

## Chlorine in Pools Raises Kids' Asthma, Allergy Risk

Too many homes over-treat their pools, boosting the odds, experts say

Swimming in pools disinfected with chlorine may increase the odds that a child will develop asthma or allergies, new research suggests the study found that teenagers who spent more than 1,000 hours swimming in chlorinated pools, either indoors or outdoors, had more than eight times the risk of having asthma than did teens who primarily swam in pools using a copper-silver disinfecting method.

"Chlorinated pool attendance has a very significant impact on the prevalence of allergic diseases in the studied population," said lead author Alfred Bernard, a professor of toxicology and research director at Catholic University of Louvain in Brussels, Belgium.

"When used properly, [chlorine] is an efficient and safe disinfectant for swimming pools. However, when too much chlorine is added to water or builds up in the air of indoor pools, there is unavoidably some irritation of the organs of the bather in contact with the water and air," he explained. "There is now increasing evidence that these irritating effects may be detrimental to the airways of regular swimmers, especially the children who are the most vulnerable and the most frequent attendees of chlorinated pools."

Results of the study will be published in the Sept. 14 online issue of *Pediatrics*.

More than 17 million people in the United States have asthma, according to the American Academy of Allergy, Asthma and Immunology. Symptoms of the disease include wheezing, shortness of breath and coughing. The airway disease can be triggered by a number of factors, such as cold air, exercise and chemical irritants. While chlorine has long been known to be an airway irritant and potential trigger of asthma, particularly in indoor pools, Bernard's study suggests that chlorinated pools might play a role in the development of asthma and allergy.

The study included 847 Belgian teenagers between the ages of 13 and 18. All had attended indoor or outdoor swimming pools, but at various rates of attendance. One hundred and fourteen children mainly attended pools that were kept clean with a copper-silver disinfect, rather than chlorine. The remainder primarily attended pools disinfected with chlorine.

The number of children who ever had asthma went up in proportion to their chlorinated pool exposure. Teens who swam for 100 to 500 hours in chlorinated pools had an 80 percent increased risk of having asthma, while those who logged 500 to 1,000 hours had just over twice the risk. When teens spend more than 1,000 hours swimming in chlorinated water, the risk of ever having had asthma nearly quadrupled. The risk of currently having asthma was more than eight times higher in the group with more than 1,000 hours in

chlorinated pools compared to those who were rarely in chlorinated water, according to the study.

The risk of allergies also increased significantly when adolescents spent more than 100 hours swimming in chlorinated pools. In fact, the risk of hay fever and other allergies more than doubled with significant chlorinated pool exposure.

Dr. Jennifer Appleyard, chief of allergy and immunology at St. John Hospital and Medical Center in Detroit, said this study highlights the fact that "asthma and allergies are caused by a multitude of different factors, and chlorine may have a potential effect. But, this is a very preliminary study, and we don't yet know what the whole picture is."

She said that she wouldn't advise parents to stop taking their kids swimming, even if they have asthma already. "If your kids have asthma and you know chlorine is a trigger, it's a good idea to try to limit their exposure, but you can't exclude your child from everything and every potential trigger. You have to let them be kids."

If you know your child is bothered by chlorine exposure, and they have an event such as a birthday party that they really want to attend, discuss it with your child's doctor to find out the best way to manage the exposure.

Bernard said that if you have a backyard pool, you should use as little chlorine as you can to safely disinfect the pool. He said that many people over chlorinate their pools to get clear blue water. But, he said, "chlorine is a disinfectant, not a cleaning agent."

Ref: <http://health.usnews.com/health-news/family-health/allergy-and-asthma/articles/2009/09/14/chlorine-in-pools-raises-kids-asthma-allergy-risk.html?PageNr=1>