



World Water Safety

## INTERNATIONAL LIFE SAVING FEDERATION

Gemeenteplein 26 – 3010 Leuven – Belgium  
Tel: +32/(0)16-89.60.60 – E-mail: [ils.hq@telenet.be](mailto:ils.hq@telenet.be) - Web: [www.ilsf.org](http://www.ilsf.org)

### LIFESAVING POSITION STATEMENT - LPS 15

## BASIC AQUATIC SURVIVAL SKILL

### BACKGROUND

In 2007 International Life Saving (ILS) adopted the Position Statement for Swimming and Water Safety Education<sup>1</sup>. This ILS Position Statement noted that *“evidence is rapidly accumulating that a basic level of water safety knowledge, coupled with a basic level of swimming skill (often called survival swimming) is sufficient to prevent most drowning episodes”*.

Again in 2007 ILS adopted the broad definition of swimming in a water safety context as being “a person should be able to know how to and actually move in water using any mode of propulsion that maintains head above the water.” In adopting this broad definition ILS noted that further guidance was needed on what is meant by the term “basic level of swimming skill” (since re-titled ‘basic aquatic survival skill’) that would lead to a person having an improved level of water safety skill.

Swimming and water safety education was a theme of enquiry during the World Conference on Drowning Prevention 2011. Numerous papers, posters and workshop discussions informed the development of this position statement.

### Risk Factor and/or Protective Factor

Swimming ability, or lack thereof, has been the cause of much debate among the drowning prevention community, whether as a risk factor in drowning or as a protective factor in preventing drowning. Throughout the debate research<sup>2</sup> has pointed to increases for risk taking behaviour, whilst others<sup>3 4</sup> have described the potential benefits as a population wide strategy but urged further studies to establish a clear link to drowning prevention.

An absence of swimming skills has been identified as a contributing factor in drowning in minority groups in High Income Countries (HICs)<sup>5-7</sup>. For example, in Australia advocates<sup>8 9</sup> point to a decline in swimming abilities among primary school aged children and propose that it may be a factor in the high number of drowning deaths that occur among people in later life stages.

## **An issue in low and middle income countries**

In 2008 the World Report on Child Injury Prevention<sup>10</sup> the rated a set of interventions according to the strength of evidence supporting their potential impact on reducing drowning. The report stated the need for intervention studies to measure the effectiveness of swimming lessons in preventing drowning prior to recommending them as a drowning prevention strategy more widely.

Several studies<sup>10-13</sup> describing drowning risk factors in children in low and middle income countries (LMICs) have identified the absence of swimming skills as a significant drowning risk factor. Those same studies and several others<sup>14-16</sup> have proposed teaching school aged children basic survival swimming skills as an intervention to prevent drowning in children over 5 years of age.

Research<sup>17</sup> presented at the World Conference on Drowning Prevention 2011 showed a significant reduction in drowning risk in Bangladeshi children as a result of teaching survival swimming skills, coupled with community drowning risk reduction programs, delivered in a structured and well supervised manner. The basis of this intervention is further described in a report by The Alliance for Safe Children and UNICEF<sup>18</sup>.

Some Governments and many NGOs are actively promoting the use of survival swimming as a drowning prevention intervention in LMICs. This further reinforces the need for clear guidance on the nature and format of programs in basic aquatic survival skill.

## **Definitions of Basic Aquatic Survival Skill**

Few studies have addressed distance and duration in providing definitions of basic aquatic survival skill. Questions such as; How far?; For how long, and how often? What skills? are key elements to this on-going debate.

Research has shown that many people who get into difficulty in inland waterways fall from the edge of a waterway or vessel and often are within 15m of safety. For example; in the UK in 1977, 55% of open water drowning deaths occurred within 3 meters of safety (either shore or vessel) and 42% occurred within 2 meters<sup>19</sup>. A study of drowning deaths in Canada<sup>20</sup> between 1992 and 2007 found that, 46% of all drowning deaths occurred within 2 metres of shore, and 67% within 15 metres of the shore. Other studies have found similar results<sup>21</sup>.

In 1973 Barrell and Trippe<sup>22</sup> defined non-swimmers as those unable to swim 10 yards in a relaxed and competent manner. In exploring swimming ability in 4,000 children in Queensland in 1979 Pearn and Nixon<sup>23</sup> defined swimming as the ability to swim 10 metres or more.

