

## All About Phthalates

[music] Anne Johnson: Welcome to Environmental Health Chat, a podcast about how the environment affects our health, from the National Institute of Environmental Health Sciences Division of Extramural Research and Training. I'm your host Anne Johnson.

[spraying sounds] Hairspray. Shaving cream. Plastic wrap. Wallpaper. [walking sounds] Vinyl flooring.

What could these things possibly have in common? They all contain the family of chemicals known as phthalates. Phthalates are what makes plastic flexible. They also help products hold their scent. Thanks to these two features phthalates have found their way into hundreds of everyday products and materials.

But not everything. A few phthalates are purposely left out of pacifiers, teething rings, and other products made specifically for young children because of concerns about the health effects they have during early development.

But what about the phthalates that are still all around us? And what might their effects be in older children, adults, or pregnant women? Today's guest spends her days immersed in these questions. Dr. Robin Whyatt is a professor in the department of environmental health sciences at the Mailman School of Public Health at Columbia University.

Robin Whyatt: Phthalates are very high volume use chemicals, so they're widely, widely used in multiple products, and as a result basically everyone in the United States is exposed on a continuous basis, really on a daily basis, to multiple different phthalates. The primary reason that researchers are concerned is that the phthalates are endocrine disruptors and what that means is that they in one way or another modulate different hormone systems in the body. Any chemical that can modulate a hormone system can cause adverse health effects, particularly during pregnancy and early childhood as these hormone systems are involved in sort of orchestrating the way the body develops.

Anne Johnson: The first clues about phthalates came when researchers saw that male rats exposed to phthalates developed malformed genitalia, what came to be called phthalate syndrome. Since then researchers have found associations with an ever broader range of health effects in experimental animals and in people, including effects in the reproductive and respiratory systems, and in brain and motor development.

Robin and her colleagues tested the urine of more than 700 pregnant women for various phthalates and have tracked the health and performance of their children as they've grown up. Most of the kids are now 17 years old.

This research has revealed that higher levels of certain phthalates during pregnancy are associated with higher rates of childhood asthma, higher rates of behavioral problems, decreases in mental and motor development, and decreases in IQ.

Robin Whyatt: What we're showing is associations. An epidemiologic study can never show causation and you don't assume causation until you start seeing the same types of effects across many different studies, and also when you start understanding some of the mechanisms whereby the phthalates may be causing these types of effects. And I would say that we're getting to the point now where we are starting to see similar effects across many different epidemiologic studies, and our understanding of some of these mechanisms are consistent with the effects we're seeing. So, you can't say at this point that this is a causal link, but the data is getting stronger.

Anne Johnson: With this strengthening data, people are asking, what can be done?

Robin Whyatt: It's difficult for any individual consumer to avoid phthalate exposures because they're found in so many different products. I'm not a regulator, I'm a researcher, but one of the reasons we do these studies is so that we can help inform regulators as to whether or not they should be taking regulatory action. And when you have a group of chemicals that's used in this many products, really the only way to successfully address that is through regulation, if that regulation is warranted.

Anne Johnson: In the absence of regulation, she had a few tips for consumers. One is not to microwave in plastic. You also might want to avoid eating from plastics with the number 3, 6, or 7 on the bottom. And try buying unscented products when you can.

Researchers don't honestly know whether these things will reduce your exposure. There simply isn't enough evidence. Robin says it's worth a try, especially if you're pregnant or have young children. But it's also important to keep things in perspective.

Robin Whyatt: People are exposed to a lot of different compounds, but we know that eating a good diet during pregnancy is absolutely critical and has enormous beneficial effects, that taking prenatal vitamins is very beneficial, and probably the key thing in terms of a child's development is stimulation of the child. Read to your child, play with your child, talk to your child—all of those things are just incredibly important and have much more effect—positive effect—than these chemicals are having negative effects. So it's really important to keep this in perspective. This is one exposure; it's worth trying to avoid, but you can do a whole lot to help your child by the way you eat and how much you play with your child and how much you love your child, and those remain the key things.

Anne Johnson: That's a valuable reminder for any environmental health topic. After all, our environment is not just one problematic chemical or pollutant, but our whole way of living—the exercise we get, the foods we eat, and much more.

Thanks again to our guest, Dr. Robin Whyatt of Columbia University.

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