



What you need to know about the dangers of Chlorine

- Recreational water illnesses (RWIs) are caused by germs spread by swallowing, breathing in mists or aerosols of, or having contact with contaminated water in swimming pools, hot tubs, water parks, water play areas, interactive fountains, lakes, rivers, or oceans. RWIs can also be caused by chemicals in the water or chemicals that evaporate from the water and cause indoor air quality problems. RWIs can be a wide variety of infections, including gastrointestinal, skin, ear, respiratory, eye, neurologic and wound infections. The most commonly reported RWI is diarrhea. Diarrheal illnesses can be caused by germs such as *Crypto* (short for *Cryptosporidium*), *Giardia*, *Shigella*, *norovirus*, and *E. coli*O157:H7.

- **WATER CAN UNDERMINE YOUR HEALTH - Dr. N.W. Walker, D.S.**

"Chlorine is the greatest cripple and killer of the modern times. While it prevented epidemics of one disease, it was creating another. Two decades ago, after the start of chlorinating our drinking water in 1904. *The present epidemic of the heart trouble, cancer and senility began.*"

"Although concentrations of these carcinogens are low...*it is precisely these low levels which cancer scientists believe are responsible for the majority of human cancers* in the United States." Report Issued By The Environmental Defense Fund

- **MUNICIPAL ENVIRONMENTAL RESEARCH LABORATORY - Francis T. Mayo, Director**

"Chlorine is used almost universally in the treatment of public water because of its toxic effect on harmful bacteria and other waterborne, disease-causing organisms. But *there is a growing body of scientific evidence that shows that chlorine in water may actually pose greater long term dangers than those for which it was used to eliminate.*

These effects of chlorine may result from either ingestion or absorption through skin. Scientific studies have linked chlorine and chlorination by-products to cancer of the bladder, liver, rectum, and colon, as well as heart disease, atherosclerosis (hardening of the arteries), anemia, high blood pressure, and allergic reactions. There is also evidence that shows that chlorine can destroy protein in our body and cause adverse effects on skin and hair. The presence of chlorine in the water may also contribute to the formation of chloramines in the water, which can cause taste and odor problems." "Since chlorine is required by public health regulations to be present in all public drinking water supplies, it is up to the individual to remove it at the point-of-use in the home." HEALTH EFFECTS OF CHLORINE IN WATER -

The distinct odor can be overwhelming for many who may even find it difficult to breathe when exposed to high amounts of chlorine gas — especially in a swimming pool. *The Centers For Disease Prevention And Control (CDC) says the level of poisoning brought on by chlorine depends on the person's amount and length of time of exposure to the chemical.* Moist tissues surrounding as the eyes, throat, and lungs are susceptible to come in contact with chlorine gas — a highly toxic form of chlorine that is heavier than air and settles in low-lying areas. Swimming in chlorinated pools can be a good form of exercise in moderation — 30 minutes of swimming can burn 215 to 765

calories depending on a person's weight and swimming pace reports Everyday Health. In light of health risks, limiting your time in a chlorinated pool can help keep you safe from potentially dangerous chlorinate-related health issues that go beyond a skin rash and red eyes. Before you decide to dive in head first into a chlorinated swimming pool, consider the possible health risks associated with increased exposure to high chlorine levels.

Asthma

The odds of children developing asthma increases with exposure to chlorine, presumably mediated by nitrogen trichloride (NCl₃) (3) – a byproduct of chemical reactions between ammonia and chlorine that can damage the respiratory thin tissue in children and increase their risk of lung disease. In a study conducted from Catholic University in Belgium, researchers found that regularly visiting chlorinated pools is associated with an increased risk in developing asthma in young children.

Allergies

Chlorine indirectly contributes to allergies through the irritation and sensitizing of the respiratory tract. Experiencing itchiness, red skin or hives is not an allergy but the result of an irritant dermatitis – similar to a chemical burn says the American College of Allergy, Asthma And Immunology (ACAAI) caused by hypersensitivity to chlorine.

Spontaneous Abortion and Stillbirths In Pregnant Women

Swimming is popular among pregnant women because it can ease pregnancy symptoms while helping them maintain their muscle strength and relieve weight-bearing strain on the lower extremities. However, expectant mothers who swim in chlorinated pools can actually harm their fetus due to the toxic chemicals like chloroform, formed by a chemical reaction between chlorine and organic matter, says the U.S. Department of the Interior and the United States Geological Survey. Belina Phipps, from the National Childbirth Trust, told BBC News that she supports the call for reducing chlorine content of swimming pool water since vast number of pregnant women in the United Kingdom swim and do aqua exercise programs as a means of fun and to help them cope with their pregnancy. In reference to the potential risks of chloroform and pregnancy - Phipps said "[it] offers a simple solution to limit chemical levels in swimming pool water by reducing the amount of chlorine used – a measure which the NCT would strongly support." Reducing the amount of chemicals used would not only be beneficial to pregnant women but to all swimmers alike.

Do Pools Expose Swimmers to Potentially Harmful Chemicals?

- July 29, 2011 -- *Swimmers have detectable levels of a potentially dangerous chlorine by-product called haloacetic acids (HAAs) in their urine within 30 minutes of a swim, a study shows.* The Environmental Protection Agency limits HAA levels in drinking water because high amounts may be [linked to birth defects and cancer](#).
- Chlorine is used in drinking water and swimming pool water to kill harmful bacteria. By-products such as HAA occur when disinfectants such as chlorine react with impurities in the water.
- The new study is published in *Environmental Science & Technology*.
- Researchers tested the urine of 49 volunteers who swam in or worked around an indoor and outdoor pool. Study volunteers included adults and children. The researchers found that HAAs appeared in the urine 20 to 30 minutes after exposure and were eliminated from the body within three hours.

