

## Best Practices for Teaching Those Afraid in Water

Belinda E. Stillwell

California State University, Northridge, USA

The primary purpose of this study is to share what has been found to work well in professional practice based on a series of exploratory scholarly studies as well as information gathered informally from students and through specialized aquatic workshops, conferences and seminars. Research has shown that there is an existing population of at-risk swimmers, and, therefore, it is inevitable that many aquatic professionals will encounter individuals in need of a specialized approach to learning. The concept of systematic desensitization holds great promise and, when refined, can be introduced to educators to augment existing swimming instruction and eventually contribute to the extinction of preventable drowning.

*Keywords:* water, anxiety, fear, phobia, systematic desensitization, at-risk swimmers

### Introduction

According to the CDC (Center for Disease Control) nine people drown each day in the US and it is the second-leading cause of unintentional injury-related death for children aged 1-14 (Center for Disease Control, 2007). For every child that dies, five more receive emergency medical care for nonfatal submersion injuries (Center for Disease Control, 2007). In 2008, the US Swimming Foundation commissioned a nationwide research study to be conducted in five metropolitan areas (Chicago, Houston, Memphis, Oakland and Philadelphia) and found that in ethnically-diverse communities the youth drowning rate is two to three times higher than the national average (R. Irwin, Drayer, C. Irwin, Ryan, & Southhall, 2008). Variables found to significantly increase the chances for children 6-11 years of age being a low ability “at-risk” swimmer included living in a home with a level of income that qualifies for free/reduced lunch program, and where a parent fears that the child may drown or be injured while swimming (Irwin et al., 2008). Specifically, 45% of at-risk swimmers indicated that they were afraid of drowning or being injured while swimming (compared to 16% of non-at-risk swimmers), while 46% of parents of at-risk swimmers agreed or strongly agreed that they were afraid that their children would drown or become injured while swimming (compared to only 21% of non-at-risk swimmers) (Irwin et al., 2008). Additionally, 65% of parents of at-risk swimmers were, themselves, at-risk swimmers (Irwin et al., 2008). Hence, it is inevitable that aquatic professionals who teach in a variety of settings will encounter individuals who are considered at-risk swimmers, and, for that reason, it is important to establish effective teaching strategies that can best help this specific population.

The primary purpose of this article is to share what has been found to work well in professional practice based on a series of exploratory scholarly studies, as well as information gathered informally from students and through specialized aquatic workshops, conferences and seminars. To date, there is little published research on

---

Belinda E. Stillwell, Ph.D., associate professor, Department of Kinesiology, California State University.

the impact of anxiety and fear on learning swimming skills; consequently, past studies referred to date back as early as 1933.

### **Defining Anxiety and Fear**

Although anxiety and fear often result in some of the same behaviors displayed among individuals (e.g., heart palpitations, chest pains and shortness of breath), there is a difference. Anxiety is defined as a negative mood-state characterized by bodily symptoms of physical tension and apprehension about the future (American Psychiatric Association, 1994; Barlow, 2002). Conversely, fear is an immediate emotional reaction characterized by strong escapist tendencies in response to present danger or life-threatening emergencies and, often, there is a surge in the sympathetic branch of the autonomic nervous system (Barlow, Brown, & Craske, 1994). Therefore, the most noticeable difference between anxiety and fear is that anxiety is thought of as excessive worry and apprehension of future events that appear out of one's control, whereas, fear is a more immediate response to a true alarm such as an earthquake, severe fire or burglary.

Panic is also a part of the discussion when referring to anxiety and fear. A panic attack is a sudden and intense feeling of terror, fear or apprehension, without the presence of actual danger (About.Com., 2010). There are three basic types of panic attacks: (1) spontaneous (uncued); (2) situationally (cued) bound; and (3) situationally predisposed (About.Com., 2010). Spontaneous (uncued) panic attacks come without warning and may happen anywhere at any time. Situationally (cued) bound panic attacks occur when someone is exposed (or anticipating exposure) to a specific situation. For example, a person who fears swimming pools experiences an attack when entering, or thinking about entering, a pool. Finally, situationally predisposed panic attacks may, or may not, arise when an individual is exposed to a specific situation. Likewise, the attack may be delayed. For example, someone who fears open water may or may not have a panic attack in an open water situation or could have a delayed attack after a long period of exposure. Anxiety and fear can lead to panic. Situationally predisposed attacks are important in understanding the development of panic disorder, where situationally (cued) bound attacks are more common in the development of specific phobias (e.g., water phobia). A specific phobia is an irrational fear of a specific object or situation that markedly interferes with an individual's ability to function in daily life (Barlow & Duran, 2002).

