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Abstract

To become a certified lifeguard, generally there are three tests. These eligibility tests required for lifeguarding enrollment into lifeguarding courses include: (a) a swimming assessment where the participant must continuously swim a certain distance, (b) a timed treading water, and (c) an object retrieval from a specified depth of the pool. The instructor of the lifeguarding class then determines if the participant adequately demonstrated the skills to continue in the class. Once participants successfully demonstrate each skill, they are then tested on their in and out of water skill competencies. Finally, lifeguard certification includes written knowledge tests at the end of the class, including a final in-water scenarios that participants must successfully complete in order to become a lifeguard.

The purpose of this study was to review the current lifeguard training literature including the trends published by professionals in this field. This study examined the inservice training logs at two Midwestern universities to assess if their requirements were adequate for lifeguard fitness readiness.

Recommendations for appropriate cardio and strength training to maintain lifeguard fitness readiness between certification cycles are explained.

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Lifeguard Fitness Readiness: Certification vs. Qualification

An Abstract of a Research Paper
Submitted
In Partial Fulfillment
of the Requirements for the Degree
Masters of Arts
in Leisure, Youth and Human Services

Jacob Rasmussen
University of Northern Iowa
December 2015

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A Research Paper

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In Partial Fulfillment

Of the Requirements for the Degree

Masters of Arts

In Leisure, Youth and Human Services

Jacob Rasmussen

University of Northern Iowa

December 2015

This Study by: Jacob Rasmussen

Entitled: Lifeguard Fitness Readiness: Certification vs. Qualification

Has been approved as meeting the requirement for the

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Date

Dr. Kathleen Scholl, Chair, Research Committee

Date

Dr. James Hall, Research Committee Member

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CHAPTER I

INTRODUCTION

First Responder is someone who is counted on when an emergency occurs. When the term “first responder” is used in a conversation, thoughts of policemen, firemen, and emergency medical services come to mind. Lifeguards as an example are rarely mentioned, yet in an aquatic environment the lifeguard is the first to respond to an emergency. Police and Firefighters are required to maintain a level of physical ability, yearly testing along with training, to ensure not only their own safety but also their ability to protect the public. Lifeguards are expected, and held accountable for their level of fitness, therefore lifeguards must have also possess training and physical fitness to keep patrons safe in and around the water of any aquatic facility. Ellis and Associates (2007) set the standard in lifeguard physical fitness standards. “Lifeguards are expected to provide a safe environment for the guests of their facilities, minimizing hazardous situations whenever possible and responding appropriately to emergency situations” (p.3). Lifeguards are trained to be proactive and take preventative measures to ensure the safety of patrons in and around the pool and to make sure that the patrons are able to experience leisure without worry.

Table I provides an overview of each certifying organization’s pre-test requirements for lifeguards to continue with the class of their respective programs. There are three basic tests that go into a lifeguarding pre-test: (a) swimming portion where the participant must swim a certain distance continuously, (b) timed treading water, and (c)

an object retrieval from a certain depth of the pool. The fourth column includes other requirements that an organization may require for prospective lifeguards to complete certification eligibility.

Table 1

Pre-Test Requirements for Lifeguard Certification (*pre-test skill activities)

Lifeguard Certifying Body	Swim*	Tread Time*	Object Retrieval*	Other
Red Cross	300 yards	2 minutes (no hands)	20 yard swim, Retrieve 10 lb. brick at 7-10 ft. water depth (1 minute & 40 seconds to complete)	
Ellis and Associates	100 yards	1 min (no hands)	Feet first surface dive to retrieve 10 lb. brick at minimum water depth of 8ft	
YMCA	100 yards front crawl <u>Plus 50 yards of each stroke below:</u> Front crawl head up, sidestroke, breaststroke, breaststroke head up, elementary backstroke with hands on stomach)	2 minutes	Swimming sprint 60 ft., surface dive 8-10 ft. to retrieve dive ring, then tread 1 min (legs only). Followed by swimming the rest of pool, hoist self out (without ladder), then begin compressions (100 per min)	Feet-first surface dive in 8-10 ft. water or deepest part of pool), then swim 15 ft. underwater
StarGuard	100 yards (head up)	NA	NA	
National Aquatic Safety Company (NASCO)	200 yards	NA	Swim 15ft then retrieve, 10lb brick from deepest part of the pool and return brick to pool side.	

Certifying Organizations Eligibility Requirements

According to the *American Red Cross* (2012a), to become a certified lifeguard there are three tests; (a) 300 yard continuous swim, (b) two minutes of treading water without hands, and (c) timed 20 yard brick retrieval. For the brick retrieval, participants must swim down without goggles and retrieve a brick on the bottom of the pool that must be at least seven feet deep and the object needs to weigh at least ten pounds. The brick retrieval test is the only test that has a time limit; and must be completed within one minute and forty seconds. The instructor of the class determines if the participants demonstrate skills required to continue in the class. Once participants have successfully demonstrated each skill, they are also tested on their competency of additional in and out of water skills. Lifeguard certification also includes written tests at the end of the class. Final in-water tests are held, where the perspective lifeguards are given a scenario in which they are expected to act according to their training, starting from the entry into the water to any follow up care needed (CPR, Rescue Breathing, etc.).

A staple of *Ellis and Associates* (2007) program is the 10/20 rule. In their zone of surveillance the lifeguard must be able to scan the area in ten seconds, and be able to reach the victim in 20 seconds (p.123). The lifeguard pre-test includes a 100 yard swim, either front crawl or breaststroke. In the brick retrieval, the participant is required to perform a feet-first surface dive to a depth of at least eight feet bringing a ten pound brick to the surface. The final test is a one-minute tread without hands. In their lifeguard manual a fundamental is *aggressive scanning*. Ellis and Associates discusses and emphasizes on scanning the water, moving the head, not just the eyes, when scanning the

water, along with walking the area in which the lifeguard is responsible for. When the lifeguards visually scan, they are taught and trained to switch patterns to ensure patron safety. This is a skill that is also tested throughout their certification period with periodical audits done at Ellis and Associates pools.

The *YMCA* (2011) lifeguard pre-test includes three phases. The first phase is treading water for two minutes and then a front crawl swim for a distance of 100 yards. The second phase includes swimming a distance of 50 yards for each of the following swimming strokes: front crawl with head up, sidestroke, breaststroke head up, and elementary backstroke kick with hands on stomach. Along with this phase, the participant performs a feet-first surface dive to a depth of eight to ten feet; then swim 15 yards underwater. The third phase starts at the end of the pool, sprint swim 60 yards, surface dive eight to ten feet, pick up a dive ring from bottom, bring to surface, tread 1 minute without hands, place object back at the bottom of the pool, then swim rest of length of the pool, hoist self out, and immediately begin compressions on an adult mannequin for one minute.

StarGuard lifeguarding pre-test includes a 100 yard swim, but participants head must be up and out of the water while swimming. White (2012), focuses on layers of protection and the main emphasis is surveillance. The importance of surveillance is discussed thoroughly throughout the book, along with the importance of teamwork. Teamwork is one of the key points to in-serving, building trust between employees is important to a smooth rescue. Their risk management has five key aspects: surveillance, prevention strategy, workplace expectations, response & rescue, and emergency care. It is

focused heavily on the surveillance aspect, which is crucial to the prevention of injuries and deaths.

