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RISK MANAGEMENT ALERT

Dangerous Underwater Breath-Holding Behaviors

On May 22nd, the CDC released a report on Dangerous Underwater Breath-Holding Behaviors (DUBBs). The report highlights three voluntary and dangerous behaviors that are contributing to drowning, often in the presence of lifeguards:

- (1) Intentional hyperventilation – rapid, shallow breathing (or deep, slow breathing) employed by swimmers in an attempt to increase O₂ levels prior to submerging
- (2) Static apnea – an attempt to submerge and breath-hold for as long as possible, typically while staying motionless
- (3) Hypoxic training – repeated breath-holding and hypoxia drills commonly employed in competitive swimming, free diving, spear fishing, or the military



In some cases, swimmers intentionally ignore the urge to breathe with a sense of determination and competition. Endorphins are released at low O₂ and CO₂ levels; a feeling of empowerment ensues and the urge to breathe subsides. Blackout occurs when a critical state of hypoxia is reached.

In other cases, swimmers engage in hyperventilation. Rather than increasing O₂ levels, this practice prevents the blood from reaching high CO₂ levels, which act as the trigger for the urge to breathe. The swimmer never feels the urge to breathe prior to blacking out.

In yet other cases, O₂ levels can be lowered due to exercise, exertion, and exhaustion as a result of repetitive breath-holding; a blackout due to low O₂ occurs before the urge to breathe is triggered.

The aquatics industry faces particular challenges with DUBBs as underwater breath-holding exercises have been accepted and proudly practiced for decades. Additionally, blackouts can be difficult to spot as the emergency begins underwater and many victims do not fit the typical “at-risk” profile of a swimmer who is weak or struggling.

As a result of this industry challenge, IAM recommends that aquatic facilities:

- (1) Educate lifeguards and staff on the risk of DUBBs
- (2) Educate patrons by prohibiting prolonged breath-holding & hyperventilation (including breath-holding games such as the “dead man’s float” or competitions for time or distance) and consider the use of signage to assist in enforcement
- (3) Train lifeguards to quickly recover any unmoving swimmer whether lying/sitting on the bottom or floating on the surface.