse Effect Level (NOAEL) for DBP (arrived at by implanting chemicals directly into the stomachs of rats) is 30 milligrams per kilo of bodyweight. Thus, a 154-pound person could consume 2,100 mg of DBP, or every phthalate molecule from one bottle of nail polish, a day without ill effect. Test the rats by feeding them DBP — and the safety limit for humans increases dramatically.

Given that even the most noxious lounge lizard couldn’t use anything close to a half gallon of cologne a day, why are activists advocating a radical solution to a non-existent problem?

### **Blame Europe**

Health activists protest that because the European Union has banned DBP, it must be dangerous. This sounds compelling, but it displays a rather simplistic understanding of what Europe has actually done. The ban on DBP is a result of legislation dubbed REACH (Registration, Evaluation and Authorization of Chemicals), which requires chemicals to be banned if they cannot be proven safe. This may, on the face of it, seem eminently sensible; but explaining what Europe’s embrace of the precautionary principle meant in practice, philosopher Roger Scruton revealed it’s essentially paranoid take on the world: “If you think there is a risk, then there is a risk; and if there is a risk, then forbid it.”

In principle, this means that anything can be banned on the basis of the flimsiest of evidence; and in practice, legislators are doing just that. Even though a risk assessment by the European Chemicals Bureau in 2003 found that there was no risk to children from the use of the phthalate DINP in toys, a committee higher up on Europe’s regulatory food chain over-ruled the report and recommended a total ban (which will be voted on by the full European Parliament on July 7).

Declaring DBP, DINP — or any cosmetic or toy— to be dangerous without backing it up with realistic numbers is like shouting fire in a crowded theater because someone has a lighter in their pocket. There is, at present, no reason to believe that normal human exposure is in any way risky — just as there’s simply no reason to believe that a person with a cigarette lighter is an arsonist. And this is why regulatory bodies outside the E.U. have examined the data on phthalates and found them to be safe as used in cosmetics and toys.

Here’s the moral of this story: We have everything to fear if we fear numbers. And if we fear everything, we’re not going to take the genuine risks to our health seriously. Risks like smoking. In April, the American Cancer Society warned that over the course of the next year, some 168, 140 Americans would die from cancer brought on from smoking. This statistic is particularly ominous for women for even though cancer rates are generally declining, lung and bronchial cancer rates have sharply increased over the past 30 years.

Activists believe that when it comes to phthalates in cosmetics and toys, the lack of regulation is “shocking.” But the real scandal here is that the public is being distracted by a health scare that has that has yet to show any scary data.

**Please Note** *Given the outrage that accompanies any article that suggests industry is innocent until proven guilty when it comes to chemicals, it should be noted that STATS has not received any money or come under any pressure from industry to write any material pertaining to phthalates. STATS is a non-profit research center affiliated with George Mason University, which examines statistical and scientific misinformation in the media.*

[http://stats.org/stories/2005/a\\_health\\_scare\\_stinks\\_jun27\\_05.htm](http://stats.org/stories/2005/a_health_scare_stinks_jun27_05.htm)