National Aquatic Safety Company's (NASCO) pre-test for the Lifeguarding course is a very basic test in which the participant swims 200 yards. The second part of the test is very similar to the American Red Cross; swim 15 feet, retrieve a 10 pound brick, bring it to the surface and swim it back. The brick must be placed at the deepest part of the testing facility. NASCO references American Red Cross frequently in their manual, but uses variations of certain rescue techniques that have been adapted from the American Red Cross system.

Statement of the Problem

Once a lifeguard successfully completes their course and receives certification they will have regular in-service training at the facility they will be guarding. The in-service training provides a way for lifeguards to practice skills, go over Emergency Action Plans (EAP), talk about problem areas, and also make sure that lifeguards are keeping their skills current. During the two-year certification period lifeguards must be able to perform the rescues, demonstrate required skills, and practice emergency situations. Some facilities require in water scenarios for in-service trainings sessions, but only include a small cardio requirement. However, there is a lack of strength training in the in-service. Including strength components to in-services is crucial to ensure not only patron safety but also to keep lifeguards safe. There is a strength component that is required to perform lifeguarding skills, having the proper training will ensure that

lifeguards will be able to perform these skills with ease. There are certain situations that require an extra amount of force, and keeping in lifeguard readiness shape is imperative to keeping the pool safe. A lifeguard who has been certified for many years may be mentally prepared to handle an emergency situation but, are they physically ready? Implementing new techniques and new strategies to the lifeguarding training programs will enhance the level of lifeguard readiness. The ability to effectively perform the task will have significant improvement from those lifeguards who do not practice to enhance their level of cardio and strength regularly. Are lifeguards maintaining a level of fitness readiness? What improvements can be made regarding a lifeguard's cardio and strength requirements after initial certification?

There is a lack of minimum cardio, strength requirements, and standards for lifeguards once they receive their certification. When reviewing the different Lifeguard manuals, there is little to no content in regards to standards of fitness that lifeguards must maintain. Among the Lifeguard certifying bodies there is no standard to which lifeguards that are currently certified are being held to. Once a lifeguard becomes certified, people assume that the lifeguard is in shape and is able to perform skills perfectly. But as lifeguards continue their career there is no requirement for maintaining their level of fitness that they once had when passing the lifeguarding pre-test. If we look at the literature and change the way that lifeguard in-services are put together along with required weekly tasks, there may be an increase in lifeguards being more physically prepared to handle emergency situations that come up. Without further examination of this issue, lifeguards are more likely to become complacent and not be able to perform

their duties with the quickness and effectiveness needed to save lives. Emergencies happen without warning, and it is the lifeguard's responsibility to be able to perform a number of skills quickly and efficiently. This is why it is crucial that lifeguards are fitness ready to be able to do these skills, any delay could result in improper care and inadequate rescues along with putting the lifeguard at a higher risk for injury.

The lifeguard certificate for the American Red Cross is valid for two years; before the end of the certification date they need to renew their certification. In order to get recertified the participant is required to take the swimming pre-test to make sure that they are still in compliance of American Red Cross standards when it comes to lifeguarding. Other than the pre-test, no more swimming is required of the lifeguard. Many aquatic facilities may require some swimming be completed by their lifeguards; however, there are no established standards upon which facility managers can base their in-service training on.

Purpose of the Study

The purpose of this study was to review the current literature used to train lifeguards, and review the trends in literature published by professionals in the field. This study examined the lifeguard fitness readiness at two universities, and to assess if their requirements are adequate. The study will also make recommendations for appropriate cardio and strength training to maintain lifeguard fitness readiness between certification cycles.

Research Questions

1. Are lifeguards receiving adequate cardio training to maintain their ability to make rescues?
2. Are lifeguards incorporating strength training to enhance or maintain their level of fitness readiness?

Delimitations

To identify lifeguard training during active certification period, the study used in-service logs from the University of Northern Iowa (2012-2014) and the University of Iowa (2013-2014). The in-service logs were reviewed for any fitness requirements or activities, however scenarios were not factored into the final assessment. It was important to have the University of Iowa included in the study because they are also an American Red Cross pool and should have similar standards, and they also have a similar pool set up with a lap pool and leisure pool. An added element that the University of Iowa is a diving well that is 17 feet deep, this provides an excellent opportunity for a variety of training. The University of Iowa has a 50 meter pool with a separate diving well that was built in 2010, where they hosted of the Men's 2015 NCAA swimming championships. Although the facilities are different, comparing the schools is important because both are American Red Cross facilities and collegiate institutions, there should be similar principles within their in-servicers.

Limitations

The first limitations of the study was the ability to get a significant number of in-service training logs to review. Additionally there was no way to review and compare the quality of the in-service, if proper technique was used by the lifeguards, if feedback from the person in charge of the in-service was given to the lifeguard, and if there is any strength and or fitness component within the proper technique being done. The second limitation is if the person leading the in-service followed what was written on the log and tested to their standards. There is no way to know if the person that was in charge completed the skills and requirements that were listed. Since the data being collected is secondary, the only evidence of the in-service is the log.

Definition of Terms

Fitness Readiness- The level of fitness required to perform duty.

Lifeguarding Pre-Test- Test given to ensure candidates meet minimum fitness.

In-service Log- The record of the lifeguard training activities during the in-service.

CHAPTER II

REVIEW OF RELATED LITERATURE

This section will focus on literature that contains information related to lifeguard in-services, lifeguard trainings, and other careers that require fitness testing and benchmarks in place to ensure their level of fitness. Currently, there is a lack of focus on this topic, and it is often neglected in the literature. At the present time, there is no standard that the American Red Cross, Ellis and Associates, YMCA, StarGuard, and NASCO mention in their respective manuals regarding the distance lifeguards should be swimming to maintain or improve their level of cardio and strength and to maintain or improve their level of fitness for lifeguards. There are a few common themes in the literature reviewed: international lifeguard policies, the current lifeguard culture in the United States, undervalued in-service, strength training, and fitness policies in lifeguard manuals.