### **Study One—What They Said**

The purpose of this study was to document what individuals were afraid of, and why, with regard to the water. Participants included two female college-aged students who participated in a required swimming course as part of a Bachelor's science degree in physical education. During interviews, these students cited developmental, social, psychological and biological reasons for their anxieties and fears. Developmental contributions refers to certain critical periods when individuals are more or less reactive to a given situation or influence. In 1933, Berlin used questionnaires and interviews with parents and teachers to uncover the causes of fear among his 20 participants. Of the 14 eight- to fourteen- year olds and six twenty-year olds, all participants had experienced an unfortunate event, such as watching or being personally involved in a near-drowning. Similarly, Bentler (1962) found that fear of the water may be a result of prolonged unpleasant water experiences over a number of years or the result of a single traumatic experience. One student recalled this traumatic memory, "I was walking along the side of the pool and I got grabbed by my ankle and I got thrown in.

I got thrown into the deep end. I remember just sinking straight down to the bottom—panicking. I think I panicked so much that I began to move a lot and that got me back to the top. Once there, I was able to hold on to the side and get out. And basically from that point I didn't like going into the water".

In 1945, Elliott found that social and cultural contributions, such as the family's attitude, school pressures from various social groups and the immediate swimming group, had an influence on individuals who were fearful. Hewitt (1947) suggested the following reasons (among others) for the development of fear: (1) imitating those who are afraid; and (2) a sense of insecurity in home situations. A student said this during a formal interview, "...When I saw (my friend) doing that (swimming skill), I personally didn't tell her that it was making me angry. I wanted to do that (swimming skill) too!... I knew I shouldn't have done that (compared myself to another person) but I was thinking that we've both been here the same amount of class time—I should be at least, at least, that far along". She added this about peer pressure, "I felt more comfortable being under the water than I did above the water, because people couldn't see me". Additional social contributions that led to higher levels of anxiety and fear for students included having to pass a swimming course before graduating, ending long-term relationships and quitting a job that they had had throughout school.

There is increasing evidence that shows we may inherit a tendency to be tense or uptight (Merikangas & Pine, 2002). And although beyond the scope of this article, anxiety and fear has also been associated with specific brain circuits and neurotransmitter systems (Deakin & Graeff, 1991; Lesch et al., 1996; Maier, 1997). One student came to realize that she had the same ill feelings about the water as her parents and siblings did, "If I look at my family, it's like none of them like being in the water, really". In this case, a predisposition to anxiety and fear seemed to be something transmitted from family member to family member. Whiting and Stembridge (1965) hypothesized that a non-swimmer's personality may contribute to their susceptibility to fear. Researchers divided swimmers into two categories: (1) those that received previous instruction and were still unable to swim; and (2) those who had never received previous instruction. Using the MPI (Maudsley Personality Inventories) for male university swimmers, results from category (1) showed a lower extraversion mean than those in category (2). No significant differences were found in neuroticism scores. In addition, the Junior MPI was used for 11- and 12- year-old boys. Researchers concluded that the non-swimmers in both age groups reported significant levels of introversion and neuroticism. Rather than using personality terms, Spielberger (1983) separated anxiety into two types: trait anxiety and state anxiety. Trait anxiety indicates how a person generally feels all of the time. Conversely, state anxiety refers to how an individual feels at a particular time (e.g., right before swimming class starts). One student experienced both types. She spoke about her sisters and mother, all of who were also afraid of the water. Additionally, she said that her parents rarely took any of their daughters to places where water existed. With regard to her personal feelings about anxiety, "It's funny because I just don't relax about anything. I'm always really tense".

Additional frightening things noted by students were the color of water ("bluer" water meant "deeper" water), poor visibility and floating debris (e.g., hair, dirt and trash). At-risk students were also concerned about other classmates (who were not afraid in water). Their primary concern was that a classmate would inadvertently bump into them or unintentionally pull them under the water.

### **Study Two—What Worked**

The purpose of this study was to record what strategies swimming teachers believed to work well with

students who were afraid in water. A 16-question survey was designed to examine participants' demographic information, background and personal aquatic experiences, professional training, work experiences and teaching strategies they employed.

