

ABSTRACT

THE RELATIONSHIP BETWEEN RESILIENCE AND NCAA DIVISION I SWIMMING TIMES

In National Collegiate Athletic Association (NCAA) competition, each swimmer's result contributes to the team score, and hundredths of a second can be the difference between first and eighth place. Resilience, the ability to respond positively to setbacks, obstacles, and failures (Fletcher & Sarkar, 2012), is thought to be important for peak performance. It was hypothesized that high resilience scores would have a relationship with faster swimming times at the collegiate level. Male and female NCAA Division I swimmers ($n= 246$) completed the Conner-Davidson Resilience Scale-10 (Davidson & Connor, 2015) and a demographic survey. Swimming times from Fall 2015 were gleaned from a public website (USASwimming, 2016), which officially documents results for all NCAA competitions. A Pearson's r correlation coefficient was performed to evaluate the relationship between resilience scores and swimming times. An independent t-test was calculated to compare swim times between swimmers who had experienced injury/illness and those who had not. A One-Way ANOVA was performed to examine the differences between athletic scholarships and swimming times. No statistically significant relationship between resilience scores and swimming times was found. Also, no significant difference was found for the secondary hypotheses. Possible explanations for the lack of significant findings are discussed. Implications for coaches, certified athletic trainers, and mental training practitioners were also discussed.

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THE RELATIONSHIP BETWEEN RESILIENCE AND NCAA
DIVISION I SWIMMING TIMES

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CHAPTER 1: INTRODUCTION

In the movie *Rocky Balboa* (2006), the son of the world champion boxer tells his dad that he is too old to fight again and that he will just embarrass them both if he attempts to do so. Rocky responds to his son by saying:

The world ain't all sunshine and rainbows. It's a very mean and nasty place and I don't care how tough you are it will beat you to your knees and keep you there permanently if you let it. You, me, or nobody is gonna hit as hard as life... (Chartoff & Winkler, 2006)

As described in this quote, every person experiences adversity in life. However, by the very nature of the athletic context, athletes are faced with a high occurrence of adversity (Belem, Malheiros Caruzzo, Andrade do Nascimento Junior, Lopes Vieira, & Fiorese Vieira, 2014; Galli & Gonzalez, 2015; Howells & Fletcher, 2015). For student-athletes at the collegiate level, there are many factors that could contribute to adversity.

The transition from high school to college can be a major adjustment for all, but for athletes in particular (Harris, Altekruise, & Engels, 2003). Students and athletes in general experience adversity factors, which include relationships with friends and significant others, injury, athletic setbacks, family, and nutrition. When transitioning to college, students are taking new courses and meeting new people, but college athletes are also experiencing new coaches, harder workouts, and increased pressure to compete well.

In *Rocky Balboa* (2006), Rocky continues to talk to his son about resilience: "...but it ain't about how hard you hit. It's about how hard you can get hit and keep moving forward. How much you can take and keep moving forward. That's how winning is done" (Chartoff & Winkler, 2006). Resilience is important

in sports because it facilitates one's ability to overcome challenges and adapt after a setback (Belem et al., 2014; Galli & Vealey, 2008; Sarkar & Fletcher, 2013; Schinke & Jerome, 2002). Athletes with high resilience are able to make adjustments and return to their best performance focus when distracted or a situation moves them away from their comfort zone (Galli & Vealey, 2008; Turner & Barker, 2013). High resilience can be very beneficial to be able to push the body and mind to its limits by overcoming challenges (Belem et al., 2014; Galli & Vealey, 2008; Schinke & Jerome, 2002).

In the sport of swimming one hundredth of a second could mean not making a qualifying time standard, not qualifying for the national team, the difference between first and second place, or even more devastating, the difference between third and fourth place. When one considers the effort needed to improve a personal best by even a hundredth of a second, it is apparent why resilience is so important. This may be especially true for swimmers who compete in shorter distances.

A concept similar to resilience is a "growth mindset" (Dweck, 2008). When individuals believe that certain traits are malleable and that hard work and effort can lead to success, they are considered to have a growth mindset (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 2008, 2010, 2012). The growth mindset enables a person to grow beyond their comfort zone and push their body and mind to higher levels, which would allow for higher performance in academics, athletics, and life in general (Dweck, 2008). In contrast, an individual with a fixed mindset believes that certain traits are unchangeable and that success is predisposed (Blackwell et al., 2007; Dweck, 2008, 2010, 2012).