Preparing to Fail: Effectiveness of International Lifeguard Policy

There have been several articles about the policies of certifying lifeguards and in-service training for lifeguards, along with how lifeguards were prepared for the 2004 Summer Olympic Games. Avramidis (2008) stated, “There are still people in countries with less well developed sense of safety who believe that swimming pools, do not present risks and therefore that the lifeguards are unnecessary” (p. 47). This was an interesting stance of some of the committee members in charge of preparing 2004 Athens Olympics. Another article explained the certification period for Greek lifeguards: “Greek lifeguards’

qualifications by law never expire (Decree Law, 2000). In Greece, once a lifeguard obtains their lifeguarding certification they are able to lifeguard for life without renewing their certification. The type of in-service training that went on for the preparation for the Olympic Games in 2004 was brief, Avramidis (2008), “Some supervisors responsible for the diving events were not fully certified in spinal-injury immobilization” (p.52). The article continued to explain the length of the in-services held prior to the start of the Olympics. According to Avramidis (2008), “Two days of in-service training took place the month before the Olympic Games” (p. 52). The article indicates that there were lifeguards from other nations including: Canada, Greece, Russia, The United Kingdom, and The United States that came in to assist for the Olympics. Each of the countries had different ways of doing things according to their respective qualifications. The Olympic committee for the Athens games stated that, “they [lifeguards] should always be alert during the training and the games, and that they were responsible for bringing the injured athlete out of the water when needed” (Organizing Committee of Athens 2004 Olympic Games, 2004, p. 58). Avramidis (2004) made six recommendations for the future Olympic Games. The only recommendation discussed about the in-service training for future Olympic Games is, “Plan for and conduct proper and frequent in-service training with all the necessary lifesaving equipment provided by the organizing committee” (p. 54). Again, there was a lack of concern or assumption about the lifeguard’s swimming ability and endurance. Furthermore, the Olympic committee showed no concern for the strength requirement it takes to perform some of the tasks lifeguards are needed to do in

an emergency situation. Therefore it may be that some lifeguards are under prepared, especially for international events such as the Olympics.

As an example of not clear lifeguard readiness standards, Avramidis (2010) stated how there are different qualifications for the different types of lifeguards in Greece. For example, any person that graduates with a sports science and physical education degree (SSPE) and specializes in any type of aquatic sport can be a lifeguard, without having to take any type of test (Avramidis, 2010, p. 318). A second provision of the Decree Law (2000) states that if one graduates from SSPE with an aquatic sport specialization or lifeguarding, that person is also able to teach lifeguarding to others (Avramidis, 2010, p. 319). The first provision in the Decree Law (2000) permits any persons that complete or pass the Greek Lifeguard Schools are qualified to work at the follow aquatic environments: spas, pools, and waterparks. However it is important to note that each syllabus is different for each aquatic environment (Avramidis, 2010, p. 320). This leads to the question; is this really a best practice to ensure that lifeguards are getting trained for the environment that they will be working in? Each aquatic environment has their own unique challenge and requires different trainings. Avramidis (2010) stated:

In Greece, different legislative regulation apply to lifeguarding. Beach lifeguarding is legislated in terms of lifeguard employment, training and examination criteria for lifeguards, lifeguard instructors and directors of lifeguard agencies, establishment and operation of a lifeguard agency and an aquatic facility (Decree Law, 2000).

This illustrates that each lifeguard certification is run differently and has different qualifications. The professors may need to further differentiate various certification requirements and what specific trainings required to do to become a lifeguard for that aquatic environment. Avramidis discusses the different provisions that the law changed, but there were still errors. The errors in the law ranged from the patron ratio that a lifeguard is responsible for, to how the certifications are obtained, but neglect to discuss in further detail about the cardio and strength qualifications. Avramidis (2010) suggested, “Provision 5 of the Decree Law (2000) suggested that graduates of universities with programs in sport science and physical education (SSPE) specializing in any aquatic sports are entitled to obtain permission from the Coast Guard to work as lifeguards without taking any examinations. If the lifeguards and managers are not qualified to be in these positions, then in-service training could be ineffective because of the lack of basic knowledge. In the Greek system for lifeguard training, in-service requirements were never mentioned. This could be because the author only focused on the basic quality of certified lifeguards. However, a relevant quote from Aquatics International that directly relates to Avramidis (2010) states: “Certified does not always mean qualified” (Aquatics International 2011, p. 21). Just because a person has their lifeguarding certificate does not make them a qualified lifeguard, signifying the importance to continually practice and train for the position that they are in to ensure that they (lifeguards) are able to and ready to respond to an emergency.

In-Services: Underrated Aspect in Drowning Prevention

Wendling, Vogel song, Wuensch, & Ammirati (2007) looked at lifeguards perceptions of accidents and rescues. On a variety of topics which included where most saves occurred, reasons why rescues occurred, and views lifeguards had on in-services. It is imperative to look at the perceptions of the lifeguards to see if they understand the importance of strong in-services. According to Wendling, Vogel song, Wuensch, & Ammirati (2007), “74% found in-services as very valuable or extremely valuable” (p. 327). Although this study had a small sample size of 34 lifeguards from nine pools in eastern North Carolina, within the survey there was a 67% response rate to the survey sent out. Each pool had monthly skills testing, where the lifeguards were tested on CPR skills, airway obstruction, and spinal injuries. These are all important skills that lifeguards should be proficient and confident in executing. Griffiths, Steele, & Vogel song (1997) found, “[an] Alarming percentage of certified lifeguards are not highly confident in their ability to make a rescue.” (p. 327). This shows that not all lifeguards are confident in their abilities to perform rescues. From this study it shows that lifeguards not only want to focus on the situations, but also practicing the EAP (Emergency Action Plan), trouble areas in the pool, and other issues. For this reason, cardio and strength training need to also be incorporated into the in-services. When a lifeguard is needed to act for a rescue it is important they are not second guessing their skills or ability to make the save. The lifeguards have the confidence and strength to preform proper rescues. When a lifeguard is on duty in the stand, and they are not confident in their swimming ability, or worried about being able to perform a rescue when needed to do so, they are

putting everyone into situations of uncertainty and unsafety. This could cause the lifeguard to hesitate, which in turn could result in injury or death. If the lifeguard is not fitness ready they could injure the victim further, injure themselves, or injure another assisting lifeguard. When a lifeguard is confident in their skills, they are able to perform better. By giving the lifeguards frequent challenging in-services that has a demand on their endurance and strength, they are prepared and confident lifeguards.

In making the case for in-service training, there are obvious and clear benefits. Turner, Vogelsong, and Wendling (2003) stated:

It's easy for aquatic supervisors and manager to assume that if a guard is certified, his or her rescue abilities are high. This is a dangerous assumption, however, because many lifeguards need more practice than what the certification process and normal guarding duties demand. (p. 43)

According to this statement, there needs to be more conditioning than what is on the lifeguarding pre-test. An example of swimming distance, The American Red Cross only requires that participants swim 300 yards. Also there is a 20 yard brick retrieval, so 320 yards in the total swimming required initially to make it into the lifeguarding class. The table from chapter one breaks down all the pre-tests that each certifying body requires. The configuration of pools differentiates along with having unique structures and layouts from pool to pool. Knowing how to swim in each section of the pool is very important so that the lifeguard is able to get to the spot that they need to be at as quickly as possible. A scenario that might come up that would require strong swimming and strength ability is if

a lifeguard has total coverage. The American Red Cross Lifeguard Manual (2012b) defines total coverage as: “When only one lifeguard is conducting patron surveillance for an entire pool while on duty” (p. 279). When a lifeguard has total coverage, it is important that the lifeguard be able to get to any spot in the pool in a very quick and effect manner. Turner, Vogelsong, and Wendling (2003) also stated, “In-service training is supplemental training that’s separate from the certification process” (p. 43). This is consistent with the American Red Cross Lifeguard Manual (2012b) statement about in-services:

Earning a lifeguarding certification means you have successfully completed a training course and passed written and skill evaluation on a given date. It does not mean that you have learned everything there is to know about lifeguarding. Once hired as a lifeguard, you should expect that you will be required to continue your training (p. 8).