Demographically, a total of 14 teachers (10 females, 4 males) ranging in age from 20-51 years old volunteered to answer questions, six (3 females, 3 males) of the participants also served as swimming coaches. All of the participants were college-educated with ten seeking a Bachelor's degree in kinesiology. Two had received Master's degrees and two completed a Ph.D. program.

In terms of background and personal aquatic experiences, teachers had rated their swimming and water skills at an advanced or competitive level. When asked about the occurrence of any past personal traumatic water experiences, six teachers responded "Yes". Fortunately, these events did not have a significant impact on their motivation to pursue their swimming certificates and actively teach and/or coach. Similarly, with regard to experiencing any traumatic experiences while instructing, three had mentioned having to make minor rescues (e.g., assist a student who had slipped off a kickboard or the stairs), whereas three others were involved in more serious scenarios (spinal injury, seizure and cardiac arrest). As with personal traumatic experiences, these distressing work-related situations did not detour them from continuing their teaching and coaching careers.

Every teacher had been certified as a WSI (Water Safety Instructor) through the ARC (American Red Cross). Three teachers had additional certifications through the YMCA (Young Men's Christian Association), the county lifeguard service or a specialized swim school (e.g., Australian Swim School). Regardless of their professional certifications, only three felt that their training had provided the necessary information and practical experience for working with at-risk students.

Collectively, this group had 3-37 years of employment experiences under similar conditions. Everyone had taught in diverse settings and interacted with a variety of skill levels, group sizes and ages across the lifespan. Twelve of the teachers felt comfortable teaching at-risk students, while one was uneasy about working with adults and the other felt more confident in her abilities in general as time went on.

Before sharing their teaching strategies, participants were asked to talk about what they thought at-risk students struggled with most. The seven most common answers across age groups for all teachers combined were putting their faces in the water, being on their backs (supine), going underwater, traveling into the deep end, trust, confidence and previous traumatic incidences. As expected, many of their strategies focused on these areas.

The most frequent strategy mentioned was using an individualized style of teaching. This meant that the majority of the teachers believed in letting students learn at their own pace. It did not include forcing or pushing students to perform, but allowed students to make choices along the way to perform what was most comfortable for them at a particular time. Additionally, most teachers agreed that it was important to break down the skills into manageable pieces that gradually introduced students to the water.

Other strategies central to their success included proximity, communication and skill selection. Teachers agreed that it was important to stay physically close to students in the water to help gain their trust and increase their confidence levels. In terms of communication, they felt it was essential to talk with their students about their anxieties and fears, take time to answer all of their questions and provide lots of positive verbal and nonverbal feedback. Lastly, teachers believed that selecting a specific set of skills to learn first helped minimize a student's anxiety and fear, namely buoyancy (floating), exhaling in the water, gradual submersion, propulsion (arm and leg movements) and safety skills. Honorable mentions included having the at-risk student watch the

instructor as they taught a student who was not afraid, establishing a positive relationship with the students outside of class and performing swimming and water skills on land.

### **Study Three—Using Systematic Desensitization: An Exploratory Case Study**

The purpose of this study was to explore the use of systematic desensitization to help individuals overcome their anxiety and fear in water. Systematic desensitization was introduced by Joseph Wolpe in the 1950's (Rachman, 2000). It is one type of exposure therapy that has been used successfully for over 50 years to treat a variety of anxieties and phobias in the general population (Menzies & Clarke, 1993; Osborn, 1986; Pomerantz, Peterson, Marholin, & Stern, 1977). It is a simple and non-threatening approach that involves two key steps. Step one is to teach relaxation techniques, such as deep breathing, progressive muscle relaxation or positive mental imagery to participants. The second step is to gradually expose individuals to situations they find fearful. This part begins with the individual or group, constructing a fear hierarchy; a list of situations from least fearful to most fearful (Hewitt, 1947). For example, in the case of the individual afraid in water, the first five situations (from least to most) may be: (1) looking at a swimming pool from a distance; (2) walking up to the swimming pool; (3) touching the water; (4) wading on the first step; and (5) stepping down to the second step. It should be noted that the individual is first exposed to these situations virtually, perhaps in a quiet room, and then practices them in the “real-life situation”, in this case, the water. The crucial goal for each person is to remain calm while gradually being exposed to the situations listed in their hierarchy.

