



Aquatic Consulting Services

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Pool Tip #25: Effects of Pool Water on Hair

Swimming in chlorinated pools can be detrimental to your hair. The damage can be cumulative. More damage will result, the longer you spend in the water, and the more frequently you swim. Some swim instructors, aquatic therapists, and competitive swimmers who spend extended amounts of time submerged in pool water have reported losing their hair in patches.

Chlorine is a bleach, and it will cause hair pigment to lighten. Color treated hair may fade and become less shiny. Chemically treated or permed hair which is already porous and protein damaged will tend to absorb chlorine, becoming further damaged and over processed. Chlorine bonds with hair protein and causes the cuticle, the protective scaly outer protein layer that covers the inner cortex and central medulla of the visible hair shaft, to be eaten away. This results in dry, brittle, straw-like hair. Hair will become less elastic. Chlorine will make the hair shaft weak and easily damaged by brushing or combing, and hair breakage and split ends may result.

Although exposure to chlorinated pool water does damage hair, chlorine in the water is not what causes a blond, gray or white haired swimmer's hair to turn green. Exposure to hard metals dissolved in the water, particularly copper, iron, or manganese is really to blame. When absorbed by the hair shaft and oxidized by chlorine, metals commonly found in pools tend to leave behind a greenish residue on hair. Metals are introduced into pool water through source water used to fill the pool, as algacides or sanitizers, from ionizers, as a result of electrolysis, and sometimes from water moving through recirculation pipes at excessive velocities, and from maintenance of aggressive water conditions in the pool.

The pool operator will monitor the amount of dissolved metals in the water, and add sequestering or chelating agents to the pool to neutralize or remove metals from the water before they have a chance to be absorbed by your hair.

To protect your hair from damage caused by swimming in chlorinated pools, rinse your hair with fresh water immediately after swimming and don't allow chlorine to dry on your hair. Wash your hair when you're finished swimming with a shampoo which is designed to repair damage caused by swimming in chlorinated pools. Look for a shampoo which is pH balanced, contains either vitamin C or sodium thiosulfate to neutralize chlorine by dissolving it or turning it back into chlorine salt, and which will replace protein eroded by chlorine exposure. Some shampoos formulated specially

for swimmers contain chelating agents, as well as conditioners and moisturizers to help repair chlorine damaged hair. You can help reduce the build-up of metals and remove some oxidized metals from your hair by using shampoos which contain the chelating agent EDTA (ethylenediamene tetracetic acid), or ascorbic or citric acids (vitamins commonly found in citrus fruits).

Washing your hair in warm water containing dissolved aspirin, will have a similar result. Use 6 aspirin in a liter of warm water, let sit for a few minutes then rinse with fresh water. To balance the acidic tendency of aspirin (acetylsalicylic acid) and give shine to damaged hair, make a mixture of baking soda (sodium bicarbonate) and water, comb the solution through your hair, and rinse after a few minutes.

Don't brush your hair when it's wet. Let it dry naturally, then brush only with a wide toothed comb to lessen the chance of breakage. Try to limit the use of blow dryers, electric curlers and curling irons--they further dry out already dry hair.

Damaged hair can be partially repaired by conditioning while you swim. Before entering the pool, apply a protective conditioner to your hair and cover it with a latex rubber or silicone bathing cap. Heat generated during lessons, water exercise or swimming will provide a heat conditioning treatment. Wearing a conditioner while swimming will also prevent chlorine from being absorbed into, penetrating the cuticle, and damaging your hair, in the first place.