This point is not emphasized enough throughout the lifeguard course and it is the lifeguard’s obligation to maintain and improve their fitness to be a successful lifeguard. Turner, Vogelsong, and Wendling (2003) stated, “Unfortunately, once certification is completed, rescue-skill abilities may decline without regular practice” (p. 43). To preface this next statement, the American Red Cross Lifeguarding certificate was previously valid for a time period of three years. Currently, lifeguards must recertify every two years if they wish to continue lifeguarding. Having both certifications valid for a two year time period may allow lifeguards to stay on top of their skills and specific tasks. It is also

important to monitor the conditioning on current lifeguards, as this could be a good reminder of the importance of staying fitness ready.

Many articles focused on how important in-services are, but do not go into great detail on how to improve lifeguarding other than scenarios. Vogelsong, Griffiths, and Steel (2000) stated, “In 1998, 63% of lifeguards rated their on the job or in-service training as more valuable than what they received from their certifying agency” (p. 68). Confirming that in-services are a very valuable component to the development as professional lifeguards beyond initial courses to get their initial certification. Vogelsong, Griffiths, and Steel (2000) highlighted an important concept from the article, “Technical swimming and rescue skills must also be offered and tested as part of an in-service training regimen. Just because a lifeguard has a card that says they are certified does not make them a strong swimmer or rescuer” (p. 72). Emphasizing the need to train and improve swimming skills, and development of a lifeguard. If there is a lifeguard that has weak swimming ability, it is crucial that they develop their skills as a swimmer to become more efficient and effective in the water. This in turn will lead to more efficient and effective rescues. The patrons expect the lifeguard to be confident in and around the water. It is crucial that in-services focus on developing and increasing a lifeguards swimming endurance, and also work on improve the lifeguards strength so that the skills and tasks they (lifeguards) are asked to do are able to be done without much struggle.

Cable (1993) says, “Effective in-service trainings prepare lifeguards to perform during an incident” (p. 40). Cable (1993) also reiterates that with the proper practice lifeguards become more confident in their skills. When a lifeguard is more confident in

their skills they are able to perform faster since the lifeguard is not hesitating when action is needed to be taken. With this limited description there is a lack of guidance for pool managers, there is a lack of examples of what should be done, and there are not suggestions on how to improve these factors.

Lifeguard Culture

Junior lifeguard programs are a great way to prepare future lifeguards in developing their skill sets early. The earlier that these skills are learned the easier it will be to fine tune these skills and the better the understanding they will have in the water. The junior lifeguarding program according to Fawcett (2001) states:

Youth just under the minimum age for lifeguard certification and employment. The goal of this program is to create an interested and orated prospective staff member who is prepared to take lifeguard training when eligible, and interested in employment when certified. (p. 37).

This is a great opportunity that gets youth that are interested in becoming lifeguards prepared for the actual lifeguarding certification course. The reason why this is highlighted in the section is: there is an emphasis on swimming and development of endurance from this program. However, since this is targeted for people under 15, there is hesitation to start talking about a strength training program. Fawcett (2001) stated:

Prospective participants in this program should have a strong swimming background, and be able to swim at least 400 yards consecutively, demonstrating

freestyle, elementary backstroke, sidestroke, and breaststroke. Strokes do not need to be flawless, as you can work with the participants to improve them. (p. 37).

Fawcett also recommends looking at the local swim club for interested participants. This is great because depending on their level of involvement and number of years involved with the club, they could have a strong background in swimming or have a strong foundation for their water skills and competencies. In some of the cases with lifeguarding classes there are participants that have weak swimming ability, lack confidence in the water skill set, and or have no swimming background. With a program like junior lifeguarding there is a chance to change the lifeguarding culture, from a summer job that give people a tan, to a summer job where there are high expectations on fitness and lifeguards are known for their amount of training, focusing on developing and improving cardiovascular endurance along with improvement of one's strength. One of the problems that Fawcett (2001) stated, "Often those lifeguards are hired are new staff due to the high turnover rates found at most aquatic facilities" (p. 37). A lot can be said for a program that has a high percentage of retention, not only in businesses but also summer jobs. Having high retention of lifeguards will show that it is a good working environment along with opportunity for advancement.

Dixon (2005) examined what lifeguards thought about in-services. However, there was no mention about the amount of time spent swimming and no mention about what is being done to improve their strength. Dixon focused on the importance of being site specific and skills tested. When breaking down the skills needed to perform a rescue, there is a need to have that strong background of swimming endurance and strength.

Another key point that was made from the article Dixon (2005) stated, “Hold lifeguard accountable for their performance” (p. 54). Making sure fellow lifeguards are able to perform the duties required of them is important. Having standards where there are checks to ensure that lifeguards are demonstrating fitness readiness is crucial. This could also be improved depending on the culture of the lifeguard group that is employed at the facility. Having strong peer leadership within the lifeguard group and bonding through workouts will strengthen the community within.

There are many articles that focus on the lifeguard drowning prevention aspect. Where some of these articles really lack is the point up to where the rescue was made or not made. An example would be if there isn't a good practice before a sporting event there is a higher chance that the outcome for that group will not be as desirable. Schwebel, Jones, Holder, and Marciani (2010) claimed, “humans are not very proficient in noticing things while performing ‘boring tasks’” (p. 1), and that, “many lifeguards are developmentally unprepared to handle the responsibility of their positions” (p.1). This is an issue that could be argued either way, but looking for a solution is the important part. If there are guidelines that are written out for many, this will be the structure that is needed. Another way to help with long “boring” shifts is to have pool breaks. This gives the lifeguards an opportunity to jump into the pool and swim to help their concentration when monitoring the water.

Strength Component

It is important to consider strength training into a lifeguard's routine. When looking at the literature, there are articles that discuss dry-land training for competitive swimmers. This concept can be easily applied to lifeguards. Trappe and Pearson (1994) talked about the benefits to swimmers when implementing dry-land training: "The more force that can be applied at any given point during the pulling phase of the stroke cycle, the better for swimming performance" (p.209). When a lifeguard is swimming towards a victim and every second counts, and being able to apply more force with their stroke will help the lifeguard to get there more quickly. The article continues to say, "Since swimming is a power sport, it would seem advantageous to apply as much force as possible though the pulling cycle of the stroke. This would lead to increased velocity, in turn enhancing performance" (p. 213). Again applying this concept to lifeguards, what they are doing is a powerful movement though the water, so it would be very beneficial to lifeguards to train this way.