Swallowing Pool Water

- More than 90% of the HAA exposures likely occurred as a result of swallowing pool water; the remaining were due to inhalation or were absorbed through the skin, the study showed.
- Children were more likely than adults to have a high concentration of HAAs after swimming. And swimmers accumulated HAAs almost four times as fast as pool workers. Concentrations of HAAs were higher in outdoor pools compared with indoor pools, the study showed.
- Concentration of these by-products in swimming pools may be higher than in drinking water because pools use a water recirculation system for long periods to enhance the chlorination of the water, the researchers write.
- The implications of the new findings for the health of swimmers are unclear, as this research is in its infancy. "There is little data about HAAs in swimming pools since they are still not regulated in many parts of the world," the researchers conclude.

Danger of Chlorine in Swimming Pools

A Skin Irritant

- We all know what that "chemical" feel of a pool is when we come across it; stinging, blurry eyes and that chemical smell! Now, numerous scientific studies are reporting that chlorine water can be a skin irritant. It's even been associated with skin rashes like eczema.
- This is because chlorinated water has the ability to destroy polyunsaturated fatty acids and vitamin E naturally housed in the body, while at the same time, generating toxins that produce free radicals. If you've noticed that your skin is growing increasingly irritated by your chlorinated pool, consider supplementing your diet. Some doctors recommend supplementing it with some essential fatty acids, like flax seed oil and vitamin E. *Additionally, along with eczema, chlorine has also been shown to aggravate existing skin conditions like acne, psoriasis and seborrhea.*

Compounds Called Trihalomethanes

- What are trihalomethanes and why should they matter to you? For starters, trihalomethanes are carcinogens that result from the combination of chlorine and organic compounds in water. These chemicals *do not* degrade very well and are usually stored in the fatty tissues of the body. At first glance, that may not seem so bad, but when you consider that some of those "fatty tissues" consists of the breasts, and by extension, mother's milk, you begin to understand why some people are growing increasingly concerned.
- Further, these chemicals also known as organochlorides, besides being *stored in mother's milk, have been found in other fluids in the body. Namely, blood and semen. The result can be extremely harmful since organochlorides can cause mutations in DNA, suppress the immune function of the body and interfere with cell growth.*

Other Health Concerns

Unfortunately, the list of dangers of chlorinated swimming pools goes on. Chlorine, especially in children who frequent chlorinated pools, has also been documented as an aggravating factor in asthma. *Several studies have also linked chlorine and chlorinated by-products to:*

- Bladder cancer
- Breast cancer
- Malignant melanoma

- Bowel difficulties
- Additionally, scientists are exploring a link between treated chlorinated tap water and congenital cardiac anomalies.

Key Facts

Here are some key facts for you to consider, as it may help you decide if chlorine is the right choice for you and your family:

- Competitive swimmers absorb toxic levels of chlorine during the course of a training session.
- Children inhale more air per unit of body weight than adults. Therefore, children absorb a greater amount of toxins, relatively speaking, than older swimmers.
- Amazingly, in hyper-chlorinated pools, dental enamel can become eroded because of increased levels of acidity.
- While greater toxin absorption occurs through the skin than through breathing, the breathing action alone is sufficient enough, at least in some swimmers, to cause hyper sensitivity and "asthma like" respiratory conditions.

Chlorine, Cancer & Heart Disease

- **According to the U.S. Council of Environmental Quality**, "Cancer risk among people drinking chlorinated water is as much as 93% higher than among those whose water does not contain chlorine."
- There is a lot of well-founded concern about chlorine. When chlorine is added to our water, it combines with other natural compounds to form Trihalomethanes (chlorination byproducts), or THMs. These chlorine by-products trigger the production of free radicals in the body, causing cell damage, and are highly carcinogenic. Chlorine is also suspected to contribute to hardening of the arteries, the primary cause of heart disease.
- **"Up to 2/3 of the harmful effects of chlorine are due to inhalation and skin absorption while showering."** - The American Journal Of Public Health
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"We are learning the hard way that all the time we thought we were preventing epidemics of one disease, we were creating another. Two decades after the start of chlorinating our drinking water the present epidemic of heart trouble and cancer began."

- Dr. Joseph M. Price, PhD

Toxic Chemical: The Health Dangers of Chlorine

Chlorine in Swimming Pools

- Swimming pool water must be cleaned, by some means, to prevent contamination and bacterial overgrowth. ***Chlorine isn't the safest method, but is probably the most common.***

Consider what chlorine is- a poison. Diluting it just enough so that it's strong enough to kill pool scum but not quite strong enough to kill a human doesn't change that.

- A review of available research (and there is a lot of it) by Marywood University confirms that **long-term exposure to chlorinated pools can cause symptoms of asthma in swimmers.** [2] This can affect athletes who were previously healthy, especially adolescents. [3] Additionally, **eye and skin irritation** in swimmers has been hypothesized to originate from chlorine exposure. [4]
- Did you know that swimming pool chlorine is associated with **tooth enamel erosion**? It's not often mentioned but the New York University College of Dentistry lists it as a prime concern. [5]

Reducing Chlorine Exposure

- Much chlorine exposure happens by choice and **by simply making new choices** you can help reduce exposure risks. If you have a pool, avoid chlorine products. There are alternative methods that can be used to keep pools disinfected

The New safer way to swim



ChlorineFreePoolSystems.com