The Lifesaving Society BC & Yukon

Shallow Water Blackout & Practice Safety

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WHAT IS SHALLOW WATER BLACKOUT?

IT'S WHEN A **SWIMMER FAINTS**

CAUSED BY A **LACK OF OXYGEN TO THE BRAIN**

TRIGGERED BY **HOLDING** (YOUR BREATH)

REPEATEDLY

TOO LONG

WITHOUT IMMEDIATE **RESCUE** THE **SWIMMER** QUICKLY DROWNS.

Hyperventilation and Repetitive Breath-Holding 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.

Safety Standards for Canadian Swimming Pools and Waterfronts Aquatic Facility Standard

Rationale

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

Significant research found overwhelming evidence that extended breath-holding is dangerous and may lead to unconsciousness and drowning.

Definition

- 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.
- Decreases the level of CO2 in the blood which is responsible for triggering the need to breathe.
- 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 CO2 levels trigger the need to breathe, the swimmer will become unconscious. This is also commonly referred to as shallow water blackout.

HOW IT HAPPENS ?

- Shallow water blackout (also known as hypoxic blackout) can affect anyone who is breath-holding, even the physically fit swimmer. It is especially seen in competitive swimmers.
- Frequently, Shallow Water Blackout (Hypoxic Blackout) occurs WITHOUT ANY WARNING of its onset. In fact, because of the hypoxia and detached mental state one can feel euphoric and empowered to continue breath-holding.
- Underwater blackout may develop without hyperventilation. Prolonged exercise can affect the set point at which oxygen and CO2 levels terminate breath holding.
- Others have reported the occurrence of short seizures following loss of consciousness.

Hypoxic training - Sometimes confused with hyperventilation.

- On the contrary, “hypoxic training” or “low oxygen” training, involves the reduction or elimination of breathing while training.
- It was thought that reducing levels of oxygen would result in physiological adaptations.
- Subsequent research has proven that sea-level hypoxic training does not produce any physiological adaptations in swimmers.
- Hypoxic training remains popular because it familiarizes swimmers with the discomfort and stress of low oxygen and can discipline swimmers to keep strong techniques during the stress of competition.

“Hypoxic training” - recognized risk in synchronized swimming

FINA - ARTISTIC SWIMMING MANUAL FOR JUDGES, COACHES & REFEREES 2017-2021

Artistic Swimming has changed since then to a more acrobatic and artistic style with emphasis on execution and less emphasis on breath-holding

Coaches should be aware of this phenomenon and prevent prolonged breath holding practices.

Hypoxia has been demonstrated in Artistic Swimming resulting in confusion in the past. At this time, the emphasis in Artistic Swimming routines was on prolonged breath-holding.

Available medical evidence strongly suggests that the combination of prolonged breath holding - more than 45 seconds - and vigorous physical activity can have serious medical consequences. ‘Black out’ under water is clearly a serious and potentially lethal situation.

Hyperventilation [over breathing] prior to a competition is also known to increase the risk of a black out and should be actively discouraged. The practice of hyperventilation lowers the levels of carbon dioxide in the blood stream and abolishes an important trigger for normal breathing.

1. Hyperventilation should be prohibited in all swimming venues.
2. Coaches remain responsible for prohibiting hyperventilation before underwater activities and need to ensure adequate recovery time between exercises.
3. Underwater sequences in hypoxic training should be limited in number and duration.
4. Where hypoxic training occurs coaches should have in place and have practiced an emergency response plan capable of managing multiple victims.
5. Set clear polices and communicate those policies regarding the practice of hypoxic training.

Recommendations

Review training protocols and language

Artistic swimming routines are superb examples of controlled breathing – a well done routine portrays effortless grace, just the opposite of hyperventilating exertion.