Fass (2015c) states the realization of strength training for first responders, "In a perfect world, all first responders would take pride in their fitness and make personal wellness a priority; sadly, it is not a perfect world" (p. 32). A great example why pool managers must be on the forefront with having high expectation when it comes to their lifeguard's fitness is stated by Fass, "The cultures and traditions of public safety often influence what many of these first responders do" (Fass, 2015, p. 32). Organizational culture can greatly affect the atmosphere of the work environment. It is important that lifeguards take their wellbeing seriously. Fass (2015a) points to firefighters and police

having physical fitness and how they are tested, “The Job-Related Physical Ability Test (JRPAT) for firefighters, and law enforcement has the Police Officer Physical Abilities Test (POPAT)” (p. 26). Fass (2015a) states that, “For those departments without the ability to test and retest, they are potentially sending responders into environments that may not be able to handle physically” (p. 26). This points out the fact that ensuring the fitness of first responders is critical, putting lifeguards into a potentially dangerous situation without equipping them with the necessary tools could result in death or injury. The importance of strength training for lifeguards is not only to help protect patrons at the pool, but also to protect themselves. Fass (2015b) states, “The three major causes of soft tissue traumas in the public sector. These causes are overexertion trauma, repetitive motion disorder, and prolonged static positioning” (p. 18). Lifeguards are exposed to all three of these causes, not necessarily on a daily basis, but it is still a factor that needs to be taken into consideration. Fass (2015b) also discusses the dangers of lifting a spine board, “Can produce spinal torques and compressions loads exceeding 1,700-2,500 lb” (p. 18).

DeRosa (2007) discusses the Ellis and Associates 10/20 rule, highlighted in this article is that managers need to understand where their lifeguard is at in regards to their physical fitness. Understanding what is important to that pool along with what different pool features are at the pool, DeRosa states:

The trouble is that in recent years, aquatics managers in the United States report a decline in the swimming abilities of many lifeguard applicants, in part because of what they perceive to be reduced swimming proficiencies required by lifeguard training organizations. Many novice guards simply lack the strength and speed

required to meet the 20-second requirement, especially when working in a waterpark environment, where wave pools can create surf-like conditions.

The 20 second reference is to Ellis and Associates 10/20 rule. Ten seconds to scan the designated area of responsibility and 20 seconds to get to the victim, and remove from the water. This is another crucial reason why in-service training needs to be the backbone for lifeguard fitness.

Lifeguard Manuals

In the American Red Cross Management Manual (2007), Lifeguarding in-services, in regards to fitness, should be fun. It recommends splitting lifeguards up to have competitions with each other, so that would keep the in-service enjoyable. Additionally the American Red Cross recommends in the manual as a possible motivator to set up a rewards programs to encourage the lifeguards to exercise. In this American Red Cross Lifeguarding Management book a lot is left up to the manager of the pool in how they run the in-service. The American Red Cross Lifeguarding Management book states:

“You are responsible for preparing lifeguards for situations in which they have to swim quickly to a victim but still retain the energy and strength to make the rescue, bring the victim to safety and perform cardiopulmonary resuscitation (CPR) or rescue breathing, if necessary. To help your lifeguards stay fit, you should include a fitness program as part of your in-service training” (p. 58).

The American Red Cross highlights the importance of why lifeguards should be practicing and keeping up on their cardio, yet does not give specific examples of practice strength training routines. It also makes a case for why there should be strength training involved with lifeguards. A lifeguard needs to be able to move quickly and efficiently to perform possible rescues. Additionally, after reaching a victim there may be a case in which the lifeguard needs to remove the victim from the water because of various reasons. This removal requires strength and proper body positioning, so it is important that a lifeguard is prepared for any situation that could occur. When looking at the American Red Cross Lifeguard Instructors Manual (2012) it stated:

In-service training should take place on a regular basis at the facility where you work. It is designed to help you maintain your knowledge and skills at a professional level. Additionally, it provides an opportunity for lifeguards to practice working as a team in emergencies (p. 37).

Furthermore, it goes on to recommend that four hours a month is the best practice when it comes to in-service training. This would mean an average of one hour a week is spent on in-service training. The last point of what might be covered during an in-service training is, physical conditioning. This is the only mention of in-service training that is in the American Red Cross Lifeguard Instructors Manual. There are no suggestions or recommendations that are given to the class when a lifeguarding class is being taught.

When looking through the American Red Cross Lifeguarding Manual (2012), there are sections in the manual where it is mentioned about what a lifeguard should do or

expect from in-service trainings. For example: “You must maintain your knowledge and skills through annual or preseason orientation and trainings, and through regular, frequent in-service trainings” (p. 3). Under the heading continuing your training: It is the responsibility of facility management to provide direction and help lifeguards maintain and build on skills and to perform effectively as a team (p. 8). This is putting the responsibility on each facility to have a plan to develop lifeguards to make sure that they are given the right tools for success. The problem with this is that there is a lack of literature to help pool managers in this task.

The YMCA lifeguard manual (2011) has a brief section that encourages fitness and physical conditioning. It states, “Regular exercise is vital to maintaining your physical conditioning” (p. 4-5). This makes the case of the importance of having a training routine that is followed so the lifeguards are ready and able to make the rescues. The item from the manual gives tips on how to change up the routine of just swimming laps and putting a lot of yards in, “The best exercise for a lifeguarding is swimming. Try lap swimming, stroke drills, sprints, and water games to help you build and maintain your strength, endurance, speed, breath control, agility, and skill at the levels essential for effective lifeguarding” (p. 5). These are important concepts to focus on for physical conditioning for lifeguards, not only working on strength and speed but also breathe control. Breath control is an important concept that is talked about extensively in competitive swimming, but few articles mention it when it comes to lifeguarding. Further into the manual there is a section dedicated to professionalism, and under that heading there is a subsection titled *Fit for Duty*. It states, “As a lifeguard, it is important to be

mentally and physically fit so you can be vigilant and respond to emergencies while on duty” (p.204). From the YMCA lifeguard manual there is a great deal of responsibility put on the lifeguard to be fitness readiness shape. Swimming is highly encouraged in this manual and gives possible benefits to swimming, but there is a lack of detail for continual training for the lifeguard.

Ellis and Associates (2007) discusses additional responsibilities, “As a professional lifeguard you should maintain your skills at ‘test-ready’ levels at all times” (p.27). This directly relates to ensuring that the lifeguard is physically conditioned and has the cardio to make these rescue. There is a high focus on being able to recognize an emergency, but there is a lack of emphasis on what lifeguards should be doing to safeguard themselves in the event that they need to make a rescue. Further into the manual, the section “Psychological and Emotional Risks”, one of the bullet points state, “Get some exercise” (p. 89). This is an example of a manual that neglects going into detail about what kind of exercise might be beneficial or even talking about what to focus on when doing said exercise.

The StarGuard Best Practice for Lifeguards (2012) has a small section on in-services, and there is a statement from the book that ties into physical conditioning and being at fitness readiness shape. “Physical condition to maintain rescue-readiness fitness levels is also important. Your fitness training schedule should be appropriate for the physical response and rescue demand of the lifeguarding position you hold at your workplace” (p. 192). It continues to give examples of situations that might occur in the aquatic environment that are the lifeguard’s responsibility to respond to. This is helpful

especially since the participants that are taking the class are normally first time lifeguards. It gives them an expectation of duty and what to expect when on the stand. If the lifeguards have the understanding, then they are more likely to see the value in the in-services and in the training.

Aquatics International is an excellent publication of information that discusses what is trending and what is going on in the aquatics world. Out of the seven publications that were reviewed, none talked about the importance of building a program with the intent to increase lifeguards cardio or strength. Most of the information that talked about in-services would focus on just the skills and how to run a large scale in-service to make sure that you were being the most efficient with time management. Looking through six publications spanning from the years 2011-2014 there was nothing that was talked about when relating to in-service training with cardio and strength requirements.