Simply the knowledge of the two mindsets can lead a person into a growth mindset (Blackwell et al., 2007; Dweck, 2008, 2012; Paunesku et al., 2015;

Romero, Master, Paunesku, Dweck, & Gross, 2014; Sriram, 2014; Yeager & Dweck, 2012; Yeager et al., 2014). Dweck and her colleagues (Blackwell et al., 2007; Dweck, 2008; Mueller & Dweck, 1998; Paunesku et al., 2015) have identified and conducted research on growth and fixed mindsets in several domains such as education and business, but they have given minimal attention to the context of sport. Because a growth mindset could foster a resilient athlete, and the similarity of the two concepts and the adversity that athletes experience on a daily basis, an examination of resilience in swimming is warranted.

Purpose Statement

The purpose of this study was to examine the relationship between resilience scores and swimming times. Data regarding athletic scholarship, nationality, injury and illness, and year in college were used to study the differences on resilience scores.

Research Questions

The current study examined the main research question: (1) Is there a significant relationship between resilience and swimming times in NCAA Division I swimmers? Secondary research questions included: (2) Is there a significant difference in resilience scores between athletes with different types of athletic scholarship? (full athletic scholarship, partial athletic scholarship, no athletic scholarship); (3) Is there a significant difference in resilience scores between athletes from different nationalities (U.S. citizen, international student)?; (4) Is there a significant difference in resilience scores between athletes who experienced injury and illness and athletes who did not?

Hypotheses

The hypotheses were generated from the research questions and included the following:

H1: Resilience scores and power point scores will have a significant positive relationship.

H2: Resilience scores will be significantly higher in swimmers with higher scholarships compared to swimmers with lower scholarships.

H3: Resilience scores will be significantly higher in swimmers who are international students compared to swimmers who are U.S. citizens.

H4: Resilience scores will be significantly higher in swimmers who experienced injury/illness compared to swimmers who did not experience injury/illness.

Significance of the Study

Currently there is limited research on resilience within the sport of swimming. But given the potentially high occurrence of adversity within the sport, especially when considering the minimal time differences in results, it was anticipated that the results of the current study would help the swimming population. This study provided insight into the relationship between resilience and swimming performance. It was hypothesized that high resilience scores would potentially result in better swimming performance. Results from this study will assist researchers and sport psychology consultants in developing future research, coaching methods, and interventions to foster higher resilience in athletes.

Delimitations

The first delimitation for this study was that only NCAA athletes who are between the ages of 18 and 24 years were included. This age limit of 18 to 24

years is set because only Division I student-athletes are included in this study and due to NCAA regulations the ages do not deviate from this age range. Division I schools from the United States are used in this study, which is another delimitation because Division II, Division III, and NAIA schools were not included. Only Division I swimming programs were selected because of the large number of swimming programs in the United States and because of time restrictions for the completion of this study. Also, Division I swimmers are anticipated to be the best performers, which allowed to examine the main hypothesis.

Limitations

A limitation for the study was that the researchers were not able to contact the student-athletes themselves. Instead, the swim coaches were contacted and asked to share the invitation to participate in the study with their student-athletes. If coaches failed to disseminate the study invitation, did so in a less than timely manner, or discouraged their student-athletes from getting involved, this would have impacted the student-athlete response rate. Another limitation is that the participant group only included NCAA Division I swimmers, thus the results could not be generalized to Division II, Division III, NAIA, or USA swimming club team swimmers. Also, the current study's results could not be generalized to professional swimmers and swimmers who are younger than 18 or older than 24. The researchers assumed that the athletes filled out the questionnaires truthfully.

Definition of Terms

Division I – The National Collegiate Athletic Association (NCAA, n.d.) has defined Division I as follows:

Among the three NCAA divisions, Division I schools generally have the biggest student bodies, manage the largest athletics budgets and offer the

most generous number of scholarships. Schools who are members of Division I commit to maintaining a high academic standard for student-athletes in addition to a wide range of opportunities for athletics participation. (para. 2)

Fixed mindset – is if a person has a belief that his or her traits like intelligence (or talents, personality, and so on) are unchangeable (Sriram, 2014).

Growth mindset – “is based on the belief that your basic qualities are things you can cultivate through your efforts. Although people may differ in every which way – in their initial talents and aptitudes, interests, or temperaments – everyone can change and grow through application and experience” (Dweck, 2008, p. 7).

NCAA – “The National Collegiate Athletic Association (NCAA) is a nonprofit organization. Its members are a diverse group and are located all over the country – including more than 1,200 colleges and universities, conferences and other organizations” (Allegany County Public Schools, n.d.)

Resilience – Resilience is the ability to respond positively to setbacks, obstacles, and failures (Fletcher & Sarkar, 2012).

Student-Athlete – is a collegiate student, who participates in a collegiate sport under NCAA rules with an amateur status (NCAA, n.d.).

