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water pressure

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Abstract

The Food and Drug Administration (FDA) regulates bottled water, whereas the Environmental Protection Agency (EPA), along with state and local governments, oversees tap water quality. "There are specific food-manufacturing processes and standards required of bottled water plants," says Adam Bloom, general manager of the Beverage Quality Program for NSF International, an independent not-for-profit company that develops standards and certifies food, water, and dietary supplements. Ling Li analyzed the environmental impact of the rise in bottled water consumption as a research fellow with Worldwatch Institute, an independent research organization dedicated to creating a sustainable and socially just society.

Full text

Headnote

Bottled water choices have never been so varied-or so elite. But is the fancy stuff any better for you than H₂O from the tap?

It's a clever business move: Commodify something essential and market it as a symbol of health and status. In the past 30 years, that has happened with water. Americans spent over \$10.8 billion on bottled water in 2000, as tap water's reputation suffers and nonbiodegradable bottles clog landfills. So while water is a healthy choice, is bottled water better for us and the environment?

Q:

Before we get down to the nifty-gritty, what are the differences between the various types of bottled water?

A:

There are many different water varieties, generally labeled based on their source or mineral content. Here's a cheat sheet for what those labels mean:

Artesian (e.g., Fiji, Voss): Thought to be purer than other water sources, artesian water comes from a confined aquifer (i.e., a solid layer of clay, rock, ice, or other natural element), which pressurizes the water to the point that it rises to the surface naturally.



Mineral (e.g., Calistoga, Evian): To be classified as mineral water, this variety contains at least 250 parts per million total dissolved solids originating from a geologically and physically protected underground water source. There must be constant levels and relative proportions of minerals and trace elements at the source. No minerals may be added.

Spring (e.g., Arrowhead, Crystal Geyser, Volvic): Spring water derives from an underground formation from which water flows naturally to the earth's surface at a specific location.

Purified (e.g., Aquafina, Dasani): This is generally water from the "municipal supply" (aka tap water) that has been purified by one of a variety of techniques: distillation, deionization, reverse osmosis, or other suitable process.

Q:

Is bottled water safer than tap water?

A:

Not necessarily. The Food and Drug Administration (FDA) regulates bottled water, whereas the Environmental Protection Agency (EPA), along with state and local governments, oversees tap water quality. In theory, this setup makes sense: The FDA already monitors food safety at manufacturing plants. "There are specific food-manufacturing processes and standards required of bottled water plants," says Adam Bloom, general manager of the Beverage Quality Program for NSF International, an independent not-for-profit company that develops standards and certifies food, water, and dietary supplements. As far as the chemical composition of safe drinking water goes, the FDA simply adopts most of its requirements directly from EPA tap water standards.

Does that raise your impression of tap water? In reality, it should lower your appreciation of bottled water. According to an exhaustive 1999 study conducted by the National Resources Defense Council (NRDC), bottled water sold in the United States was not necessarily safer or cleaner than tap water. The NRDC tested more than 1,000 bottles of 103 brands and found that, while much of the bottled water was within safe guidelines for contaminants, about a quarter of brands in one sample "violated strict applicable state [California] limits for bottled water." Furthermore, while a recent investigation by the Associated Press found traces of pharmaceuticals in tap water in 24 metropolitan areas, the fact remains that many bottled waters contain filtered tap water, and the filtering process hasn't necessarily removed the drugs.

Q:

What accounts for the quality gap?

A:

The problem is multilayered, and, according to consumer advocacy group Food & Water Watch, it comes down to regulation. Whereas the hierarchy of regulatory groups ensures that tap water undergoes what Food & Water Watch calls "rigorous testing," including 100 or more tests per month for certain types of bacteria, most bottling plants are considered low risk and are inspected less than once a year.

Furthermore, tap water is required by law to be filtered and disinfected, but no such laws apply to bottled water on the federal level. Lastly, the FDA regulates only bottled water sold across state lines, but since up to 70 percent of bottled water is produced in the same state in which its sold, it is exempt from regulation.

This is not to say, however, that bottled water is particularly unsafe. In fact, about 200 bottled water manufacturers around the globe signed up for NSF's independent certification program, which fills many of the holes in the FDA's regulatory process. "The process involves a thorough review of food safety procedures and practices as well as the equipment used. Food safety professionals and quality assurance people conduct these audits-from the source all the way to the point where it's bottled, and then into the warehouse," says Bloom. "The water itself goes through exhaustive tests for everything from heavy metals to pesticides to other minerals." Companies that meet the NSF's standards feature the NSF logo on their packaging, so look for that in grocery store aisles or go to nsf.org to find a list of approved brands.

Q:

What about the environmental impact of drinking bottled water?

A:

Bottom line: Bottled water isn't doing the environment any favors. There are three angles to consider.

The landfill effect: Ling Li analyzed the environmental impact of the rise in bottled water consumption as a research fellow with Worldwatch Institute, an independent research organization dedicated to creating a sustainable and socially just society. According to Li, although bottlers are now making bottles with polyethylene terephthalate (PET), a plastic that recycles cleaner and requires less energy to recycle or remanufacture than glass or aluminum, most of those bottles don't get recycled. In fact, recycling practices are declining, with only 23 percent of all bottles being recycled. About 2 million tons of PET bottles are dumped in landfills annually.

Greenhouse gases: "The production of bottled water, the bottling, and the packaging all require energy, so basically they use gas and oil," says Li. "And then when you ship bottled water, you consume a lot of gas and create carbon dioxide emissions." Drinking locally sourced water is better, and tap is as local as you can get.

Overtaxed natural aquifers: "Excessive withdrawal of natural mineral water or spring water to produce bottled water has threatened local streams and groundwater aquifers," writes Li. In some instances, the water is taken from areas whose residents need it. This scenario threatens to have the worst outcome in developing countries, where residents can't afford bottled water and could lose their own local water sources.

Q:

But what if I don't like the taste of tap water?

A:

Simple-filter it. The NSF also certifies filters of all types, so look for its logo on the box, and do a little research. The EPA requires public water suppliers to send out an annual consumer confidence report. This report offers information on the source and quality of and potential contaminants in the water that comes

out of your tap. The contaminants will be within legal limits, but a filter can remove impurities found in your water. Be sure to maintain the filter as directed by the manufacturer.

While no one will argue with the wisdom of grabbing a bottle of water at the airport or keeping a supply on hand in case of emergencies, it's clear that what's best for the environment-and fine for your health-is to drink filtered tap water. Need one last push? The NRDC estimates that drinking bottled water costs between 240 and 10,000 times as much as tap. Think about that the next time you feel thirsty.

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water, water, everywhere ...

Freelance writer Jordana Brown ("Water Pressure/' p. 29) has been writing about nutrition and health for the better part of her magazine career. "I love my job, because every assignment is another opportunity to learn something newm," she says. Learning about the waste generated by bottled water was a real eye-opener. "It's pretty horrifying to think about how much water weighs and how much fuel it takes to transport it. It really makes you wonder why anyone needs to drink water that comes from another continent."

Like any good writer, Jordana loves to read. "I get about 10 magazines a month, including three weeklies, and also tear through books," she says. She also spends a lot of time in the dojo (she's a brown belt in Shaolin kempo) and cruising past stopped traffic on her bicycle in Los Angeles.

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