There is a lack of information across the board when talking about improving lifeguarding in-services with the intent to improve the cardio and strength of the lifeguards. However there is a plethora of information about the importance of practicing skills. This is an important factor when talking about lifeguarding skills, but there must be a section where the focus is on improving the quality of lifeguards on staff by increasing what they are capable of performing.

CHAPTER III

METHODOLOGY

The purpose of the study was to review the current literature that is being used to train lifeguards, and to review the trends in literature put out by professionals in the field. Along with examining lifeguard fitness readiness at two universities, and to assess if their requirements are adequate. After lifeguards receive that initial certification for becoming a certified lifeguard, are they still maintaining the physical standard that is required to make effective and efficient rescues? Are lifeguards getting enough cardio and strength training while they are employed at their respective pool?

The data collected for the study was secondary data, reviewed from University of Northern Iowa (2012-2014) and the University of Iowa (2013-2014). The researcher looked for any amount of swimming required and if they have any strength training component to their in-services. Scenarios were excluded from distance required for swimming; the primary focus was on swimming done as a lone activity. A reason why the University of Iowa is included is because of their new pools, built in 2010. Students along with public have access to the facility and both The University of Iowa and the University of Northern Iowa are public universities. It is important to see what requirements they are implementing to ensure the safety of the patrons. Another important reason to compare the in-service logs between the two schools is because both schools require the American Red Cross Lifeguarding certificate. That means both schools should have similar in-service trainings. The Aquatics Director at the University of Northern Iowa and the Aquatics Director at the University of Iowa will be the primary

source for the logs because the Aquatics Directors are in charge of planning and implementing the in-services. The population in this study includes college students, who are mostly likely affected by the in-servicing. However, the University of Iowa does employ high school students for some of the lifeguard positions at the pool. It was important to include the University of Iowa in the study because of their proximity and relations with the University of Northern Iowa, along with both school requiring American Red Cross Lifeguarding at their pools.

Research Design

The research project was secondary quantitative data collected from the University of Northern Iowa and the University of Iowa, which was extensively examined. Specifically the data will include the amount of cardio and at the amount of strength training that is in place. It will be noted if no training is cited within the log. The frequency of in-service trainings from each school will also be recorded if present, and finally, if the school has daily or weekly fitness requirements. If there were daily or weekly swimming distances/ strength training requirements, it was considered and reflected in the table.

Data Source

The data that was collected by the researcher from in-service logs from 2012-2014 at the University of Northern Iowa, and 2013-2014 from the University of Iowa. Each time either school had an in-service, it would be documented what was done. This information was typed and submitted to the state to show what was being done at each in-

service. The in-service logs at the University of Northern Iowa are saved on the Aquatics Director's computer. The University of Iowa has also documented and saved their data on the Aquatics Director's computer.

Procedure for Collecting Data

The researcher contacted the Aquatics Coordinator at both schools and explained the research proposal. The researcher asked if it is possible to receive a copy of the in-service logs from the University of Northern Iowa (2012-2014) and the University of Iowa (2013-2014). After in-service logs were collected, the researcher coded each in-service log recording swimming distance and any strength training required.

Data Analysis

The researcher analyzed the data by reviewing each in-service log and evaluated the required swimming distance and strength requirements. The researcher logged the required distance at each in-service, or if there is none the researcher would also use this data. The researcher also looked for any strength component and document it, even if there was none. Once all in-services were documented the researcher then made recommendations on how to improve in-services and then created cardio and strength workouts for lifeguards to be fitness ready. The researcher imputed the data into tables. Tables three and four analyze each in-service. The information noted included; school, date, duration or amount of exercise required, and notes about the exercise.

CHAPTER IV

RESULTS

Two tables were created displaying the findings for the University of Northern Iowa and the University of Iowa. This section is organized into two subsections in order to answer the following questions:

1. Are lifeguards receiving adequate cardio training to maintain their ability to make rescues?
2. Are lifeguards incorporating strength training to enhance or maintain their level of fitness readiness?

Tables three and four display the differences for each school's in-services. Within the two tables there are three sections; Date, Distance/Duration, and Notes. The dates indicates the frequency the in-services were performed. This does not take into consideration any external requirements, however the external requirements such as weekly swims or skills will be discussed in that particular school's section. There are also make-up in-service dates posted; this is in the notes section.

Research Question #1: Are lifeguards receiving adequate cardio training to maintain their ability to make rescues?

The distance/duration section is the total amount of yards for that specific in-service. The minimum requirement to qualify for the American Red Cross Lifeguarding

class is swimming a distance of 300 yards. Some of the distance is a cumulative total between lifeguards, however this is in the notes section.

The notes section states any special considerations for that in-service. Time was one of the factors noted. If time limits on the swim were required, there were incentives for the lifeguards for having a satisfactory time. These were noted. Also, if there were any physical requirement, this was noted, along with any special circumstances with the swim. Each table will be discussed in further detail about their in-services.

Table 2: University of Northern Iowa In-Service Logs

Date	Distance/Duration	Notes
1/8/12	300 Swim	
3/4/12	300 Swim	
5/14/12	300 Swim	
8/17/12	300 Swim	
9/30/12	300 Swim	
3/3/13	300 Swim	
5/13/13	300 Swim	
8/23/13	300 Swim	Under 5:00 = 1 ticket
1/12/14	300 Swim	
3/4/14	300 Swim	
7/9/14	500 team Swim	One person would swim one lap, group members would tread water. Swimmer would rotate with person treading.
8/22/14	300 Swim	
9/24/14	300 Swim	

The review of in-services of the University of Northern Iowa spans from 2012 to 2014. Table 3 illustrates the cardio and physical requirement at each of the in-services. There is a consistent swim of 300 yards within each in-service. On August 23rd 2013, the

in-service was themed to be similar to a carnival. Lifeguards could earn tickets by completing challenges, such as if the 300 yard swim was done in under three minutes. This is an example of a way of motivate the lifeguards to have greater intensity in their swims. July 9th 2014, the team held a 500 yard swim where one person would swim 50 yards while other members treaded water. This is an example of how to incorporate team bonding along with exercise. If there were teams of four, swimmer one and two would be swimming a max of 150 yards while swimmers three and four would only be doing 100 yards. If there were only teams of two that would only be requiring at most 250 yards. Other than that day it was a very consistent 300 yards at each in-service.

Table 3: University of Iowa In-Service Logs

Date	Distance/Duration	Notes
2/10/13	500 Swim	
3/10/13	500 Swim	
10/8/13	150 Swim	With clothes on and 9-10 minutes of CPR
11/17/13	500 Swim	
2/9/14	100 Swim	Must be faster than 1:45
3/9/14	100 Swim	Must be faster than 1:45
3/30/14	500 Swim	Make-up in-services for March
4/6/14	500 Swim	
4/22/14	500 Swim	Make-up in-service for March
10/19/14	100 Swim	Must be faster than 1:45
11/16/14	100 Swim	Must be faster than 1:45
2/16/15	500 Swim	
4/5/15	500 Swim	

The University of Iowa's in-service records span 2013 to 2015. The University of Iowa had an external swimming requirement, every week each lifeguard was required to swim 500 yards, 1 minute brick tread (10 lbs.), and retrieve a manikin from the diving

well (17ft.). A head lifeguard would sign off after it was completed, and the lifeguards were paid for 30 minutes of work. The University of Iowa was very consistent with the requirement of a 500 yard swim most every in-service. October 8th 2013 was unique in only requiring the lifeguards to swim 150 yards with clothing on. Once completed, the lifeguards were to exit the pool and begin nine to ten minutes of CPR without stopping. This is a very good example of using swimming along with prolonged CPR. When the University of Iowa required 100 yard swim there was a timing requirement that each lifeguard had to meet. Overall the University of Iowa was consistent with their cardio and strength requirements.

