



Water Quality and Health

The Truth about Chlorine in Swimming Pools

By the Water Quality & Health Council

This summer when you don your bathing suit and walk out onto the pool deck, you may be in for a sensory experience that conjures up happy memories of summers past—warm sunshine, sparkling pool water and the smell of chlorine. If the chlorine smell is very strong, however, you may soon spot “red-eyed” swimmers emerging from the pool. That’s when the pool water is assumed to have “too much chlorine” in it. Ironically, a strong chemical smell around the pool and “swimmer red eye” may be signs that there is *not enough* chlorine in the water. Sound confusing? It’s time to set the record straight about chlorine and swimming pools.



Chlorine helps protect swimmers from waterborne germs

Most swimmers understand that chlorine is added to pools to kill germs that can make swimmers sick. Chlorine-based pool sanitizers help reduce swimmers’ risk of waterborne illnesses, such as diarrhea, swimmer’s ear, and various skin infections. The great advantage of chlorine over other sanitizers, such as ozone and UV is that it keeps working long after it is added to pool water; chlorine provides a “residual” level of protection against germs in the water. Chlorine is not the only “game in town” when it comes to pool sanitizers, but of the common products, only chlorine- and bromine-based disinfectants provide significant residual protection. Salt-water pools, by the way, are chlorinated pools in which the chlorine is generated on site from sodium chloride.

It’s important to get the pool chemistry right

Pool managers strive to keep the “free chlorine” level of pool water between about one and three parts per million. Maintaining the chlorine level in that range depends on several factors, including the pH of the water (it should be between 7.2 and 7.8), and the presence of unwanted substances in the pool, such as urine, perspiration, body oils and lotions, which compete with chlorine and react with it. These substances add to what is known as the “chlorine demand.”

Products of chemical reactions between chlorine and substances added by swimmers are irritants known as chloramines. It is chloramines, not chlorine, that are responsible for swimmer red eye. Unshowered and unhygienic swimmers (read: those who pee in the pool), add to the “chlorine

demand” and are often the real cause of swimmer red eye. Unfortunately, as chlorine reacts with impurities brought into the pool by swimmers, there is less of it available to kill germs. So, not only do unhygienic swimmers promote irritants forming in swimming pools, they may also inadvertently raise the risk of waterborne illnesses. More chlorine may be needed to chemically destroy the chloramines formed and restore a free chlorine residual.

Swimmers can help keep swimming healthy

This comes as a surprise to many swimmers. The fact is that swimmer hygiene affects the chemistry of the pool and the comfort of swimmers. Last summer we made the point that swimmer “red eye” is an indicator that someone might have peed in the pool. That raised awareness and quite a few eyebrows. This year, we join our efforts to those of the [Centers for Disease Control and Prevention](https://www.cdc.gov) and ask swimmers to shower before swimming and never pee in the pool. When you walk out to the pool this summer, sniff the air and decide whether or not you are about to jump into a healthy pool!

Want to know if you have adequate chlorine in the pool? Order a free pool test kit at www.healthypools.org today!