How to Interpret Pool Chlorine Readings

By Linda F. Golodner

Pool chlorine levels are easily measured by dipping a test strip in the pool for a few seconds and then matching the resulting color of the strip to a chart linked to "parts per million" chlorine levels. Here's the rub: Some pool test kits measure "free chlorine," whereas others measure both "free chlorine" and "total chlorine." There is a difference between "free" and "total" chlorine. That may be breaking news to an investigative reporter who recently confused the two in a news segment about possible contaminants in swimming pools.

Why Measure Chlorine?

This summer, the Centers for Disease Control and Prevention (CDC) is recommending the public check the chlorine level and pH of pool water before enjoying a refreshing swim. Why? A new CDC report finds that one in five pools in five states in 2013 had to be closed due to serious safety violations, including improper pH or chlorine readings. That prompted an investigative reporter for *NBC News* and the *Today* show, to measure pathogen and chlorine levels at several public aquatic facilities. At one pool, the reporter described a "sky-high" *total chlorine* reading of 10 parts per million. He compared the reading to the appropriate range of *free chlorine* levels (1-3 parts per million), saying, "Three is ideal, so it is way over." Needless to say, that created consternation in the news room, not to mention fear and confusion among the viewing public.

There's Chlorine, and Then, There's Chlorine!

Without getting too technical, the reading that is a measure of how much chlorine is available in pool water to destroy germs is known as the free chlorine level. But not all chlorine in the pool is available to destroy germs. As the Water Quality and Health Council discussed in its article of May 27, 2016, some chlorine may be unavailable because it has chemically reacted with impurities brought into the pool on the bodies of swimmers. Chlorine that reacts with swimmer perspiration, urine, body oils and cosmetics produces "combined chlorine," which is mostly unavailable to destroy germs.

The total chlorine level is the sum of the free chlorine and combined chlorine levels in the pool. Reporting a total chlorine level of 10 parts per million, as the reporter did, only tells us that the free chlorine level is likely less than that.

Total Chlorine = Free Chlorine + Combined Chlorine.

I hope this explanation helps you interpret chlorine level reports! This summer, you can order a free pool test kit—that measures pool water free chlorine and pH—at www.healthypools.org.

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