Both universities had unique approaches to their in-services and both were set up differently throughout the rest of the time. The University of Iowa had the external swimming requirement for their lifeguards to ensure that the lifeguards were maintaining their swimming fitness and keeping them accountable for their endurance. The University of Northern Iowa did not require any external swimming to be done by their guards. Both schools kept swimming distance close to the same throughout the three years. There was not a lot of variation from in-service to in-service.

Research Question #2: Are lifeguards incorporating strength training to enhance or maintain their level of fitness readiness?

From the data, there was minimal focus on this type of training. Based on the in-service logs there has been no strength training incorporated into the routine. Based on the TSAC Reports there is a need for lifeguards to be in fitness readiness shape. Since

lifeguards are the first responders at a pool, they need the ability to act quickly and with the ability to make the rescue. Along with the literature showing how dry-land training enhances swimming ability and confidence in the water. This means giving lifeguards greater confidence in their abilities to successfully rescue a patron in an emergency situation.

Suggested Exercise Activity for Regular Lifeguard Training

In general, tables four and five are examples of recommendations, combining swimming and strength training, presented as a 10-week, three-day workout program. The dry-land section was developed to be completed on deck. Because of this, little no equipment is required. Dry-land workouts were developed to focus on technique and positioning of exercise (D. Davis, personal communication, October 28, 2015).

Specifically, training logs should be kept for this extended period for each lifeguard. The swimming portion focuses on building endurance and building confidence in the water. There are unique types of swimming that are based on what a lifeguard might use in a rescue situation. These are used to build confidence in the lifeguard's swimming ability. There is a timed 500 yard swim each week to track the progress of each individual. The strength focuses on three areas: upper body, core, and lower body. These exercises focus on movements and muscles that a lifeguard uses during different phases of a rescue: entry, approach, towing the victim back to safety, putting the victim on a backboard (in-water), or removing victim with a backboard.

The head-up crawl swim is executed by swimming front crawl with the head above the water looking forward. This exercise is important because it is crucial to keep your eyes on the victim at all times. The clothed swim needs close supervision, and it is preferable if it is performed with either a long-sleeve shirt or sweatshirt and long pants. This is important to ensure that the lifeguard is able to swim proficiently while clothed in case an emergency situation is to occur.

Table 4: Workout Weeks 1-5 (30 to 60 minutes training sessions)

Week	Day 1	Day 2	Day 3
1	Timed 500 Swim 100 Kick 3x100 Pull 2x1:00 Tread (10 sec rest) 3x45 sec Wall Sits 3x10 Incline Push-ups 3x20 crunches	3x100 Swim (1:00 rest) 100 Kick 3x100 Pull 2x1:00 Tread (10 sec rest) 3x45 sec Wall Sits 3x10 Incline Push-ups 3x20 crunches	2x100 Swim 4x25 Head-Up Crawl 100 Kick 3x100 Pull 2x1:00 Tread (10 sec rest) 3x45 sec Wall Sits 3x10 Incline Push-ups 3x20 crunches
2	Timed 500 Swim 4x75 Kick (10 sec rest) 300 Easy Swim 4x1:00 Tread (10 sec rest) 4x45 sec Wall Sits 4x10 Incline Push-ups 5x20 crunches	10x50 Swim (15 sec rest) 4x25 Kick (10 sec rest) 300 Easy Swim 4x1:00 Tread (10 sec rest) 4x45 sec Wall Sits 4x10 Incline Push-ups 5x20 crunches	200 Swim 4x25 Head-Up Crawl 4x75 Kick 4x1:00 Tread (10 sec rest) 4x45 sec Wall Sits 4x10 Incline Push-ups 5x20 crunches
3	Timed 500 Swim 100 Kick 100 clothed Swim 2x2:00 Tread (no hands) 5x45 sec Wall Sits 5x10 Incline Push-ups 6x20 crunches	2x150 Swim 100 Kick 100 Pull 5x45 sec Wall Sits 5x10 Incline Push-ups 6x20 crunches	200 Swim 4x25 Head-Up Crawl 100 Kick 5x75 Swim (10 Push-Ups at end of each 75) 5x45 sec Wall Sits 5x10 Incline Push-ups 6x20 crunches
4	Timed 500 Swim 4x50 Kick (5 push-outs every 50) 100 Pull 4:00 tread (alternate with hands/ no hands) 3x20 Pause Squats 3x20 Traditional Push-ups 4x25 Sit-ups	8x50 (10 sec rest) 8x25 Kick (5 sec rest) 100 Pull 3x20 Pause Squats 3x20 Traditional Push-ups 4x25 Sit-ups	4x100 (75 Swim 25 Kick) 2x100 Kick 100 Pull 3x20 Pause Squats 3x20 Traditional Push-ups 4x25 Sit-ups
5	Timed 500 Swim 2x100 Kick 2x100 Pull 4:00 tread (alternate with hands/ no hands) 4x20 Pause Squats 4x20 Traditional Push-ups 6x25 Sit-ups	400 Easy Swim 2x100 Kick 2x100 Pull 4x20 Pause Squats 4x20 Traditional Push-ups 6x25 Sit-ups	200 Swim 4x50 Head-Up Crawl 200 Kick 2x100 Pull 4x20 Pause Squats 4x20 Traditional Push-ups 6x25 Sit-ups

Table 5: Workout Weeks 6-10 (30-60 minutes training sessions)