The participant in this study was a young woman who had experienced a brain tumor. Prior to her tumor, she had been a confident swimmer and enjoyed the water. After surgery, her balance, muscular strength and muscular endurance were severely compromised. As a result, she had lost a great deal of her water confidence. With the water being the most appropriate rehabilitative setting for her to regain her functional skills, it also became a place that was feared due to her inability to right herself in the water if she “fell over”. Therefore, her primary goal was to learn how to stand upright and walk to safety if she “fell over” in the pool. She was especially motivated to learn this skill so she would feel safe being in any pool on her own. Her independence was of utmost importance to her.

Step one was deciding to incorporate some systematic desensitization practice into her already established adapted aquatic exercise program. Her exercise program was scheduled two times per week for approximately one hour per session for 15 weeks, and depending on how she was feeling on any given day, the systematic desensitization practice could last the entire hour or some portion thereof. Next, although the process recommends learning and practicing a relaxation technique in a setting other than the one that creates fear for the person, this participant believed she could achieve a state of relaxation while back floating (with assistance) in the about 4.5 feet of water; thus, each session began in this position. Finally, the following individual hierarchy was constructed to use as a guide for each practice session:

- (1) Back floating with assistance (no anxiety—least fearful situation);
- (2) Back floating unassisted;
- (3) Back floating unassisted while exhaling out of my nose;
- (4) Back floating unassisted, exhaling out of my nose while putting my chin to my chest;
- (5) Back floating unassisted, exhaling out of my nose, putting my chin to my chest while simultaneously bringing my knees to my chest;

(6) Back floating unassisted, exhaling out of my nose, putting my chin to my chest while simultaneously bringing my knees to my chest and holding myself in a “ball” for at least three seconds (this allowed adequate time for rotation, from a horizontal to vertical position, to occur);

(7) Back floating unassisted, exhaling out of my nose, putting my chin to my chest while simultaneously bringing my knees to my chest, holding myself in a “ball” for at least three seconds until I see my feet;

(8) Back floating unassisted, exhaling out of my nose, putting my chin to my chest while simultaneously bringing my knees to my chest, holding myself in a “ball” for at least three seconds until I see my feet then placing my feet on the pool bottom;

(9) Back floating unassisted, exhaling out of my nose, putting my chin to my chest while simultaneously bringing my knees to my chest, holding myself in a “ball” for at least three seconds until I see my feet, placing my feet on the pool bottom and extending my arms to balance in an upright position;

(10) Finding myself alone in the water after “falling down” and landing in a back floating position, exhaling out of my nose, putting my chin to my chest while simultaneously bringing my knees to my chest, holding myself in a “ball” for at least three seconds until I see my feet, placing my feet on the pool bottom, extending my arms to balance in an upright position and walking to safety (overwhelming anxiety—most fearful situation).

It should be re-emphasized that the hierarchy began with a situation that did not create any anxiety or fear for the participant. It was established that the participant felt completely comfortable back floating while being supported, and that the next situation only took place if it could be completed without any feelings of anxiety or fear. If not, the participant returned to the previous situation. Responses were monitored closely by routinely asking the participant to rate her levels of anxiety/fear by using the numbers “0” (indicating no anxiety/fear) through “10” (indicating overwhelming anxiety—most fearful situation). Results demonstrated that the participant learned, through the systematic desensitization process, to successfully recover from a back floating position to a standing position and walk slowly to safety (e.g., pool steps or swim bench). A two-year follow-up found the participant, with routine practice, had retained her ability to recover from a back floating position and move carefully to safety.

### **Discussion and Conclusion**

Because many aquatic professionals will encounter at-risk swimmers during their teaching and coaching careers, it is imperative that a humane and systematic approach to working with this particular population be created, tested and shared among organizations, agencies and communities responsible for swimming instruction. The concept of systematic desensitization holds great promise and, when refined, can be introduced to educators to augment existing swimming instruction and eventually contribute to the extinction of preventable drownings.

As discovered in Study Two, many teachers were already using similar strategies to assist those afraid in water by individualizing their instruction and breaking skills down into manageable pieces, but also mentioned that they would benefit from additional specialized training. These strategies can be collectively achieved by creating individual or group hierarchies for students and having them practice each situation without experiencing any anxiety, fear or panic. Additionally, as learned in Study One, finding out what frightens an individual or group is equally as informative when it comes to personalizing instruction and constructing

hierarchies. Study Three demonstrated the potential effectiveness of systematic desensitization when working with an individual with physical disability.