CHAPTER 2: LITERATURE REVIEW

This chapter provides a synthesis of the existing literature in the topics of resilience and mindset. First, the literature about resilience was reviewed, including resilience and Olympic athletes, resilience and scholarship, resilience in international students, resilience and injury, mental skills used to improve resilience, and measurement of resilience. Second, the author reviewed the literature on mindset, which investigated the effects of a growth mindset in different areas including education, culture, parenting, business, and physical performance.

Resilience

Athletes experience a lot of adversity and it is important for them to know how to deal with it (Fletcher & Sarkar, 2012; Galli & Gonzalez, 2015; Galli & Vealey, 2008; Howells & Fletcher, 2015; Sarkar & Fletcher, 2014; Turner & Barker, 2013). Athletes who know how to cope well with adversity are considered to have high resilience (Galli & Gonzalez, 2015; Sarkar & Fletcher, 2014; Schinke & Jerome, 2002). Resilience is an important factor in athletic success (Fletcher & Sarkar, 2012; Galli & Gonzalez, 2015; Howells & Fletcher, 2015; Sarkar & Fletcher, 2014; Turner & Barker, 2013). Because of the adversity athletes dealt with early on in life, they were able to learn skills on how to deal with adversity and use these skills to become successful in sports (Howells & Fletcher, 2015).

In fact, resilience is considered to be an essential factor for the overall measurement of mental toughness in athletes (Madrigal, Hamill, & Gill, 2013). “Mental Toughness is a characteristic many believe to be important for success in sport” (Madrigal et al., 2013, p. 62). Mental toughness is a combination of various psychological factors that allow an athlete with high mental toughness to

outperform the competition that has low mental toughness (Gucciardi & Gordon, 2009; Madrigal et al., 2013). Generally, it is described to be the factor that distinguishes between successful and unsuccessful athletes (Gucciardi & Gordon, 2009; Madrigal et al., 2013).

Resilience and Olympic Athletes

The majority of athletes who compete at the Olympic level have high resilience (Howells & Fletcher, 2015; Turner & Barker, 2013). An investigation of the British tennis player Andy Murray and his career showed high resilience, as he was able to overcome major losses (Turner & Barker, 2013). Also, researchers examined how Andy Murray developed after winning the 2012 Olympics. Not only did Andy Murray have strong resilience after adversity, but also after major success, considering the life changes of increased popularity, attention, and pressure (Turner & Barker, 2013). This suggests that resilience is not only important after failure, but also after success (Turner & Barker, 2013).

Resilience is not only important in the sporting context, but is also related to life stressors (Howells & Fletcher, 2015). Similar level Olympic athletes like Andy Murray were researched on their levels of resilience and what kind of adversity they overcame to make it to that level of competition (Fletcher & Sarkar, 2012; Howells & Fletcher, 2015). Many of these athletes experienced difficult times in their childhood. For example, Michael Phelps (22-time Olympic medalist) dealt with Attention Deficit Hyperactivity Disorder (ADHD) and Amanda Beard (7-time Olympic medalist) coped with Dyslexia and Obsessive Compulsive Disorder (OCD) (Howells & Fletcher, 2015). However, results with 12 Olympic gold medalists suggested a positive relationship between high resilience and success in their sport (Fletcher & Sarkar, 2012).

The studies reviewed about Olympic athletes contribute to the understanding of resilience in sports. However, Olympic medalists are a very rare sample within the athlete population and their results cannot be generalized to every athlete. This is why the current research investigated resilience in NCAA Division I swimmers.

Resilience and Scholarship

In swimming, the athlete who has the fastest swimming times would generally receive the highest athletic scholarship. However, research has described positive (Milton, Freeman, & Williamson, 2012; Rubin & Rosser, 2014) as well as negative factors (Judge, Bell, Theodore, Simon, & Bellar, 2012; Raedeke, 1997) that affect athletes when receiving a high athletic scholarship. Higher athletic scholarship is described to have a relationship with higher GPA (Milton et al., 2012) and less drop-out of school because of financial reasons (Rubin & Rosser, 2014). On the other hand, athletic scholarship has been identified as a factor that could lead to burnout (Judge et al., 2012). Athletes competing with an athletic scholarship might change their mindset from “I want to” to “I have to,” which can lead to more stress and a heightened feeling of entrapment (Raedeke, 1997).

