LIFESAVING SOCIETY®
SOCIÉTÉ DE SAUVETAGE
The Lifeguarding Experts
Les experts en surveillance aquatique

Lifesaving Society Canada
287 McArthur Avenue, Ottawa, Ontario K1L6P3
Telephone: 613-746-5694
E-mail: experts@lifesaving.ca Web: www.lifesaving.ca

Safety Standards
for Canadian Swimming Pools and Waterfronts
Aquatic Facility Standard

Hyperventilation and Repetitive Breath-Holding Standard

Standard

The practice of hyperventilating and repetitive breath-holding shall not be permitted in swimming pools.

The practice shall be permitted only under the direct supervision of a qualified instructor or coach and following a recognized safety protocol for aquatic sports such as underwater hockey, synchronized swimming, static apnea, free diving, Lifesaving Sport, etc.

Definitions

Public Pool: (includes swimming pool, hot tub/whirlpool, wading pools, spray/splash pools, etc.) –

i. a pool to which the general public is admitted for the intention of bathing,

ii. and a pool operated in conjunction with or as a part of the program of an association or similar institution or an educational, instructional, physical fitness or athletic institution supported in whole or in part by public funds or public subscription.

Rationale

- There have been several drownings in Canada as a result of bathers attempting underwater swims while holding their breath.

- Although this activity of breath-holding is gaining in popularity in competition formats, typical recreational swims are not set up to provide adequate supervision and response to this type of activity.
- There are guidelines that dictate recommended supervision and prevention strategies for breath-holding competitions.
- The *Canadian Lifesaving Manual* warns about the dangers of breath-holding.
- Significant research found overwhelming evidence that extended breath-holding is dangerous and may lead to unconsciousness and drowning.
- Hyperventilation is a series of deep breaths followed by forced exhalation prior to breath-holding in an attempt to remain underwater for a longer period of time. This decreases the level of CO_2 in the blood which is responsible for triggering the need to breathe. With less CO_2 a swimmer will not feel a need to take a breath as quickly and can remain under water longer. This however, does not mean that the swimmer does not need oxygen. Oxygen levels are being depleted and can be depleted more quickly if the swimmer is moving or swimming rather than remaining stationary. If oxygen levels in the blood drop sufficiently enough before CO_2 levels trigger the need to breathe, the swimmer will become unconscious. This is also commonly referred to as shallow water blackout. Obviously, an unconscious swimmer will breathe water into their lungs and will drown if not rescued and resuscitated.

Implementation

The Lifesaving Society recommends that every aquatic facility implement a policy related to hyperventilating and repetitive breath-holding. Operators should include this policy in their facility policy and procedures manual and ensure staff are trained in the recognition, prevention and treatment.

References

- Canadian Association of Freediving and Apnea Competition Manual
- Talisman Safety Policy and procedure Manual
- Dying for Air, International Aquatics Magazine, Feb 2005
- *Judith Sperling, UCLA Recreation,* HYPERVENTILATION & HYPOXIC TRAINING, April 07th, 2011, http://www.nirsa.info/know/2007/12/risk001.html
- Shallow Water Blackout video, Dr. Tom Griffiths.
- ABC News, David Blaine: 'Drowned' Alive
- American Red Cross, Safety Training for Swim Coaches, 1996
- American Red Cross, Swimming and Water Safety, 2004
- Aquatics International, Playing it Safe, Tom Griffiths, May 2004.
- Association Internationale Pour Le Developpment De L'Apnee, www. aida-international.org
- Athletic Business, Game On – Don't Hold Your Breath, Paul Steinbach, Jan 2007

- Canadian Forces Personnel Support Agency, Updated Direction on Hypoxic (Anoxia) Training, Nov 2003.
- Confederation Mondiale des activites subaquatiques, www.cmas.org
- Swimming Technique, Lowdown on Hypoxic Training, Kevin Milak, Jul-Sep 2003.
- USA Swimming, Safety/Loss Control Manual, Nov 2005.
- USA Swimming, Speedo Tip of the Week, Freestyle Breathing Mechanics, Terry Laughlin, Nov 15, 2004.
- U.S. Navy, BUPERINST 1710.11C, Chapter 15 Aquatic Programs and Facilities, 1523. Hyperventilation and Breath-Holding.
- YMCA, Statement of the YMCA of the USA Medical Advisory Committee, Jan 2004

Approval

- Approved by the Lifesaving Society Canada Board of Directors on 8 May 2016.

Disclaimer

Lifesaving Society Canada's National Safety Standards are developed using Coroners' recommendations, the latest evidence-based research, and reflect the aquatic industry's best practices at the time the publication was approved or revised.

The purpose of these standards is to encourage swimming pool, waterpark and waterfront owners, managers, operators and regulators to adopt these standards in order to prevent drownings in aquatic environments.

Lifesaving Society Canada's National Safety Standards do not replace or supersede local, provincial/territorial or federal legislation or regulations, but they are considered the standard to which aquatic facility operators should work towards in order to enhance safety within their operations and to prevent drowning and aquatic-related injury.