Future studies should continue to expand the systematic desensitization process by adding out-of-the-water components such as practicing physical skills on land as suggested by an instructor in Study Two and, perhaps, including discussion groups, writing assignments or role-playing exercises to compliment in-the-water skill components. Learning to be comfortable in water is crucial to survival, maintenance of health, and enjoyable leisure and recreational experiences.

## References

- About.Com. (2010). *Panic disorder*. Retrieved from <http://panicdisorder.about.com/od/treatments/a/SystemDesen.htm> and <http://panicdisorder.about.com/od/understandingpanic/a/panicattacks.htm>
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, D.C.: Author.
- Barlow, D. H. (2002). *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd ed.). New York: Guilford Press.
- Barlow, D. H., Brown, T. A., & Craske, M. G. (1994). Definitions of panic attacks and panic disorder in DSM-IV: Implications for research. *Journal of Abnormal Psychology, 103*, 553-554.
- Barlow, D. H., & Durand, M. V. (2002). *Abnormal psychology: An integrative approach*. Belmont, CA: Wadsworth Group.
- Bentler, P. M. (1962). An infant's phobia treated with reapproval inhibition therapy. *Journal of Children's Psychology & Psychiatry, 3*, 185-189.
- Berlin, L. L. (1933). The origin of swimming fears: A psychogenetic study (Unpublished Master of Arts Thesis, School of Education, New York University).
- Center for Disease Control and Prevention. (2007). *Water-related injuries: Fact sheet*. Retrieved from <http://www.cdc.gov/ncipc/factsheets/drown.htm>
- Deakin, J. F. W., & Graeff, F. G. (1991). Critique: 5-HT and mechanisms of defense. *Journal of Psychopharmacology, 5*(4), 305-315.
- Elliott, M. I. (1945). A study of individual learning problems in swimming (Unpublished Master of Arts Thesis, The State University of Iowa).
- Hewitt, J. E. (1947, May). Fear of the water. *The Journal of Health and Physical Education, XVIII*(302). Retrieved from <http://panicdisorder.about.com/od/treatments/a/SystemDesen.htm> and <http://panicdisorder.about.com/od/understandingpanic/a/panicattacks.htm>
- Irwin, R., Drayer, J., Irwin, C., Ryan, T., & Southall, R. (2008). *Constraints impacting minority swimming participation*. Department of Health and Sport Sciences, The University of Memphis.
- Lesch, K. P., Bengel, D., Heils, A., Sabol, S. Z., Greenberg, B. D., Petri, S., ... Murphy, D. L. (1996, November 29). Association of anxiety-related traits with a polymorphism in the serotonin transporter gene regulatory region. *Science, 274*, 1527-1531.
- Maier, S. F. (1997, September). Stressor controllability, anxiety, and serotonin. Paper presented at the *National Institute of Mental Health Workshop on Cognition and Anxiety*. Rockville, MD.
- Menzies, R. G., & Clarke, J. C. (1993). A comparison of in vivo and vicarious exposure in the treatment of childhood water phobia. *Behavior Research and Therapy, 31*(1), 9-15.
- Merikangas, & Pine. (2002). Genetic and other vulnerability factors for anxiety and stress disorders. In K. L. Davis, D. Charney, J. T. Coyle, & C. Nemeroff (Eds.), *Neuropsychopharmacology: The fifth generation of progress* (pp. 867-883). American College of Neuropsychopharmacology.
- Osborn, E. L. (1986). Effects of participant modeling and desensitization on childhood warm water phobia. *Journal of Behavior Therapy and Experimental Psychiatry, 17*(2), 117-119.
- Pomerantz, P. B., Peterson, N. T., Marholin, D., & Stern, S. (1977). The in vivo elimination of a child's water phobia by a paraprofessional at home. *Journal of Behavior Therapy and Experimental Psychiatry, 8*(4), 417-421.
- Rachman, S. (2000). Joseph Wolpe (1915-1997): Obituary. *American Psychologist, 55*(4), 431-432.
- Spielberger, C. D. (1983). *State-trait anxiety inventory*. Redwood City, CA: Mind Garden Inc..
- Whiting, H. T. A., & Stembridge, D. E. (1965). Personality and the persistent non-swimmer. *Research Quarterly, 36*, 348-356.