Controlled breathing is an ongoing process it is the optimal use of available breaths during a continued activity; it may mean breathing less frequently, but there should be no opportunity for intentional hyperventilating because of the on-going nature of the activity

Example:

- Instructors /coaches need additional experience and training before considering underwater and Hypoxic drills.
- When swimming underwater, instruct swimmers to surface and breathe when necessary. Never resist the urge to breathe.
- Only allow one breath prior to submersion. Shallow Water Blackout (SWB) is closely linked to hyperventilation.
- Only allow underwater drills at the start of a workout when swimmers are not close to their maximum aerobic capacity.
- Only allow a distance of one length, one time. No repeats or challenges to see who can swim the greatest distance underwater.
- Allow adequate time for recovery, which will vary from swimmer to swimmer.

Practice Safety

Coaching Staff have a duty of care

- A public pool is exempt from the recreational swim safety supervision during a period when the pool is being used solely by one or more groups (each not exceeding 25 in number or program recommended ratios whichever is lower) for aquatic instruction, practice, competition or display under the direct supervision of a certified aquatic instructor or coach who holds a current National Lifeguard certification.
- If the instructor or coach does not hold a current National Lifeguard certification then a current National Lifeguard must provide supervision.
- When there are 40 or more people in the pool and deck area during an instructional period, there shall be a lifeguard on deck to provide supervision.

Safety Standards for Canadian Swimming Pools and Waterfronts Aquatic Facility Standard

Rational

- A growing number of incidents during swim practices in all aquatic sports have come to the attention of aquatic professionals.
- Including both fatal and non-fatal drownings.
- We have seen incidents where coaching staffs have been found negligent, accountable, and held responsible for incidents.
- Coaching Staff have a *duty of care* towards their swimmers and an obligation to promote safety around the pools, but also to keep swimmers safe through better training of aquatic and coaching staff.
- Employ only certified coaches and certified lifeguards

Duty of Care & Negligence

A *duty of care* is a legal obligation which is imposed on an individual(coach, instructor, lifeguard, facility owner & operator) requiring adherence to *a standard of reasonable care* while performing any acts that could foreseeably harm others.

It is the first element that must be established to proceed with an action in *negligence.*

Negligence is a failure to exercise appropriate and or ethical ruled care expected to be exercised amongst specified circumstances.

