American Red Cross
Scientific Advisory Council

American Red Cross Scientific Advisory Council Advisory
Minimum Age for Swim Lessons

Overall Recommendation:

The scientific evidence continues to support the previous Triennial Review as well as the AAP recommendation that all children, beginning as early as 1-year-of-age, should learn to swim. The AAP policy statement and technical report, however, emphasized that currently no evidence exists to support infant swim lessons (i.e., for young children under the age of 1 year). The current scientific evidence, albeit limited, continues to show that young children 2-5 years of age who have taken swim lessons show a reduced risk of drowning.

Therefore, it is the recommendation of this triennial review that we **reaffirm** the question and support the value of developmentally appropriate group swim lessons for children 1-5 years of age as currently offered by the American Red Cross through the Parent-Child Aquatics and Preschool Aquatics programs.

Recommendations and Strength:

Standards: None

Guidelines: (Class II). Sufficient research evidence exists that after 3 years of age, learning to swim contributes to reduction of risk in preventing drowning.
No evidence exists that learning voluntary aquatic skills prior to 1 year of age produces a functional level of proficiency, advantage in preventing drowning, or other benefits.

Options: (Class III). The limited, but growing research evidence demonstrates that

- individual infants and young children are capable of acquiring selected basic aquatic skills during the first two to five years of life at a rudimentary level of development/proficiency;
- limited evidence exists that introduction to swim lessons by age 3 years provides some drowning prevention benefits;
- no current research evidence suggests that early swimming lessons increase the likelihood of drowning;
- the research evidence related to issues of program purpose/outcomes, functionality of skills, developmental level, or degree of competence, efficiency of acquisition, and methodology for that acquisition process is insufficient to support either a standard or guideline relative to a minimum age or other criteria;
- based on the consensus of opinion from major aquatic agencies and experts, infants and young children between the ages of 1 and 5 years may optionally start swim lessons for the purpose of building aquatic readiness and water acclimation on an individual basis. Individual considerations in addition to age should include child-specific cognitive, social, and psychomotor readiness factors including prerequisite skills such as voluntary breath

control, upright head and trunk control, maintaining upright balance, and independent walking.

Questions to be addressed:

Does sufficient scientific evidence exist to support setting a minimum age for swimming lessons?

Corollary questions

1) Does scientific evidence exist to support an optimal age for acquiring swimming and aquatic skills?
2) What scientific evidence exists demonstrating the benefits of swim lessons for young children, children, adolescents, and adults? and
3) What scientific evidence exists to define the concept of aquatic readiness for swim lessons?

Introduction/Overview:

The earliest and/or optimal age(s) at which aquatic skills should be introduced within structured (a.k.a., formal) swim lessons has remained a controversial issue in the aquatic and pediatric medical fields for over four decades. The controversy in part stems from differing theoretical perspectives underlying the nature of skill acquisition (e.g., maturational, learning, or dynamical theories) as well as the varied purposes for which swim lessons are offered (e.g., aquatic readiness, swim stroke acquisition, drowning prevention).

A *maturational perspective*, often adopted by the pediatric medical profession (i.e., American Academy of Pediatrics), assumes that aquatic skill acquisition closely relates to a person's chronologic age as result of normative hereditary-based processes. In fact, an earlier AAP policy statement (2003) recommended that, while all children should learn to swim, aquatic agencies and parents ought to restrict organized swimming lessons until after a child has reached the age of 4 years (48 months) "*due to general developmental limitations*" (AAP, 2003). The contrasting *learning approach*, more typically adopted by swim instructors and swimming agencies, presumes that learning to swim depends less upon age than upon specific environmentally based experiences such as structured swim lessons. In contrast, *dynamical systems (a.k.a., chaos) theory*, a more contemporary approach, claims that learning to swim, like acquiring other motor skills, results from an emergent and dynamic process through which physical and psychological factors interact in complex systematic ways. These three very different worldviews strongly influence how persons and organizations understand why and how aquatic skills are acquired.

