



THE PLAIN DEALER

NUTRI-NEWS Q&A

Debunking rumors on old water bottles

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I received an e-mail about a study at Johns Hopkins University that found that dangerous dioxins (which cause cancer) were released from plastic water bottles when the bottles were frozen. I use a water bottle that came with an insulated cover when I exercise. I freeze a small portion of filtered water in it and then fill it to the top with water so it will stay cold. My bottle has HDPE on the bottom. Bottles of water you buy in the store for one-time use have PET on the bottom. What is the difference in these plastics, and am I harming myself with my actions?

There are two widely circulating e-mail hoaxes about the dangers of reusing plastic water bottles. The first is the one you received, referring to the alleged Johns Hopkins study of frozen water bottles. The other suggests that reusing plastic beverage bottles releases DEHA (diethylhexyl adipate) into the water. In the e-mail, DEHA is described as a possible carcinogen.

HDPE stands for high density polyethylene, more commonly used in containers intended for long-term use. I've not heard any controversy surrounding HDPE.

According to the American Plastics Council, most single-serving beverage bottles sold in the United States are made from polyethylene terephthalate, or PET. Under Food and Drug Administration regulations, materials used to make plastic bottles are classified as indirect food additives. The FDA permits the use of PET in containers for both single and repeated use.

Dioxins are organic environmental pollutants that are produced by combustion. There is no evidence that freezing PET bottles releases dioxins from the plastic. This notion was dismissed as an urban legend by Johns Hopkins researcher Rolf Halden in a 2004 interview posted online by the Johns Hopkins Bloomberg School of Public Health.

Heating plastics, on the other hand, can result in the extraction of chemicals. For that reason, you should only cook in plastics intended for that purpose.

The DEHA story originated from a master's thesis written by a student at the University of Idaho reporting the results of a study in which 1-liter bottles were subjected to sunlight, heat, storage time and physical degradation. Traces of DEHA were found in water samples from the bottles. The study has never been published.

Only a small percentage of bottles in the study showed traces of DEHA. Furthermore, DEHA is not a component of PET, and water from both PET and non-PET bottles were found to contain DEHA. For that reason, it has been suggested that laboratory contamination may be responsible for the findings.

It is also questionable whether DEHA is truly a carcinogen. Although in 1991 the Environmental Protection Agency classified DEHA as "a possible human carcinogen," the agency concluded in 1995 that the evidence was too limited to say that DEHA causes cancer. The American Cancer Society has posted a statement affirming that DEHA is not inherent in PET and criticizing the scary claims being made about reuse of water bottles.

Probably the biggest health concern associated with reuse of water bottles is bacterial contamination. Many single-use bottles have narrow openings and are not designed for easy cleaning. A University of Calgary study found bacteria in water samples taken from bottles refilled without cleaning by elementary school students.

Reusing water bottles appeals to the environmentalist in me. And tap water is certainly cheaper than the bottled water you buy. Is bottled water worth the extra cost? Well, that, as they say, is another column.

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