

Is Your Bathtub a Toxic Dump?

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The municipal water that your child drinks, bathes and plays in is a complex chemical mixture of dissolved minerals, contaminants and chemical additives. Chemicals are added to clarify the water, remove solid particulates and disinfect. And, when fluoride compounds are added to water supplies, polymers are added to inhibit corrosion of the water pipes.

The skin is the largest organ of the body. In 1991, the EPA concluded that the average person can absorb more contaminants from bathing and showering than from drinking polluted water.

Children are most at risk. Children's bath times may range from 45 minutes to two hours. As the EPA acknowledged in a June 30, 1998 report, "Children have a greater surface-area-to-body-weight ratio than adults, which may lead to increased dermal absorption."

Children's tissues, organs and biological systems are still developing, with several stages of rapid growth and development occurring from infancy to adolescence. This rapid development, combined with the immaturity of body organs and systems, predisposes children to potentially more severe consequences within certain age ranges and windows of vulnerability

Circulatory flow rates are generally higher in children, which may increase a child's susceptibility to toxic effects. Despite these elevated risks, most toxicological data is based on occupational exposures for adults.

The Children's Environmental Health Network (CEHN) reports that the US has seen "a worrisome increase" in childhood diseases that may be linked to chemicals in the environment. According to the CEHN, "The incidence of two types of childhood cancers has risen significantly over the past 15 years." Acute Lymphocytic leukemia is up 10 percent and brain tumors are up more than 30 percent. Learning disabilities and attention-deficit disorders also appear to be increasing.

Toxins in the Bathwater

Depending on whether a child has eaten, or if there is residual food in the stomach, about 20-50 percent of chemical contaminants are metabolized when foods or beverages are consumed. With dermal exposure and inhalation, however, virtually 100 percent of the contaminants are absorbed directly into the bloodstream.

As one EPA scientist put it, "a shower cubicle can be considered an 'exposure chamber.' Exposure to volatile contaminants absorbed via the lung would be about double the same amount from drinking water. In the bath, underarms [axilla], scrotal and vaginal areas as well as the groin absorb far greater amounts than in the normal unwashed forearm test."

The percentages for absorption of parathion are as follows: scalp (32 percent), ear canal (46 percent), forehead (36 percent), plant of foot (13 percent), forearm (9 percent), palm (12 percent), and scrotum (100 percent).

A study by Julian Andelman, Professor of Water Chemistry at the University of Pittsburgh's Graduate School of Public Health (published in the May 1984 American Journal of Public Health), found less chemical

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Studies done by Brown, Bishop and Rowan in the early 1980s showed that an average of 64 percent of the total dose of waterborne contaminants is absorbed through the skin.

A study by British researchers at the Health and Safety Laboratory in Sheffield published in the February 19, 2000 issue of Human Experimental Toxicology suggests that toxicants such as fluorides can be stored in the skin and released over a period of time.

A review of nearly 40,000 research papers listed on National Institutes of Health and other US government Internet sites has failed to discover a single study addressing water fluoridation and dermal absorption.

All dosage recommendations developed by EPA are based on ingestion alone. The EPA and Centers for Disease Control have never commissioned studies on the dermal absorption of fluoridated water and refuse to do so.

Brushing Teeth with Toxic Sludge

The most popular fluoridation agent is fluorosilicic acid, a toxic by-product of phosphate fertilizer production.

On May 10, 1999, US Rep. Ken Calvert, who serves on the House Subcommittee on Energy and the Environment, asked the EPA to answer a simple question: "What chronic toxicity test data are there on sodium fluorosilicate? On hydrofluorosilicic acid?"

On June 23, 1999, EPA Assistant Administrator J. Charles Fox replied that the "EPA was not able to identify chronic studies for these chemicals."

On September 5, 2000, in response to an inquiry from the US House Committee on Science, EPA Assistant Administrator Charles Fox admitted "there are no water quality criteria for fluoride either for the protection of aquatic life or for the protection of human health."

The EPA earlier confirmed that water fluoridation puts "at risk" 52 million older Americans with calcium, magnesium and vitamin ~ deficiencies. People with cardiovascular and kidney disorders also may experience severe "dental fluorosis and skeletal fluorosis" from excessive exposure to fluorides.

The health threat from using fluorosilicates to fluoridate drinking water goes beyond bathing and drinking the treated water. The substances in the fluorosilicates do not magically vanish. All the pollution released from washing clothes and household items, evaporation from clothes dryers and dishwashers remains in the home. Water fluoridated with phosphate scrubber liquor becomes a vehicle to carry hazardous air pollutants directly into your home. ,'

While this secondary contamination of children from fluoridated water is significant, it has never been investigated by the EPA or the US Public Health Service - although both agencies are aware that pollution scrubber liquor is being used to fluoridate municipal water supplies.

Because children spend their days close to floors, carpets, lawns, and soils, and frequently pick up objects and put them in their mouths, they may be exposed to higher levels of chemicals in and around the home.

Physicians for Social Responsibility has warned: "Small amounts of air or water pollution that may have little or no impact on a healthy adult, can make children, especially

newborns, seriously ill." PSR notes that children's longer lives also make them "more vulnerable to slow-acting hazards, like pesticides and dioxins."

The EPA admits that "there are no federal safety standards which are applicable to additives, including those for use in fluoridating drinking water." Although the reality of children's vulnerability to environmental toxicants has been acknowledged, little is being done to address the threat. Children don't vote and parents are uninformed. Only a few voices have expressed concern, but those voices are quickly smothered by the sound of money changing hands.

The SLS Effect

Drug companies use sodium lauryl sulfate (SLS) to enhance the absorption of medicines internally and through the skin. SLS is also found in most shampoos, soaps, bubble baths, and toothpastes.

SLS has been shown to increase the absorption of fluoride in the mouth by nine percent. No experiments have been done to determine the effect of SLS on absorption of other contaminants in tap water.

The US Public Health Service sets the optimal level for fluorides in the drinking water without considering dermal or inhalation exposures or the potential of enhanced dermal absorption triggered by SLS in soaps.

The failure to account for inhalation and dermal exposures to fluorides is the most significant flaw in fluoride research. It invalidates all dosage conclusions based solely on ingestion.

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