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Are Dangerous Chemicals Getting into Your Food from Plastic Containers and Plastic Wrap?

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Anyone who buys frozen meals from the grocery store or buys carryout food from restaurants will want to know about new warnings about the danger of black plastic food containers. Improper recycling of TVs, computers, and other electronics is exposing consumers to toxins in black plastic products such as black plastic take-out containers, food utensils, toys, and hair products. Research published in the scientific journal ***Chemosphere*** in 2024 reported hazardous flame retardants in 85% of these products that they sampled.[1] Although the article as originally published contained a math error that greatly exaggerated the risks, it is important to understand that flame retardants interfere with hormones, potentially harming sexual function and fertility, damanging the brain, and increasing the chances of developing cancer. Why take a chance? You should avoid all exposure that you can, but especially avoid using black plastic to heat food in the microwave or oven.

What about all that food we buy that says to microwave it in the plastic container it's sold in?

That type of plastic is said to be "microwave safe,", but this means it won't melt in the microwave—it doesn't mean that it won't release small amounts of chemicals or plastic into your food.[2] Anything not marked "microwave safe," will soften and lose its shape in the microwave. "Take out" food containers or other disposable plastic food containers (like the ones that refrigerated foods such as soft cream cheese or butter are sold in) are especially unsafe to use in the microwave. In their study, Good Housekeeping researchers microwaved food in a variety of plastic containers labeled microwave safe and found no detectable levels of dangerous chemicals in most.[3] But if your favorite containers have these chemicals, in addition to all the other ways you can be exposed, you could end up with unhealthy levels of these chemicals in your body. Two Canadian environmentalists experimented on themselves for four days by exposing themselves to various chemicals found in food and beverage containers and other household objects and wrote a book called Slow Death by Rubber Duck!

What makes plastics dangerous to human health?

The dangers of plastic come from the chemicals they contain. Three major types of chemicals to watch out for many food products and containers are phthalates (used to soften plastics), PFAS (per- and polyfluoroalkyl substances) which make products stain and grease resistant, and bisphenol A (BPA), which is used to make very hard, shatterproof plastic (it usually has #7 on the bottom) and is also found (but not labeled) in the lining of canned foods and beverages. When phthalates, PFAS, and BPA get into our bodies, they affect hormones like estrogen or testosterone.[4] [5]These chemicals, and others, are known as endocrine disruptors and can act like hormones in our

body and affect our natural hormone production. These types of chemicals have been linked to cancer, problems in the reproductive organs, and several other health problems. People are especially vulnerable to endocrine disruptors when they are growing and developing. For example, a 2023 study found that children exposed to phthalates in the womb or during their first year of life were more likely to develop behavioral, attention, and learning disorders.[6] That's why six phthalates are banned by law from children's products, and why advocates continue to push the FDA to ban the use of BPA in products that have contact with food. As of 2012, the FDA banned BPA in sippy cups and baby bottles but there is still work to be done to remove BPA from other products like the lining of food and beverage cans.[7]

Plastic wrap has been 'phthalate free' since 2006, but in the United States it is made of polyvinyl chloride or PVC and contains a "plasticizer" called di(2-ethylhexyl)adipate or DEHA. DEHA is not a phthalate but is chemically very similar to the phthalate called DEHP.

Studies in the 1990s showed that DEHA can cause liver tumors in mice, and other studies showed that DEHA migrates from plastic wrap into food—particularly high fat foods such as cheese. A 1998 study by Consumers Union tested plastic-wrapped foods and found DEHA levels higher than what is recommended and even permitted by European advisory committees and regulatory agencies.[8] A 2014 study found DEHA in various cheeses as well as beef, chicken, and pork that was sold in clinging plastic wrap at grocery stores.[9] A 2021 study found that DEHA triggered brain and heart injuries in rats, but research is needed to better understand the risks for humans.[10] Because of these concerns many companies, like the "Saran wrap" brand, have switched to LDPE (Low-Density Polyethylene) in an effort to be safer for the body and the environment.[11]While LDPE is considered safer than PVC, there are studies that suggest it might also harm human health.[12]

Similarly, high density polyethylene (HDPE) plastic containers, which are typically used to store household cleaners and pesticides but are sometimes used for food storage, tested positive for PFAS. The results of a 2023 experiment showed that PFAS were capable of transferring into food, and that if there are PFAS in your food storage, it will transfer into your food over time. The researchers tested olive oil, ketchup, and mayonnaise and found that all of them had detectable levels of PFAS after being in contact with an HDPE for a week.[13] While HDPEs are currently not intended for food storage, there is nothing stopping plastic companies from using them that way. This could be potentially harmful to thousands of people by exposing them to high levels of PFAS.

"I don't eat a lot of canned food and I don't drink soda. Are there other ways that chemicals found in plastic could be getting into my food?"

Many foods are sold in plastic containers and most of us keep leftovers in food storage containers made out of plastic, such as Tupperware, Rubbermaid, other brands, as well as carryout containers from restaurants. In addition to the endocrine-distruping chemicals mentioned above, we now know to be concerned about microplastic particles from the containers that are in our bodies.

Regardless of the types of chemicals in a plastic food container, it may not be entirely safe. Plastics break down over time, which means they can potentially release trace amounts of microplastics and whatever chemicals they are made of into the food. This is more likely to happen when the plastic has been heated or when it's old and has been subjected to repeated use or washings. Experts warn that "single-use" plastic, such as those used for bottled water, should never be re-used.

Plastic also gets in our bodies as microplastics that might be in the air we breathe, the water we drink, or the food we eat. Microplastics are "small plastic pieces less than five millimeters long" that can come from the breakdown of larger plastics or can be plastics that are intentionally made to be very small.[14] [15] Microplastics have been found in nearly every part of the human body, from major organs like the heart and brain to breast milk and the placenta. As

researchers continue to study microplastics in the human body, they are finding them in more places. We do not yet know the impact of microplastics on our health, but we know that they come from plastics that contain chemicals like BPA, phthalates, and PFAS.[16]

We need more research to know what plastics are safe—under what conditions and for what use. Until we have that information, you can "play it safe" and reduce the amount of chemicals getting into your food from plastic by following these tips:

- Avoid allowing plastic wrap to come into contact with food, especially when heating or if the food has a high fat content (like meat or cheese). If you want to prevent food from splattering in the microwave, cover it with a microwave-safe dish or a paper towel.
- Use glass or ceramic containers to microwave food and beverages, and avoid microwaving in plastic or disposable containers.[17]
- Although 96% of canned foods from major supermarkets that were tested in 2019 were BPA free, you might want to throw away older canned goods in your home that still might have BPA in the lining.[18]
- Look for drinks sold in cartons or glass. Some of the glass bottles may have lids lined with BPA, but even so, the top is not usually in contact with the beverage. If you carry a reusable water bottle, switch to stainless steel or make sure your sports bottle is "BPA-free." [Do NOT re-use the kind of plastic bottles that bottled water is sold in, because they are not safe for repeated use.] Plastics that contain BPA are usually hard and make a clicking noise if you hit them with your fingernail or a fork or other metal utensil, and may have the number seven on the bottom.

Remember that all plastics break down when exposed to heat—whether in the microwave or dishwasher—and when exposed to strong soaps. Cracks and cloudiness are signs that a clear, reusable plastic container has started to break down and may be releasing BPA or other chemicals into your beverage or food.

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