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TROUBLE ON TAP?

Water is well-known as a keystone to better health. After all, how many times have you heard the proverbial "drink eight 8-ounce glasses of water a day?" Yet, increasingly, the quality and purity of ordinary drinking water is becoming cause for concern.

For decades, scientists have known of the dangers of contamination from lead water pipes, which were finally banned by the federal government in 1986. There's also the possibility of groundwater contamination from petroleum, pesticides and other environmental toxins—especially in rural communities where the majority of drinking water is supplied from wells.

Bacteria, on the other hand, are seldom a worry in America's municipal drinking water. Municipal water also tends to be "cleaner," since it's run through purification systems and monitored by government agencies. Yet many experts caution against consuming too much tap water. Why? Because there's a growing body of evidence that some of the very chemicals added to water to guard your health—especially chlorine and fluoride—may be doing more harm than good.

chlorine

Chlorine is added to drinking water to keep it bacteria-free. But it also reacts with organic material creating chloroform, trihalomethanes (THMs) and other chlorination disinfection byproducts (CBPs) that are all strongly linked with cancer.

A 1998 position paper released by Health Canada (the Canadian equivalent of the US Food and Drug Administration) states: "14 to 16 percent of bladder cancers may be attributable to water containing CBPs. There is an urgent need to resolve this. CBPs [may be] the most important environmental carcinogens in terms of attributable cancers." The study, *Safe Drinking Water: A Public Health Challenge*, also links CBPs with spontaneous abortions, birth defects, respiratory problems and spina bifida.

In 1992, the American Medical Association published statistics showing nearly 28 percent of all cancers of the intestines and 18 percent of all cancers of the bladder can be traced to chlorinated water. More than a dozen subsequent studies confirm this finding. In 1998, for instance, the journal *Epidemiology* published a study showing that men who drink chlorinated tap water for more than 40 years face double the risk of bladder cancer compared to men who drink non-chlorinated water.

The US Environmental Protection Agency (EPA) reports that THMs are present in virtually all chlorinated water. "We're working very hard to achieve a balance between the need for safer water and the importance of disinfecting the water," EPA spokeswoman Robin Woods says.

The agency has ordered cities and towns across the United States to start reducing levels of this compound in drinking water—but chlorination will continue, even though water also can be disinfected with ultraviolet light or ozone without creating CBPs. Ozone is used in some European cities—Amsterdam, Paris, Berlin, Munich and others—but chlorination continues to be the norm on this continent.

fluoride

Fluoride is added to 60 percent of US and 40 percent of Canadian tap water to reduce tooth decay. However, scientists say that actually swallowing this toxin offers virtually no dental advantage. According to recognized fluoride authority Hardy Limeback, DDS, head of Preventive Dentistry at the University of Toronto, fluoride's benefit derives from direct physical contact with a tooth's exterior.

"You may as well swish with fluoridated tap water and spit it out. That's how it works," Limeback says.

A dozen Nobel Prize-winning scientists have long warned of a link between fluoride and serious health problems. However, the late Dean Burk, PhD, former chief chemist at the National Cancer Institute, described fluoride's risk in the starkest terms. After co-conducting the largest US fluoridation study in history, Burk concluded: "Fluoride causes more cancer, and causes it faster, than any other chemical." Fluoride is further linked to osteoporosis, hip fracture, memory and neurological impairment and kidney disorders.

Federal law forbids the EPA from taking a public position for or against fluoride, but the EPA employees' union is not similarly restricted. "Our union—comprising several hundred toxicologists, other scientists and lawyers—maintains its solid opposition to fluoridation," says J. William Hirzy, the union's senior vice-president.

safe answers

Before you run out and buy a home filtration system, consider this. The Centers for Disease Control in Atlanta says that some of those systems can actually add lead to water. Brass elements (made from copper and lead) are the likely culprits.

Some people think boiling removes impurities. But boiling actually concentrates substances—as anyone who has left soup boiling too long on the stove knows. The longer any liquid boils off steam, the less water remains to hold the dissolved chemicals and metals.

What about bottled water? It's sometimes disinfected with ozone instead of chlorine, but not always. And there's still the question of fluoride, since it may occur naturally in any water source—in substantial quantities—due to geologic action. Check the label for a fluoride (F) content below 0.2 parts per million (ppm), also written as milligrams per liter (mg/L). Of course, some brands are totally fluoride-free.

Two other safe options are distilled water and reverse osmosis (RO) water, which is produced using a semi-permeable membrane and pressure to filter out impurities. Critics argue these processes also remove beneficial minerals, but water's a relatively poor source of minerals anyway.

So, the next time you turn on the tap, you may want to ponder exactly what's coming out with the water. If you don't trust it, remember there are safer alternatives.