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John H. Pearn

Royal Life Saving Society Australia, j.pearn@mailbox.uq.edu.au

Richard C. Franklin

Royal Life Saving Society Australia

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"Flinging the Squaler" Lifeline Rescues for Drowning Prevention

John H. Pearn and Richard C. Franklin

In Australia, 86 "rescuers" have drowned over 15 years (1992–2007). Many victims have needlessly drowned simply because of bystander unfamiliarity with the simple skill of throwing a lifeline or lifebuoy. The basic paradigm of aquatic lifesaving is to affect a rescue, without placing oneself at risk. Twenty-five fit, untrained adults were recruited to assess their lifeline throwing abilities. Results from 190 competitors as participants in the Line Throw events at the National Australian Pool Lifesaving Competition 2009 were analyzed for speed, efficacy, and accuracy. It takes a medium time of 35 s for an untrained bystander to throw a lifeline. Only 20% can throw a line within 2 m of the target at a first attempt. In the heat of the moment, 20% do not secure the end of the flung rope. Trained children can affect a 10 m accurate throw and pull a potential victim to safety with a medium elapsed time of 23 s. The Australian national record for trained lifesavers (adult, 12 meter), is 10.08 s—world record 9.06 s. This simple lifesaving technique, with training in improvisation (e.g., garden hoses), will undoubtedly save lives.

Every year more than 400,000 victims drown worldwide (World Health Organisation, 2001). Both in developed (Pearn, Nixon, Franklin, & Wallis, 2008) and developing countries (Linnan et al., 2007), drowning remains a major cause of child death. Such drownings often occur in the presence of other children or elderly custodians and usually occur when the victim is close to the water's edge (Nixon, Pearn, Wilkey, & Corcoran, 1986; Pearn, 1977; Pearn, 1985). Irrespective of the victim's age, research from Canada indicates that 78% of attempted rescues are conducted by untrained bystanders, usually companions of the victim (Royal Life Saving Society Canada, 2004).

Lifesaving, water safety instruction, and training in cardio-pulmonary resuscitation (CPR) are proven stratagems in the reduction of all drowning deaths (Marchant et al., 2008; Pearn, 1985). The basic paradigm of aquatic lifesaving is to affect a rescue without placing oneself at risk—if at all possible by noncontact outreach, a fundamental principle embodied in the international "Aquacode" of the Royal Life Saving Society (Royal Life Saving Society Australia, 2006b). Once a potential drowning victim is in difficulty in the water, the "Drowning Chain" (Pearn & Nixon, 1977b) can be broken by a sequential hierarchy of preferred actions, which include "talk, reach, throw, wade, row, and tow" (Royal Life Saving

The authors are with the Royal Life Saving Society Australia in Brisbane, Queensland and New South Wales.

Society Australia, 2006a). In this way, the numerous tragic examples of the rescuer also becoming a drowned victim (National [Australia] Coroners Information System, 2008) can be reduced. In Australia alone, over 15 years (1992–2007) 86 “rescuers” have drowned in attempts to save a primary drowning victim, this latter usually a child (Australian Bureau of Statistics, 1992–2002).

The effective throwing of a lifeline or lifebuoy to a drowning victim is a skill that all can easily learn. This skill was one first proposed for all citizens in the original training package developed by the Royal Humane Society and later (1894) by the Royal Life Saving Society. It was adopted in the form of an educational game called “Flinging the Squaler,” described by Lieut-General Baden-Powell in 1908 in his book *Scouting for Boys* (Baden-Powell, 1908), the bestselling book in English in the four decades following its publication (Baden-Powell & Hillcourt, 1992). The “squaler” was a weighted stick on the end of a rope which when flung with accuracy was used to knock down birds or small game. Training for a rope-throw rescue is included in almost all comprehensive learn-to-swim and water safety programs in Australia (Blitvich, Turnock, & McElroy, 2006). An irony exists that while the skill is obvious as a safe and effective lifesaving measure, in reality, when a bystander throws a lifebuoy or rope to a drowning victim, it is usually the first time in his or her life that such an attempt has been made.

We report here research from the Royal Life Saving Society—Australia of the time taken by an untrained adult bystander to throw an effective lifeline. As a datum of what can be achieved by training, we report also an analysis of National Australian Pool Life Saving Championships 2009 data of the time-to-rescue, using the thrown lifeline technique.

Method

Twenty five adult subjects volunteered as project-naïve, opportunistic participants. A test scenario was set out on dry land, with a simulated drowning victim placed 10 m from a marked throwing site. An uncoiled throwing rope was placed next to the rescuer and time and accuracy of achieving a successful lifeline throw were recorded for each of multiple attempts. Twelve subjects were adult Scout leaders as international ambassadors in the Australian (Commonwealth Government) Year of the Scout (2008). Thirteen volunteers were enlisted as opportunistic passersby while attending the 2009 National Australian Pool Lifesaving Championships held at the Aquatic Complex of the Australian Institute of Sport, Canberra, January 2009.