Four elements to a negligence

1. Duty: the defendant has a duty to others, including the plaintiff, to exercise reasonable care,

2. Breach: the defendant breaches that duty through an act or culpable omission,

3. Damages: as a result of that act or omission, the plaintiff suffers an injury, and

4. Causation: the injury to the plaintiff is a reasonably foreseeable consequence of the defendant's act or omission.

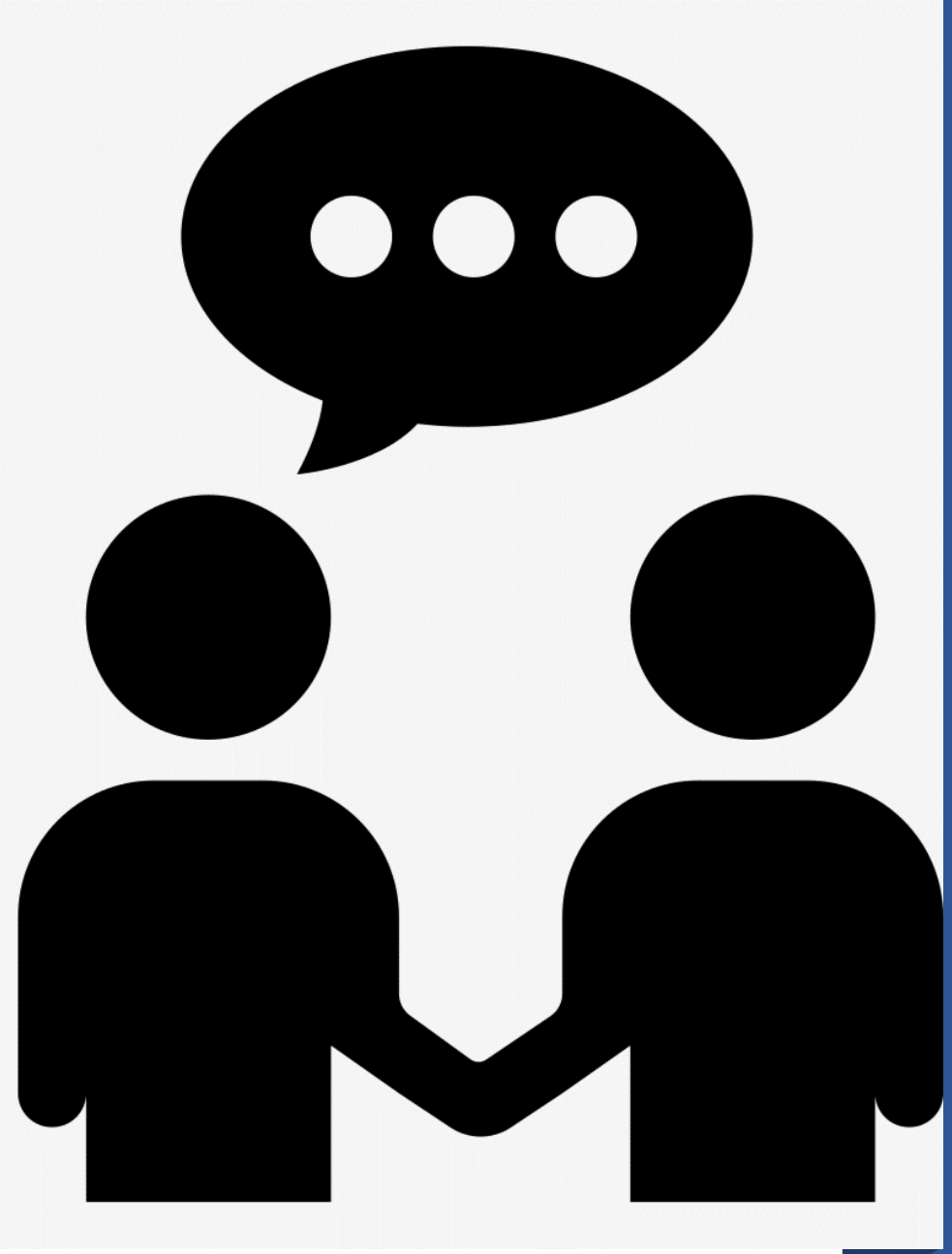
Do you have an Emergency Response Plan?

An Emergency Response Plan is both on paper and practiced by all staff that might potentially be involved in an emergency at a specific facility.

Coaches must familiarize themselves with the facility's emergency procedures.

An industry standard for lifeguards have pre-season training and on-going training. Coaches need that kind of training and practice to ensure a truly safe environment.

Do you Know your swimmers?



- In the interest of a consistent develop and apply sanctions may be applied in the event that coaches, swimmers or officials and parents fail to follow the Code of Practice.
- Communicate your polices to all swimmers and parents and institute your polices as signed document.
- Insist team members and parents always follow good conduct while at the facility.
- Monitor behaviour of coaches and swimmers while in the facility.
- Document any occurrences.

- Incorporate safe swimming practices
- Ensure that the Safety requirements are effectively communicated.
  - Inform participants and parents of your safety measures, in the pool before and after practices.
  - Be aware of swimmers coming and going from your practices.
  - Have a firm policy on non-participation for ill or injured swimmers.
- **Keep swimmers in your view at all times.**

Incorporate safety in all practices planning

In addition

- Carry out inspections to ensure that all club equipment is properly maintained and safe to use.
- Carry out a basic visual safety check in advance of the commencement of any training session or competition (the pool and any equipment)
- Develop an accident reporting system for your Team.
- Investigate all accidents promptly to establish their cause and recommend and implement corrective action to help prevent any recurrence.
- Report all hazards to the Facility Manager

LIFESAVING SOCIETY

The Lifeguarding Experts

Thank you

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