Basic aquatic survival skill was determined to be the ability to swim a distance of no less than 25m, flotation for a duration of 1minute and performance of basic rescue techniques in control studies in Bangladesh<sup>24</sup>. The distance of 25m was based on evidence from large case-control studies<sup>25</sup> on child drowning in Bangladesh and Thailand and a Delphi process that included an investigation of patterns of drowning, anthropological assessment of swimming abilities of older children, consultation with self-appointed village swim instructors, the review of international guidelines including those from Australia<sup>26,27</sup> and Canada. Importantly, instruction based on this criteria has been shown to result in large reductions in drowning deaths<sup>18</sup>, with further published studies in press.

A study titled ‘can you swim’<sup>28</sup> identifies a much greater measure of distance (400m) and duration (15min floating) in HICs in defining what is meant by being able to swim. These metrics are commonly applied in extended lifesaving awards consistent with the ILS Lifesaver Award.

Brenner<sup>29</sup> described water competence as the sum of aquatic motor skills, cognitive knowledge and affective dispositions that contribute to a person’s competency and confidence in the aquatic environment. Further, Brenner noted that swimming is a necessary component of what is described as water competence.

In addition to distance, duration and specific water skills, drowning prevention knowledge forms an important component in some definitions. The international taskforce on open water swimming<sup>30</sup> has provided guidance on key water safety messages which may be included as a knowledge component of basic aquatic survival skill programs.

### **Special considerations**

Basic aquatic survival skill acquisition should ideally include both knowledge of and practice in specific water conditions. There is a body of opinion that the attitude of the swimmer towards the water conditions and to the level of risk also plays an important role in risk taking behaviours in and around water.

As water conditions in aquatic emergencies are likely to vary greatly from the controlled environment of a swimming pool, instruction in basic swimming skills should aim to build awareness of the likely impact of water conditions such as moving water, breaking waves, rip currents and the like. Inland open water environments also present difficulties for those who may have unintentionally entered the water and whereby exit from the nearest landing may be inaccessible due to steep sides, crumbling or soft edges.

Golden and Tipton, found that many drowning deaths in cold waters can be attributed to “cold shock”. There are also other contributing factors and/or explanations such as a person exposed to cold shock does not have the ability to float a short time in order to regain their composure, this does not allow the cold shock effect of dramatically elevated pulse and respiration rate to subside, and the onset of panic in the face of being unable to breath. Golden and Tipton<sup>31</sup> describe how previous experience in similar controlled situations, in their case cold waters, and specific skills and knowledge, plus the attitude that this need not be fatal, improves the chance to reduce pulse and respiration rate to manageable levels.

Research<sup>32-34</sup> in surf beach environments shows that people are often in difficulty due to lack of location specific awareness of factors such as rip currents. Thus, programs of basic aquatic survival skill should consider education in waters similar to the conditions likely to be encountered by those at risk of drowning<sup>35</sup>. As sudden and unexpected immersion is likely to result in a person entering the water clothed, practice in swimming wearing and/or removing clothing is an important part of basic aquatic survival skill acquisition.

Given the widespread support<sup>36,37</sup> of use of personal flotation devices (PFD) as a drowning prevention intervention, particularly but not restricted to boating activities, it is advised that basic aquatic survival programs include instruction and practical experience in their use. This position is reinforced in the ILS Position Statement – Use of Personal Flotation Devices<sup>38</sup>.

### **Age appropriateness**

High rates of drowning in children aged under five has prompted some debate about the efficacy of swimming lessons as a drowning prevention strategy in children as young as 6

months. A scientific review<sup>39</sup> found that the optimal age for introducing children to water education in an HIC is 1-4 years; many basic skills can be acquired between 18-60 months; and that early acquisition of skills serve as a foundational role for later skills. In a case control study, Brenner<sup>40</sup> found an association between participation in formal swimming lessons and a 88% reduction in drowning in children 1-4 years.

In 2010 the American Academy of Pediatrics issued a statement<sup>41</sup> noting it supports swimming lessons for children 4 years and older and allowing parental decision for children beginning to learn water survival skills between 1-4 years of age and cautions against the notion of drown proofing.

Whilst it may be feasible to teach children 1-4 years, a study by Blanksby<sup>42</sup> in 1995 comparing the number of lessons taken by children to reach a benchmark of 10 metres of front crawl found that children aged five took substantially fewer lessons to achieve this milestone than children who commenced at age 2, 3 or 4 years.

The term drown proofing has been adopted by some infant swimming practitioners but was initially developed as a water survival technique in adults that was invented by Fred Lanoue, swimming coach at Georgia Institute of Technology from 1936 to 1964. The use of the term drown proofing is discouraged and not supported by the ILS.

