

How Safe is the Swimming Pool You Swim in?

This is a question one never asks about the pool one swims in, but one always assumes it is safe. There are some very important but widely believed common fallacies or misconceptions among the public and pool owners as far as swimming pool is concerned. It is, therefore, important as a public interest that we would like to elucidate the fallacies and correct them.

Fallacy 1: The swimming pool is not clean as drinking water

A well-treated swimming pool is cleaner than normal municipal treated tap water suitable for drinking. This is evident when one fills up swimming pool from tap. The water is brown and muddy. This is same water drunk by residents which is classified as good by international standards. The pool becomes blue and clear only after chlorination and re-circulation for at least 6 hours. Well-kept and maintained swimming pool water should be sanitized and suitable for drinking.

Fallacy 2: Swimming pool water should be discarded regularly and new water filled

The pool if properly maintained, there is requirement of new water to be filled only when dissolved solids (due to evaporation & addition of chemicals) have accumulated to a state when normal chlorination sanitation process is no longer effective. The rate of change can depend on water, the softer it is the longer it can be kept.

Fallacy 3: The residual chlorine in the pool is equal to chlorine applied

When chlorine is added to the pool, it first reacts with all the organics and gets used up. What is left after this use is the residual chlorine. To get a 1 PPM residual, it may be necessary to apply more than 100 PPM initially.

Fallacy 4: The normal chlorine test will give the true chlorine content and sterilization requirement (usually 1 PPM)

Chlorine exists in 2 forms - unavailable and available. The unavailable form is in an associated form, which does not have any biocide effect. Only the dissociated form has the biocide effect. Chlorine is optimally active as a biocide only at a pH 7.2-7.8. Any higher, it has no effects. Any lower it will be irritating to the swimmer. The pH balance is very important.

Fallacy 5: Chlorine is cheap and effective

Chlorine may be cheap to buy, but it decomposes spontaneously on exposure to sunlight and may lose more than 50% of its strength within the day. Most domestic pools use stabilizers such as isocyanuric acid to reduce the loss. Chlorination is best dosed at night to improve the effect of chlorination.

Fallacy 6: Chlorine is safe

Wrong. Chlorine is very reactive and dangerous. It can form spontaneous explosive mixtures on exposure to light.

Fallacy 7: Chlorine alone is enough for pool maintenance

As more and more chlorine is added daily, the pH rises and it has to be reduced by addition of acid. Otherwise the problem of loss in activity may arise because of high pH.

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Fallacy 8: When one swims in water and gets the chlorine smell on the clothes and hair, or loss of hair and irritable eyes, it is because there is too much chlorine

The above symptoms are due to lack of chlorine. Chlorine is not responsible for this irritation, but chlorine byproducts of human waste and secretions, called chloramine. chloramine has been proven to cause cancer and has to be removed. This is done by 'Breakpoint Chlorination' where excess chlorine (or super-chlorination) converts the chloramine to nitrogen. This process in which the chlorine level is raised to 10 times the total available chlorine in the pool, has to be done frequently and directly dependent upon bather load.

Fallacy 9: If the pool looks clean, of course it is clean

The pool may look clean, but it may have high bacteria and cause infection. You cannot see bacteria with naked eye. A bacteria test will show exact water quality.

Fallacy 10: Swimming in a bad pool once in a while is OK

Swimming in a bad pool is unsafe and dangerous any time. There may be very

many pathogenic bacteria, which cause infection in the water like eye, ear, nose, and throat infections. This would occur particularly the day after a swim in bad water. There are several viral diseases that can be caused by unhygienic water.

Fallacy 11: I am going into water, why should I shower before I enter

It is important for anyone who enters a public pool to take a shower first. This will ensure at least most of the bacteria and dead skin in the body which become food for bacteria, is washed away and the pool water will not be contaminated.

Fallacy 11: You must maintain residual ozone in pool just like residual chlorine and you need not use any chlorine in ozonated pools

Wrong. Residual ozone is avoided in ozonated pools. Residual ozone in pools is not good for health. Ozonation should be such that you avoid residual ozone in water. Since you do not have any residual ozone in pool water, all ozonated pools must have residual chlorine (0.5 ppm instead of 1.0 ppm) . Indoor pools could be an exception if designed well. Use of chlorine after ozonation is safe and accepted worldwide.