Aquatic programs and learn to swim lessons along with AAP statements have been indirectly and subtly influenced by the previously mentioned perspectives. They also have been shaped by their underlying, but often unstated purposes such as to develop aquatic readiness and adjustment skills to eventually promote water safety and enjoyment of swimming; to primarily prevent drowning in infants and toddlers, to promote precocious swimming skills for competition or survival, or even to promote enhanced motor control, coordination, and academic skills.

Depending upon the primary purpose(s) of the aquatic programs, different sets of skills are emphasized along with differing teaching approaches.

Abundant research and case reports have illustrated that individual infants and young children indeed can acquire voluntary aquatic behaviors during the second through fifth years of life (e.g., Erbaugh,1980; Langendorfer & Willing, 1985; McGraw, 1939; Newman, 1967; 1968). This is a similar age range during which most young children acquire basic levels of other fundamental locomotor and motor skills such as walking, running, jumping, throwing, or kicking. Asher et al. (1995) found that children approximately 3 years of age demonstrated significant changes in rudimentary aquatic safety behaviors after either 8 or 12 weeks of training. In a case control study, children who had formal swimming lessons had up to an 88% reduction in drowning deaths compared to a matched case sample (Brenner, et al., 2009). Another case control study from China (Yang, et al., 2007) found significant risk factors existed for males and children between the ages of 1-4 years and that close caregiver supervision, experience in water, and wearing flotation devices reduced the risk of drowning among this population. Two epidemiological studies regarding risks of drowning in Bangledesh and effective drowning prevention techniques added further support to the importance of early swimming experiences in reducing risks of drowning especially in low and middle-income countries (LMIC) (Rahman, et al., 2009; Rahman, et al., 2012).

Does evidence exist to support an optimal age for acquiring swimming and aquatic skills?
In the only studies that have evaluated the *optimal age* to begin to learn to swim, children ages 4-6 years were observed to acquire traditional beginner swimming skills more rapidly and efficiently than younger children (Blanksby et al., 1995; Parker & Blanksby, 1997). Based on the lack of other research as well as the complexity of appropriate research variables, at this point no recommendation can be supported to propose whether an optimal age exists during childhood at which to begin swimming lessons. An optimal age for starting water experiences to reduce the risk of drowning has not been studied, but the Asher et al. (1995) study suggests that some benefits may occur as early as age three years.

Summary of Scientific Foundation:

The longstanding tradition for swimming lessons to use criterion-referenced approaches (i.e., focus on existing skill level to predict what to learn next, a.k.a., readiness) remains the most appropriate way to make decisions about when individual children are ready to begin aquatic experiences and what skills they should learn. The literature contains little definitive research to either restrict swimming experiences to the *minimum age* of four years as promoted by AAP or to necessitate early experience in swimming. Some limited research (e.g., McGraw, Diem) suggests that regular, persistent experiences across the preschool period provide some longer term qualitative aquatic benefits. A single study by Parker and Blanksby suggested that starting swim lessons between the ages of 5-6 years resulted in a shorter period of skill acquisition than starting at young ages. The review indicated the need for additional larger prospective studies to be conducted to address issues and questions related to efficiency, optimality, quality, readiness, and appropriate pedagogy for swimming skill acquisition by young children.

2019 Summary Update:

Recent research evidence concurs with the American Academy of Pediatrics 2010 recommendation that no specific minimum age should limit early aquatic experiences and swim lessons. Although research evidence is still somewhat limited and correlative, it is sufficient as a **guideline** that the minimum age of older than 1 year should be established for initiating aquatic experiences for young children with the goal of reducing drowning risk and increasing eventual proficiency in basic aquatic tasks. In addition, parents should make the decision about starting aquatic experiences on an individual basis considering factors such as each child's receptivity to water, socio-emotional readiness, demonstration of voluntary breath control, postural control, response to directions, healthful characteristics of the facility (e.g., appropriate air/water temperatures, depth, hygiene), child's health status and contraindications, and other individual differences.

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Update 2019:

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