## **Risk Management Approaches**

Fear of drowning is a major deterrent to learning to swim and swimming proficiency among individuals and cultures<sup>43,44</sup>. Inappropriate or carelessly practiced experiences in the water at a young age can lead to a lifelong avoidance of water and aquatic education. The welfare of the learner, in particular children, should be a priority in any water safety education programme. By creating an environment where the child is safe and wants to learn more, learning will take place more quickly. The United Nations - Convention on the Rights of the Child states that a child should be protected from circumstances that are harmful to the child's physical or mental development.

Based on anecdotal evidence of increasing provision of basic aquatic survival programs in LMICs and noting the substantial scale that is required to impact on drowning, effective risk management procedures are critical. Strategies to reduce the risk of drowning during swimming lessons include assessment of individual students for suitable physical and mental development, presence of conditions that predispose to drowning (e.g. epilepsy), structured and standardised instructional resources and instructor training<sup>45</sup>, teacher ratios, CPR and basic rescue training for instructors and improved venue safety.

## **STATEMENT (recommendations)**

1. Basic aquatic survival skill is defined as the ability to demonstrate the following set of skills, in a consistent and competent manner.
  - a. Enter and exit water safely;
  - b. Float in water with airway above the surface of the water (note: movement of limbs and body to be permitted) for a minimum time of 30 seconds and while breathing in a relaxed manner;
  - c. Move through water using any form of propulsion and combination of strokes on the front, back or side for a minimum distance of 25 meters;
  - d. Rescue and be rescued by extending or grasping a rescue aid (e.g. pole, bottle, rope etc.) and be guided to safety over a distance (i.e. 3 to 5 metres).
  - e. Practice putting on and swimming and floating using a PFD

2. Achievement of basic aquatic survival skill acquisition should not preclude nor deter on-going participation in aquatic education programs. Whilst some elements of such learning may be life-long in nature, on-going and/or regular instruction or practice is encouraged.
3. Careful consideration should be given to ensure that the skills being developed are in an appropriate development sequence that recognises the long term physical and mental development of the learner, in particular children.
4. The assessment of competence in the basic aquatic survival skill should be conducted:
  - a. with the bare minimum of supporting equipment (i.e. no fins or flotation aids);
  - b. in any suitable body of water (still water under controlled situations) over a measured distance;
  - c. by assessors who have achieved a required level of skill and competence;
  - d. with ratios of student to instructor appropriate for the skill level (e.g. beginner) and appropriate for the water conditions and with due considerations for safety of all persons involved.
5. Instruction in basic swimming skills should aim to build awareness of a range of water conditions such as moving water, breaking waves, rip currents and the like with a focus on the predominant drowning scenarios that are encountered in the country or region.
6. Based on the notion that unintentional fall into water is a factor in some drowning incidents, practice while wearing and/or removing clothing is an important part of basic aquatic survival skill acquisition. The level of clothing worn during such instruction should be consistent with that normally worn in the country and region in which the person normally resides.
7. At all times the health and safety of the students under instruction or assessment is paramount. Organisations conducting teaching and assessment should ensure the safety of their programme participants through the provision of adequate surveillance and supervision that may include the use of additional lifeguards and/or rescue equipment, as appropriate.
8. The teaching of “basic aquatic survival skill” is largely independent of age (and possibly other attributes including disability) and is based on an assessment of development of motor skills and cognitive abilities of the individual as well as the various delivery methodologies in use throughout the world.

## DEFINITIONS & ABBREVIATIONS

Competence: The quality of being adequately or well qualified physically and intellectually.

Deep:	Extending far below the surface of the water, and beyond where a person can stand.
HIC:	High Income Country
LMIC:	Low and Middle Income Countries
NGO:	Non-Governmental Organisation
PFD:	Personal Flotation Device
Skill:	An ability, usually learned and acquired through training, to perform actions which achieve a desired outcome
Surface Dive:	Floating face down on surface of the water, bend at the waist, submerge the head, arms and upper body pulling through the water with arms to fully submerge the body; kicking as required to assist

## REFERENCES

1. International Life Saving Federation. Position Statement: Swimming and Water Safety Education. *International Journal of Aquatic Research and Education* 2007;1(4):373-377.

