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style

Filter the options to clear chemicals from tap water

By Douglas Brown
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(1)

What's in your water?

Hydrogen, for sure.

Oxygen? Check.

Howsabout a little lithium?

Huh?

If you haven't encountered the story, the

Associated Press last month reported that trace amounts of multiple pharmaceuticals are found in city water systems around the country, including Denver.

Can home filtration devices strip the pharmaceuticals out of the water before you begin gulping?

It's uncertain. More on that later.

There isn't much that municipal water utilities can do, either, at least for now, to rid water of the thousands of pharmaceutical compounds that might infiltrate their water-delivery networks.

The federal government must "decide which (compounds) are the most harmful and which ones we can easily identify as being removable with current technology," says Tom Williams, an editor with Water Technology, an industry trade magazine. "It's a tough issue for everyone involved."

Among other things, there are no guidelines from the federal government telling utilities which compounds should be tested for, and at what concentrations the compounds become a problem, says Greg Kail, a spokesman for the American Water Works Association, which is based in Denver.

Scientists have researched the matter for years, Kail says, and so far, studies have "not been able to demonstrate any human health impacts at the low levels these (compounds) are being found."

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More research needed

Still, the lack of scientific evidence doesn't mean everything is A-OK on the "there's-Viagra-in-my-water" front. It's important that the government and researchers begin investigating intersections of these compounds and drinking water much more thoroughly, says Karl Linden, an engineering professor at the University of Colorado at Boulder.

"It's definitely a problem, because somewhere along the line we are not removing these (compounds)," says Linden. "Whether it's an ecological or human health problem, that is unclear."

So there are mysterious things in the water, and your utility isn't sure if it can remove them before you hold your glass beneath the tap. You find this troubling. You've seen the water-filtration devices in Costco and Target, on TV and in newspaper ads. And you're thinking: I need one of them.

First, the letdowns. While it's possible, maybe even likely, that some of the home water-filtration devices will remove pharmaceutical compounds, there is not yet evidence proving it. Also, it's unlikely that one device or even a combination of them will reduce or eliminate every pharmaceutical compound that makes its way to your tap. There are tens of thousands of pharmaceutical compounds, and most of them have entree to public water systems through waste treatment.

Filter it yourself

But that doesn't mean there's nothing you can do.

The folks at the Water Quality Association, the trade association representing the water-filter industry, say it's inevitable that some filters will dispatch a measure of the pharmaceutical compounds in drinking water.

"The best advice I could give people is use a reverse-osmosis device with activated carbon. You would definitely get a lot of pharmaceuticals out with that technology," says Joseph Harrison, technical director for the association. "We just don't know for sure which ones will be taken out and how completely without testing for it."

Right now, he says, his association is working with NSF International, a nonprofit organization that sets standards for a variety of consumer products, including water filters, to establish pharmaceutical standards for filtration systems.

Rick Andrew, the operations manager for NSF's water treatment program, says his organization has certified more than 3,000 water-filtration systems, although most fall within several broad technological categories: carbon filtration, reverse osmosis, water softeners, distillation and ultraviolet.

As far as Harrison's endorsement of reverse osmosis, Andrew says the technology could work to ferret out pharmaceuticals from drinking water, but it's too early to tell.

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Reverse osmosis does a fine job of eliminating heavy metals and dissolved solids, among other things, from water.

Of the other technologies, according to Andrew: Carbon filtration is known for its ability to improve taste by eliminating volatile organic chemicals like chlorine; softeners take out the calcium and magnesium, and replace it with sodium; distillation vaporizes the water and then recondenses it, in the process leaving many contaminants behind, including dissolved solids, ionic compounds and some organic contaminants; and ultraviolet technology is excellent for disinfecting water.

One of the more popular solutions, the pitcher-style of filter, uses a combination of activated carbon and ion exchange resin that can be effective at filtering a wide range of contaminants, including chlorine, organics such as solvents and even pesticides and herbicides, and such metals as copper, Andrew says.

Linden, the water scholar, says the presence of pharmaceutical compounds in water is worrisome, but it's too early to panic. Much more research needs to be done. It could be concentrations are so low they have no effect on humans.

Linden treats the water that comes out of his refrigerator tap at home with an activated carbon filter, but not because of pharmaceuticals. He doesn't like the chlorine taste, and he worries about the health impacts of chlorine and its byproducts in drinking water.

"Water is the new oil," he says. "Water is going to be a very valuable commodity and we need to value it and put effort into making sure it's safe."

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Weighing filter options

Here's what you might pay for filter systems (minus installation):

- Carafe filters range from in price from \$15 to \$60.
- Faucet-mounted filters are \$20-\$60 and installation requires minimal effort.
- Countertop filters cost \$50 to \$300 and don't require plumbing modifications.
- Under-sink filters range from \$55 to \$350 and do require plumbing modifications.
- Reverse-osmosis filters are \$160 to \$450 and require plumbing modifications. These filters also create large amounts of waste water for every gallon filtered.
- Whole-house filters range in price from \$35 to \$80, and require professional installation.
- Distillers range in price between \$200 and \$1,500 and require professional installation.

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