Airway/Respiratory Issues of Swimmers

Chlorine is the most common and widely used product in disinfecting swimming pools (Bougalt & Boulet, 2012). Other products are available such as bromine-based disinfectants which may substitute for chlorination, and ozone and ultraviolet radiation may be used to get rid of chlorine by-products and/or reduce the amount of chlorine needed (Bougalt & Boulet, 2013). However, simple chlorine is easy to acquire, time-proven, used world-wide, and it is inexpensive (Bougalt & Boulet, 2012). Whichever the case, during the process of disinfection, these products produce by-products which are often irritating to swimmers, workers around the swimming pool, and such environmental conditions must be considered when working with water-athletes due to prolonged exposure during their training (Bougalt & Boulet, 2012; Bougalt, Turmel, & Boulet, 2010; Gelardi et al., 2012).

Chlorine reacts to organic matter (brought in on swimmers or found around the pool area such as sweat, urine, makeup, soap residues, etc.) and produces chloramines and also nitrogen trichloride (NCl_3) which is that "strong smell" people complain about (Bougault & Boulet, 2012; Bougault & Boulet, 2013; Gelardi et al., 2012). Nitrogen trichloride is also very irritating to the airways. Many elite swimmers and those training long hours experience upper (most common) and lower airway disorders (Bougault & Boulet, 2012; Bougault & Boulet, 2013; Bougalt, Turmel, & Boulet, 2010; Gelardi et al., 2012).

Upper airway issues (general rhinitis symptoms) including nasal obstruction, rhinorrhoea (runny nose), sneezing and nasal itching are reported by 74% of competitive elite swimmers (Bougault & Boulet, 2012). Swimmers are also prone to upper respiratory viral infections (Bougault & Boulet, 2012). Airway hyper-responsiveness (AHR) and exercise-induced bronchoconstriction (EIB) also affect many swimmers (especially the competitive/elite athletes with many training hours) (Bougault & Boulet, 2012). Repeated exposure to chloramines may very well contribute to allergies and asthma among swimmers (Bougault & Boulet, 2012).

Gelardi's et al. (2010) study found that a nose-clip could be recommended as one method to reduce airway irritation. Other recommendations include avoid urinating in pool water, use a swimming cap, remove makeup, use a swimsuit dedicated to pool training (as opposed to sun-bathing) and keep it laundered, and rinsing before entering the pool (Bougault & Boulet, 2013).

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