2. Barss P. Cautionary notes on teaching water safety skills. *Injury Prevention* 1995;1:218-219.
3. Brenner RA, Saiuja G, Smith GS. Swimming lessons, swimming ability, and the risk of drowning. *Injury Control and Safety Promotion* 2003;10(4):211-216.
4. Asher K, Rivara F, Felix D, Vance L, Dunne R. Water safety training as a potential means of reducing risk of young children's drowning. *Injury Prevention* 1995;1(4):228-33.
5. Martin NT, Witma D. Factors Affecting Minority Drowning. *International Journal of Aquatic Research & Education* 2010;4(1):9-18.
6. Quan L, Crispin B, Bennett E, Gomez A. Beliefs and practices to prevent drowning among Vietnamese-American adolescents and parents. *Injury Prevention* 2006;12(6):427-9.
7. Irwin CC, Irwin RL, Ryan TD, Drayer J. Urban minority youth swimming (in)ability in the United States and associated demographic characteristics: toward a drowning prevention plan. *Injury Prevention* 2009;15(4):234-9.
8. Royal Life Saving Society - Australia. No Child To Miss Out: Basic Swimming & Water Safety Education: The Right of all Australian Children. Sydney: Royal Life Saving Society - Australia, 2012.
9. Royal Life Saving Society Australia. Royal Life Saving 2010 National Drowning Report. Sydney: Royal Life Saving Society Australia, 2010.
10. World Health Organisation. World Report on Child Injury Prevention. In: Peden M, Oyegbite K, Ozanne-Smith J, Hyder AA, Branche CM, Rahman AF, et al., editors. Geneva: World Health Organisation, 2008.
11. Yang L, Nong Q-Q, Li C-L, Feng Q-M, Lo SK. Risk factors for childhood drowning in rural regions of a developing country: a case control study. *Injury Prevention* 2007;13(3):178-182.
12. Borse NN, Hyder AA, Bishai D, Baker T, Arifeen SE. Potential Risk Estimation Drowning Index for Children (PREDIC): A pilot study from Matlab, Bangladesh. *Accident Analysis and Prevention* 2011;43(6):1901-1906.
13. Rahman A, Mashreky SR, Chowdhury SM, Giashuddin MS, Uhaa IJ, Shafinaz S, et al. Analysis of the childhood fatal drowning situation in Bangladesh: exploring prevention measures for low income countries. *Injury Prevention* 2009;15(2):75-79.
14. Rivara FP. Prevention of Drowning. The Time Is Now. *Archives of Pediatrics & Adolescent Medicine* 2009;163(3):277-278.
15. Hyder AA, Borse NN, Blum L, Khan R, Arifeen SE, Baqui AH. Childhood drowning in low- and middle-income countries: Urgent need for intervention trials. *Journal of Paediatrics and Child Health* 2008;44:221-227.
16. Linnan M, Giersing M, Linnan H, Cox R, Williams MK, Voumard C, et al. Child Mortality and Injury in Asia: Policy and Programme Implications. *Innocenti Working Paper 2007-07, Special Series on Child Injury No. 4*. Florence: UNICEF Innocenti Research Centre, 2007.
17. Finkelstein E, Bose S, Rahman F, Rahman A, Scarr J, Linnan M. The cost of reducing drowning in rural Bangladesh and implications for governments, policy makers and donors. In: Scarr J, Sharp M, Smeal M, Khoudair H, editors. *World Conference on Drowning Prevention*. Danang, Vietnam: International Life Saving Federation, 2011:30.
18. Linnan M, RA, Scarr J., Reinten-Reynolds T., Linnan J., Rui-wei J., Mashreky S., Shafinaz S., Bose S., Finkelstein F., Rahman, F., Child Drowning: Evidence for a newly recognized cause of child mortality in low and middle income countries in Asia. *Working Paper 2012-07, Special Series on Child Injury No. 2*. . Florence: UNICEF Office of Research, 2012.
19. Home Office. Report of the working party on water safety. *HMSO, London* 1997.
20. Drowning Prevention Research Centre - Canada. National Drowning Report. Ottawa, 2011.
21. Chief Coroner for Ontario. A Review of All Accidental Drowning Deaths in Ontario From May 1st to September 30th 2010. In: Lauwers AE, Coleman E, Zwolakowski D, editors. Ontario, Canada, 2010.
22. Barrell GV, Trippe HR. Swimming ability and water sports participation. *British Journal of Physical Education*, 1973;4(6):xxxvii-xxxix
23. Nixon JW, Pearn JH, Dugdale AE. Swimming ability of children: a survey of 4000 Queensland children in a high drowning region. *Medical Journal of Australia* 1979;2(5):271-2.
24. Rahman A, Rahman F, Hossain J, Talab A, Scarr J, Linnan M. Survival swimming – Effectiveness of SwimSafe in preventing drowning in mid and late childhood. In: Scarr J, Sharp M, Smeal M, Khoudair H, editors. *World Conference on Drowning Prevention* Danang, Vietnam: International Life Saving Federation, 2011:49.
25. UNICEF. Bangladesh Health and Injury Survey: Key Findings on Child Injuries UNICEF, 2003.
26. Australian Council for the Teaching of Swimming and Water Safety. Guidelines to Teaching Swimming and Water Safety Programs, 2002.
27. Royal Life Saving Society Australia. Guidelines for Safe Pool Operation. Sydney, Australia, 2006.
28. Moran K, Stallman RK, Kjendle P, Dahl D, Blitvich J, Petrass LA, et al. Can You Swim? An Exploration of Measuring Real and Perceived Water Competency. *International Journal of Aquatic Research and Education* 2012;6(1):122 - 135.
29. Brenner R, Moran K, Stallman R, Gilchrist J, McVan J, editors. *Swimming abilities, water safety education and drowning prevention*. Berlin: Springer, 2006.
30. Bennett E, Quan L, Moran K. Simple messages to prevent drowning in open water: guidelines from an International Task Force. *Inj Prev* 2010;16(A181).
31. Golden FS, Tipton MJ, Scott RC. Immersion, near-drowning and drowning. *British Journal of Anaesthesia* 1997;79(2):214-225.
32. Sherker S, Brander R, Finch C, Hatfield J. Why Australia needs an effective national campaign to reduce coastal drowning. *Journal of Science & Medicine in Sport* 2008;11:81-83.
33. Sherker S, Williamson A, Hatfield J, Brander R, Hayen A. Beachgoers' beliefs and behaviours in relation to beach flags and rip currents. *Accident Analysis & Prevention* 2010;42(6):1785-1804.
34. Surf Life Saving Australia. 2010 National Coastal Safety Report: Preventing Coastal Drowning Deaths in Australia. Sydney: Surf Life Saving Society Australia, 2010.
35. Hindmarch T, Melbye M. Good swimmers drown more often than non-swimmers: How openwater swimming could feature in beginner swimming. In: Scarr J, Sharp M, Smeal M, Khoudair H, editors. *World Conference on Drowning Prevention*. Danang, Vietnam: International Life Saving Federation 2011.
36. Quan L, Bennet E, Cummings P, Trusty MN, Treser CD. Are life vests worn? A multiregional observational study of personal flotation device use in small boats. *Injury Prevention* 1998;4(3):203-5.