The annual National Australian Pool Lifesaving Championships include an age-graded Line Throw competition, from which champions are selected to represent Australia in the World Lifesaving Championships conducted biennially by the International Life Saving Federation (ILS). The Line Throw competition is conducted under strict rules (Royal Life Saving Society Australia, 2008b) and incorporates the rescue of a simulated drowning victim in the water, to whom a lifeline is thrown with subsequent pull-to-rescue. The competition uses standard unweighted rescue ropes 17 m in length (Figure 1). Ropes are coiled, thrown, and caught by “victims” in the water and then used to pull the victim to safety (Figure 2). Electronic timing is used. Event classes include the following: under 14 years



Figure 1 — A moment during the “Open” Line Throw event at the National Australian Pool Life Saving Championships 2009 competition. Photograph provided by Aquatic Centre, Australian Institute of Sport, Canberra, Royal Life Saving Society Australia 2008.



Figure 2 — Only one in five bystanders can throw a lifeline to a potential drowning victim, at a first throw without practice. Photograph provided by Noosa River, Royal Life Saving Society Australia 2007.

(10 m throw) and 12 m lifeline throws in separate class-events for Under 16 years, Under 19 years, Open and Masters competitions. The world Open record for the event is 9.6 s.

Results

Results of the time-to-throw and efficiency performance of untrained adults throwing a lifeline as simulated bystanders near a drowning scenario are show in Table 1. A précis of the results of the Line Throw competition at the 2009 National Australian Pool Life Saving Championships is shown in Table 2.

Table 1 Summary of Results of Lifeline Throws by Bystanders Near a Simulated Drowning Incident, Showing Time, Accuracy, and Distance

	Median	Range
Time to coil and throw	21 Seconds	10–44 Seconds
Accuracy (within 2 meters of target)	20%	—
Distance thrown	7 meters	0–11 meters

Note. Twenty-five untrained adult volunteers.

Table 2 Summary of Results From the 12 Meter Line Throw Competition at the 2009 National Australian Pool Life Saving Championships by Event Class and Gender

Event	No. of Subjects	Median time to rescue (seconds)	Winning time (seconds)	Range (seconds)	Percent Successful within 45 s *
Under 14 (10m Line Throw)					
Male	10	17.5	12.2	12.2–45+	80%
Female	12	28.1	14.8	18.8–45+	67%
Under 16					
Male	22	17.0	13.6	13.6–45+	78%
Female	23	30.6	14.4	14.4–45+	65%
Under 19					
Male	13	15.1	11.8	11.8–45+	61%
Female	18	40.5	18.7	18.7–45+	50%
Open					
Male	33	14.6	10.3	10.3–45+	82%
Female	37	40.7	14.0	14.0–45+	53%
Master (30 years and over)					
Male	13	16.4	11.5	11.5–45+	85%
Female	9	45+	15.9	15.9–45+	22%

* Note. This may include more than one attempt in the 45 s period.

Discussion

When confronted with a victim struggling in the water, a bystander's natural instinct is to make physical contact in attempting a rescue. The resultant potential drowning of both the primary victim and the altruistic "rescuer" is so often a preventable outcome. A drowning victim's behavior in the water is predictable. A victim's uncontrollable instinct is to grab at any exposed part of a rescuer and to try to climb to safety, submerging the rescuer. The rescuer is submerged or strangled making breathing difficult or impossible. Victims who believe they are drowning exhibit extraordinary strength and children can incapacitate adults who go to their aid (Brewster, 1995).

The simple drills and skills of first attempting a noncontact rescue can be acquired only by training. Our extensive experience from both the Brisbane Drowning Study (Nixon et al., 1986; Pearn, 1977; Pearn, 1978, 1984, 1985, 1988, 2001; Pearn & Nixon, 1977a, 1977b; Pearn & Nixon, 1977; Pearn & Nixon, 1979) and research within the Royal Life Saving Society (Australian Water Safety Council, 2008; Franklin, Simmonds, & Peden, 2008; Royal Life Saving Society Australia, 2008a) has led us to promote the simple experiential training of throwing a lifeline as an important adjunct to all basic CPR training. The importance of acquiring this simple skill as both a rescue and secondary preventative drill is stressed by every national body (Eaton, 1995; Singapore Life Saving Society,

1990), including the American Red Cross (1992), who works to prevent death from drowning.

The results of this study show that without simple training, more than half of fit adults cannot throw a lifeline accurately to a distance of ten meters even with multiple attempts and that, in the heat of the moment, one in five “rescuers” do not anchor the end of the rope, which is consequentially lost when thrown. By contrast, with training, astonishing speeds of this simple, effective form of noncontact rescue can be achieved. We posit that “Flinging the Squaler” is a skill which every parent, every swimmer, every fisher, and every boating enthusiast should experience. Such simple training is fun, costs little, is bonding, and can be undertaken anywhere, on both land and beside the water.

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