

CANADA \ WORLD

Reusing bottles a hazard

By Jen Horsey

TORONTO — While people may think they're doing a good deed for the environment when they reuse water bottles for anything from orange juice in a bagged lunch to a week's worth of water refills from the office water cooler, researchers say they could be risking their health.

Dangerous bacteria and potentially toxic plastic compounds have been found in the types of water bottles typically reused in classrooms and workplaces countrywide.

A study of water bottles at a Calgary elementary school found bacteria in kids' bottles that would prompt health officials to issue boil-water advisories, had the samples come from a tap.

Researchers discover dangerous bacteria, toxic plastic compounds

Researchers discovered bacterial contamination in about a third of the samples collected from kids' water bottles at the school. Some samples even showed evidence of fecal coliforms.

"If a town water supply had fecal coliforms in it, it would have to be shut down," said Cathy Ryan, the University of Calgary professor who authored the study.

The bacteria likely came from the kids' hands and mouths over time as they repeatedly used the same bottles without washing them or allowing them to dry, Ryan said.

"They sit there fighting with their water bottles, and they're not very good about washing their hands," she said.

She conducted the study out of curiosity after she realized the bottles being used by her young son and his classmates throughout the day weren't being washed frequently. "The bottles had for months not been washed out," she said.

Ryan herself admits she doesn't always wash her own water bottle. Instead, she lets the bottle she keeps at her desk air-dry overnight to kill off any bacteria.

While researchers in her study col-

lected samples from only 76 bottles at one elementary school, which has not been identified, Ryan said the results would likely be the same anywhere else. "I have no reason to believe these kids do a poorer job of washing their hands than in any other elementary school," she said.

When the study results were published in the *Canadian Journal of Public Health* in the fall, the local school board advised parents to make sure kids' bottles were taken home and washed properly and frequently.

And a study conducted in the United States suggests the kind of thorough washing that could kill bacteria might make the bottles unsafe in another way.

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Bottles

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Frequent washing might accelerate the break-down of the plastic, potentially causing chemicals to leach into the water, the study found.

Preliminary research conducted by a graduate student at the University of Idaho found that with repeated use, toxic chemical compounds can migrate out of the bottles into the liquid inside.

Although plastics experts contend the bottles are safe, the study ultimately concluded little is known about what happens when the bottles are used over and over again.

"The fact is, a lot of these compounds have not really been studied in terms of their human health effects," said Margrit von Braun, a University of Idaho professor.

Single-use soft-drink and water bottles are commonly made of a plastic called polyethylene terephthalate (PET) which, while considered safe for its intended use, was found to break down over time.

"The longer you used it, the more stuff ended up in the water," said von Braun.

One of the toxins that frequently appeared in water samples from the reused bottles was DEHA, a carcinogen regulated in drinking water because it has been found to cause weight loss, liver problems, or possible reproductive difficulties.

It is also suspected that DEHA can cause cancer in humans.

Von Braun said she was surprised to discover how widespread the reuse was — and how long some people would hold on to a single bottle.

"A lot of people use them for weeks, and sometimes months, literally until it's leaking," said von Braun.

One survey of the campus found someone who had been reusing the same bottle for six months.

The Canadian Bottled Water Association advises against reusing the containers altogether.

It says the containers are made for single use and should be recycled afterward, not reused.

People would be unable to properly sterilize the bottles at home, and the industry doesn't evaluate the safety of the bottles for multiple uses, said Elizabeth Griswold, executive director of the Canadian Bottled Water Association.

"I would assume a study done on reuse would be redundant, because that's not their purpose," she said.

But while it is for different reasons, Griswold agrees with researchers that it isn't a good idea to use the same bottle repeatedly.

"All I would be able to say is that it's not something we recommend."

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