37. Cummings P, Mueller BA, Quan L. Association between wearing a personal floatation device and death by drowning among recreational boaters: a matched cohort analysis of United States Coast Guard data. *Injury Prevention* 2011;ePub.
38. International Life Saving Federation. Position Statement: Use of Personal Flotation Devices. Belgium: International Life Saving 2012.
39. Langendorfer SL, Quan L, Pia F, Fielding R R, Wernicki PG, Marenson D. Minimum Age for Swimming Lessons: American Red Cross Advisory Council on First Aid, Aquatics, Safety and Preparedness, 2009.
40. Brenner RA, Taneja GS, Haynie DL, Trumble AC, Qian C, Klinger RM, et al. Association Between Swimming Lessons and Drowning in Childhood. A Case-Control Study. *Archives of Pediatrics & Adolescent Medicine* 2009;163(3):203-210.
41. Committee on Injury V, Poison P, Weiss J. Prevention of Drowning. *Pediatrics* 2010;126(1):e253-e262.
42. Blanksby BAP, H.E., Bradley S, Ong V. Children's Readiness for Learning Front Crawl Swimming. *The Australian Journal of Science and Medicine In Sport* 1995;27(2):34-37.
43. Irwin CC, Irwin RL, Ryan TD, Drayer J. The Legacy of Fear: Is Fear Impacting Fatal and Non-Fatal Drowning of African American Children? *Journal of Black Studies*;42(4):561-576.
44. Berukoff KD, Hill GM. A Study of Factors That Influence the Swimming Performance of Hispanic High School Students. *International Journal of Aquatic Research and Education* 2010;4(4):409-421.
45. Rahman A, Mashreky SR, Rahman F, Hossain J, Ul Baset K, Cox R, et al. SwimSafe teaching tools: guidance for survival swimming to children in low and middle income countries. In: Scarr J, Sharp M, Smeal M, Khoudair H, editors. *World Conference on Drowning Prevention*. Danang, Vietnam: International Life Saving Federation 2011.

Policy Statement approved by the Board of Directors on 06/11/2012