

Swimming pools and your teeth.

As temperatures hover above 100 degrees, a favorite way to spend the weekend is in the pool. Just make sure you are not risking permanent damage to your teeth by making sure that your pools chlorination levels are properly maintained. Improper chlorination levels leading to low pH levels can cause rapid and excessive erosion of dental enamel.

Chlorine is used in everything from household cleaning products, pesticides and water treatment. Although chlorine is an effective treatment for disinfecting water and is used in swimming pools, used improperly it can have several negative side effects. Negative side effects include but are not limited to irritation, fatigue and erosion of dental enamel. One of the most common reactions to chlorine is irritation. Eyes, nose and skin irritation can occur and long-term exposure can even result in lung and respiratory problems as well as blurred vision and skin rashes. Fatigue can occur when chlorine gas is inhaled, a common occurrence in enclosed indoor pool areas. Exposure to excessive levels of chlorine which cause the pH level of the pool to fall has been shown to cause the erosion of dental enamel.

In a study published in the American Journal of Epidemiology by Centerwall, B.S., Armstrong, C.W., Funkhouser, L.S., & Elzay, R.P. in 1986 they documented the erosion of dental enamel among competitive swimmers at a gas-chlorinated swimming pool. Examination of the implicated swimming pool revealed a gas-chlorinated pool with corrosion of metal fixtures and etching of cement exposed to the pool water. A pool water sample had a pH of 2.7, i.e., an acid concentration approximately 100,000 times that recommended for swimming pools (pH 7.2-8.0). A review of pool management practices revealed inadequate monitoring of pool water pH. In a recent clinical report not yet published by Dr. Leila Jahangiri from New York University College of Dentistry's Department of Prosthodontics she reported a case of a 52 year old male who complained of extremely sensitive teeth, dark staining and rapid enamel loss which occurred over a 5 month period. Dr Jahangiri and her team concluded that the patient's enamel loss was a direct result of his 90 minute swimming exercise routine he started earlier that summer and was caused by improper chlorination of his pool.

Low pH caused by excessive chlorination causes the enamel to erode or wear away. Enamel is the hard protective coating of the tooth, which protects the sensitive, softer and darker yellow dentin underneath. When the enamel is eroded, the dentin underneath is exposed. Exposed dentin may lead to pain, increased sensitivity to cold, hot and sweets, a darker yellow color and an increased risk of caries. Erosion is a general wearing away of the tooth surface and biting edges and usually shows up as hollows or cupping in the teeth. The parts of the tooth suffering from erosion can also be unsightly. The dentin is darker and the teeth can become shorter.

Prevention of tooth erosion cause by low pH of pool water starts with keeping your pool water properly balanced. Over chlorinated pools that produce excessively elevated levels of acidity can contribute to dental enamel erosion. A swimming pool should have a neutral pH level between 7.2 to 7.8. Chlorine levels should be maintained between 1.0 to 3.0 ppm (parts per million). Pool chemistry should be checked regularly. It is not recommended to allow any pool water into the mouth.

Dental erosion does not always need to be treated. With regular checkups your dentist can prevent the problem getting worse and help you prevent further erosion. In other cases it is important to protect the tooth and the dentin underneath to prevent tooth decay and sensitivity. In these cases, simply bonding a filling onto the tooth will be enough to repair it. However in more severe cases the dentist may need to prescribe veneers and crowns. **It is important to remember that prevention is better than cure.**

Written by Carlos Vallecillo, DDS and Rossana Menna, DDS

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