6	Timed 500 Swim 200 Kick 5x100 Swim 200 Pull 2x1:00 Tread (10 sec rest) 2x20 Pause Squats 2x20 Traditional Push-ups 2x20 Traditional Push-ups 5x25 Sit-ups	400 Easy Swim 200 Kick 2x100 Pull 5x100 Swim 2x20 Pause Squats 2x20 Traditional Push-ups 5x25 Sit-ups	400 Swim 2x100 Kick 5x75 Swim (Get out at end without ladder, 25 sit ups) 2x20 Pause Squats 2x20 Traditional Push-ups Sit-ups
7	Timed 500 Swim 300 Kick 300 Pull 2x1:00 Tread (10 sec rest) 4x25 Prison Squats 4x15 Hindu Push-ups 2x1:00 Plank 2x30 sec Side	500 Easy 6x50 Kick 300 Pull 100 Sprint 4x25 Prison Squats 4x15 Hindu Push-ups 2x1:00 Plank 2x30 sec Side	2x250 Swim 3x100 Kick 2x150 Pull 100 Head-Up Crawl 4x25 Prison Squats 4x15 Hindu Push-ups 2x1:00 Plank 2x30 sec Side
8	Timed 500 Swim 3x100 Kick 300 Pull 2x1:00 Tread (10 sec rest) 5x25 Prison Squats 5x15 Hindu Push-ups 1:30 Plank 2x45 sec Side	500 Easy Swim 6x50 Kick 6x50 Pull 5x25 Prison Squats 5x15 Hindu Push-ups 1:30 Plank 2x45 sec Side	10x50 Swim 8x25 Kick 300 Pull 5x25 Prison Squats 5x15 Hindu Push-ups 1:30 Plank 2x45 sec Side
9	Timed 500 Swim 3x100 Kick 300 Pull 2x1:00 Tread (10 sec rest) 3x25 Prison Squats 3x15 Hindu Push-ups Sit-ups 1:30 Plank 2x45 sec Side	500 Swim 2x150 Kick 300 Pull 3x25 Prison Squats 3x15 Hindu Push-ups 1:30 Plank 2x45 sec Side	5x100 Swim 6x50 Kick 300 Pull 2x100 Head-Up Crawl 3x25 Prison Squats 3x15 Hindu Push-ups 1:30 Plank 2x45 sec Side
10	Timed 500 Swim 200 Kick 3x100 Pull Splits 2x1:00 Tread (10 sec rest) 3x25 Rocket Squats 3x20 Traditional Push-ups 2:00 Plank 1:00 Side	600 Easy Swim 4x50 Kick 6x50 Pull Splits 3x25 Rocket Squats 3x20 Traditional Push-ups 2:00 Plank 1:00 Side	2x300 Swim 2x100 Kick 12x25 Pull 2x100 Head-Up Crawl 300 Kick 6x100 Pull 3x25 Rocket Squats 3x20 Traditional Push-ups 2:00 Plank 1:00 Side

Conclusion

When a lifeguard receives their certification, it represents their ability to complete the given skills that day, but it is the lifeguard's responsibility to continue their development. It is also the responsibility of the pool management staff to create an environment that is conducive to the growth and development of lifeguards. Qualification is the ability to execute the skills. Although a lifeguard may have the certification, however, this does not necessarily mean that they are qualified for the position.

The purpose of this study was to review the current literature used to train lifeguards and review the trends in literature published by professionals in the field. This study made recommendations for appropriate cardio and strength training to maintain lifeguard fitness readiness between certification cycles.

Having lifeguards in fitness readiness shape is imperative to having a safe aquatic environment. By building a strong foundation with swimming endurance and strength training, it provides the confidence in the lifeguard to be able to perform rescues in emergency situations. By having cardio and strength training it gives the lifeguard the tools to be successful for their profession. Having applicable in-services are vital for the improvement of skills and development, but also to change the culture around lifeguarding.

Based on the research and literature, there is a lack of focus on the endurance and strength training that lifeguards are receiving. There needs to be more focus on the fitness readiness shape that lifeguards are in during the two-year certification period. From the

two Universities reviewed, both required some type of swimming during the in-service. However, the swimming was infrequent, being done once a week or once a month. Also from the in-service logs, both Universities did not incorporate any type of strength training into their in-services. Should the certifying organizations include templates in their literature with detailed workouts for lifeguards? More research should be done to enhance the quality of training that lifeguards receive in-between certification periods.

REFERENCES

- American Red Cross. (2012a). *Lifeguarding instructor's manual*. Yardley, PA: StayWell.
- American Red Cross. (2012b). *Lifeguarding manual*. Yardley, PA: StayWell.
- American Red Cross. (2007). *Lifeguard management*. Yardley, PA: StayWell.
- Aquatics International. (2011). *Lifeguard certification*.
- Avramidis, S. (1998). *The manual of the Greek lifeguard*. Athens: Anavasi.
- Avramidis, S. (2003). *Pool and waterpark lifeguarding*. Athens, Greece: European Lifeguard Academy.
- Avramidis, S. (2008). Lifeguard operations: Summary of practices at the Athens 2004 Olympics. *International Journal of Aquatic Research and Education*, 2 (1) February, 47-56.
- Avramidis, S. (2010). Lifeguard legislation in Greece. *International Journal of Aquatic Research and Education*, 4 (3) August, 312-327.
- Cable, S. (1993). Lifeguard in-service training: who benefits? *Parks & Recreation (Arlington)*, 28(11), 40-42.
- Decree Law (2000). Determination of requirements for establishment and operation of lifeguard schools. Determination of requirements for permission of lifeguard certification from the Coast Guard and determination of the lifeguard responsibilities on duty. Determination of mandatory requirements for lifeguard employment in organized or not beaches for protection of bathers in the aquatic area. *FEK of Greek Democracy*, 18, 269-278.
- DeRosa, S. (2007, September 1). A timing issue. *Aquatics International*. Retrieved from <http://www.aquaticsintl.com/training/a-timing-issue.aspx>
- Dixon, H. E. T. (2005). Tales from the chair. Beyond the moans and groans- what lifeguards have to say about in-service training. *Parks & Recreation (Ashburn)*, 40(7), 52-54.
- Ellis and Associates. (2007). *International Lifeguard Training Program*. Sudbury (3rd ed.). MA: Jones and Barlett Publishers.
- Fass, B. (2015a). Active shooter conditioning considerations for tactical emergency medical service providers. *TSAC Report* (35), 26-27.
- Fass, B. (2015b). Patterns of first responders. *TSAC Report* (36), 18-19.

- Fass, B. (2015c). Utilizing the priority training system for first responders. *TSAC Report* (37), 32-33.
- Fawcett, P. (2001). Keeping the lifeguard pipeline full: junior lifeguards. *Parks & Recreation* 36(11), 36-39.
- Griffiths, T., Steele, D., & Vogelsong H (1997). Self-performance evaluations from a large sample of on duty lifeguards. *World of Aquatics*, 1(1), 57-62.
- National Aquatic Safety Company. (2015). *Lifeguard textbook*.
- Organizing Committee of Athens 2004 Olympic Games. (2004). *Specialized training of games' staff for aquatics*. Athens, Greece: Author.
- Schwebel, D. C., Jones, H. N., Holder, E., Marciani, F. (2010) Lifeguards: a forgotten aspect of drowning prevention. *Journal of injury and violence research*, 2(1), 1.
- Trappe, S. W., and Pearson, D. R. (1994). Effect of weight assisted dry-land strength training on swimming performance. *Journal of Strength and Conditioning Research*. 8(4):209-213.
- Turner, H., Vogelsong, H., & Wendling, R. (2003). An extra safe guard. *Parks and Recreation*, 38, 42-45.
- Vogelsong, H., Griffiths, T., Steel, D. (2000). Reducing risk at aquatic facilities through lifeguard training. *Parks and Recreation*, November.
- Wendling, R. C., Vogelsong, H., Wuensch, K. L., Ammirati, A. (2007). A pilot study of lifeguard perceptions. *International Journal of Aquatic Research and Education*, 1, 322-328.
- White, J. (2012). *Starguard: Best practices for lifeguards*. (4th ed.).
- YMCA. (2011). *On The Guard: The YMCA Lifeguard Manual*. (5th ed.). USA: YMCA of the USA.