

Skin Problems Caused by Swimming Pools

Some skin problems caused by swimming pools are brought on by chemicals used to treat swimming water and other swimming pool related problems are caused by lack of or insufficient water treatment. Halogens such as bromine, potassium iodide, and chlorine are used to purify and disinfect pools and spas. These products, however, may irritate bathers with sensitive skin. Usually the skin irritations called chemical dermatitis are mild and easily relieved.

Although any skin problem can be a nuisance, skin problems caused by halogens aren't nearly as bad as skin problems caused by bacteria found in untreated swimming water; and skin problems caused by bacteria like *Pseudomonas aeruginosa* require medication to relieve. These conditions include "chlorine rash" "hot tub rash" and "swimmer's itch".

Relieving cases of chemical dermatitis merely requires infected bathers to take breaks from halogenated waters. Taking breaks allows the skin to recover. Bathers can even prevent chemicals from irritating their skin by applying chemical blocking lotions before entering treated waters.

The Centers for Disease Control advises bathers to avoid pools and spas that haven't been properly halogenated, that haven't been halogenated frequently enough, and that exceed maximum swimmer/bather capacity for pool size. Bathers entering waters under these conditions subject themselves to transfers of skin rashes and infections that can wade from one person to another when several bathers swim in water that, as a result of improper maintenance, has become unsanitary.

PA bacteria found in unsanitary water often appear on human skin as normal flora. Although it isn't understood exactly how

the disease process occurs, it is known that warm moist water contributes to their ability to transform from normal skin flora to diseased states. When improperly maintained pools contain excessive numbers of swimmers shedding PA and other debris, the halogen, even as it strives to eliminate overabundances of bacteria and other debris, can exceed its threshold and become depleted.

As bathers' skin heats due to water warmth and body movement, skin follicles begin to expand. The expanding follicles make way for PA bacteria to enter bather's pores. In roughly eight hours to seven days after infected, bathers may notice mild to moderate skin rashes (folliculitis), moistened, painful ears, (swimmer's ear), or eyelid irritations (corneal keratitis).

In the case of swimmer's ear otitis external – the external auditory canal moistens to the point that it turns itself into a PA bacterium breeding ground. The bacteria may colonize within the canal and cause excruciating pain, increased redness, itching, fluid leakage, and swelling.

In the case of skin irritated folliculitis – A red itchy rash occurs that may be mistaken for chicken pox, poison ivy, or measles.

In the case of corneal keratitis – PA can invade the ocular epithelium by means of a fimbrial attachment to sialic acid receptors whenever pool waters defenses are compromised. Symptoms of corneal keratitis can range from reddened eyes to increased sensitivity to light to pain to purulence.

The biggest problems with Pseudomonas is they are extremely virulent opportunistic pathogens and they are becoming progressively more resistant to antibiotics. Therefore, skin irritations caused by PA, even if not thought to be all that serious, should be treated immediately. Adverse affects of this skin condition, when left untreated, could lead to secondary infections like pneumonia, malignant external

otitis, urinary tract infections, and blindness.

PA may also cause skin problems to a swimmer's nose and throat because the bacterium preys on human mucus membranes.

Swimmers should be aware that in addition to PA, athletes' feet fungus may be abundant in areas surrounding pools, particularly carpeted areas. Shoes should always be worn in these areas.

In order to help reduce the number of skin problems caused by swimming pools, pools should be disinfected properly because skin problems caused by halogens aren't nearly as bad as bacterial skin problems brought on by untreated waters.