Past research suggested there was a difference between athletes with scholarships and athletes who did not receive a scholarship (Rubin & Rosser, 2014; Le Crom, Warren, Clark, Marolla, and Gerber, 2009). Rubin and Rosser (2014) investigated differences between scholarship and non-scholarship athletes. One of the significant findings was that athletes on scholarship had lower drop-out rates from college, because the athletic scholarship supported them financially (Rubin & Rosser, 2014). However, Le Crom and colleagues (2009), conducted a

similar study and found that scholarship was not a factor that contributed to retention of student-athletes.

Another aspect that has been examined is the relationship between athletic scholarship and GPA (Milton et al., 2012). According to Milton and colleagues (2012), there was a significant relationship between higher athletic scholarship and higher GPA. This result suggested that athletes with higher athletic scholarships experience less adversity in the academic field because they have better grades (Milton et al., 2012).

However, when investigating the occurrence of burnout, a comparison between men and women revealed that males were more prone to burnout with high athletic scholarship and females were more likely to burnout with low athletic scholarship (Judge et al., 2012). The authors reported that females who had higher athletic scholarships also had higher academic scholarships, which would explain the lower rate of burnout in higher scholarships for females because they do not have to solely rely on the athletic scholarship (Judge et al., 2012). Because of the potential negative effects of scholarship (i.e., burnout and added stress), the second hypothesis was generated for the current study. This hypothesis states that the higher the athletic scholarship, the higher the resilience.

Resilience in International Students

International students experience a major change when they come to the United States to continue their education in college (Jing, 2009). To understand the difficulties of international students, past research identified multiple factors that would cause adjustment for an international student. The main factors identified to cause difficulties were culture shock, social disconnectedness (Baba & Hosoda, 2014; Olivas & Li, 2006; Oropenza, Fitzgibbon, & Baron, 1991),

financial stress, academic pressure, and discrimination (Baba & Hosoda, 2014; Oropeza et al., 1991). Other factors were included such as homesickness, comfort level communicating in English, changes in status (social and economic), and isolation (Baba & Hosoda, 2014; Oropeza et al., 1991).

Oropeza and colleagues (1991), identified expectations about academics being unrealistic, which would cause an adjustment for international students. However, a past study analyzed expectations of academics in the United States and compared U.S. citizens with international students (Kaczmarek, Matlock, Merta, Ames, & Ross, 1994). Results suggested that there was no significant difference and that their expectations were realistic (Kaczmarek et al., 1994).

These factors make it difficult for international students to adjust, which makes moving to the United States for school a major change. Students who are able to overcome the adversity and who are able to cope with the major change would be considered resilient (Jing, 2009). Jing (2009) measured resilience and the ability to deal with changes. Participants ($n = 207$) filled out the Organizational Development Resources' Personal Resilience Questionnaire and the Michigan International Student Problem Inventory to gather information about resilience and adjustment to college (Jing, 2009). Results suggested that students with higher resilience scores had fewer adjustment problems (Jing, 2009). These results helped to generate the hypothesis that international students would have higher resilience scores than U.S. citizen students.

Resilience and Injury

Resilience is an important factor after traumatic brain injury (TBI) (Hanks, Rapport, Perrine, & Millis, 2016), as well as spinal cord injuries (Kilic, Dorstyn, & Guiver, 2013; White, Driver, & Warren, 2010), and multiple traumas (Hanks et

al., 2016; Kilic et al., 2013; White et al., 2010; Quale & Schanke, 2010). Even though resilience has been identified as important, the previous literature does not provide information about the changes of resilience before and after injury. The studies investigated the differences of resilience in severity of injury (Kilic et al., 2013), changes of injury throughout the rehabilitation process (White et al., 2010), and differences between TBI patients and individuals without cognitive impairment (Hanks et al., 2016). The studies reviewed in the injury area suggested that there was no difference in resilience when examining severity of injury, different periods during rehabilitation, and comparing patients with TBI and patients not cognitively impaired (Hanks et al., 2016, Kilic et al., 2013, White et al., 2010).

No research investigated one population such as athletes and the differences of resilience scores in athletes who experienced injury and athletes who did not. The hypothesis that athletes who experienced injury/illness had higher resilience scores than athletes who did not is granted.

Mental Skills and Resilience

Mental skills can be used to achieve peak performance (Orlick, 2008). Mental skills have also been identified as helping athletes overcome adversity and improve resilience (Belem et al., 2014; Fletcher & Sarkar, 2012; Howells & Fletcher, 2015). Multiple studies have been reviewed to examine mental skills and their effectiveness for resilience (Belem et al., 2014; Fletcher & Sarkar, 2012; Howells & Fletcher, 2015; Schinke & Jerome, 2002).

Research has identified certain mental skills that can improve resilience in athletes. The mental skills that have been identified as impactful to resilience were motivation, confidence, focus, perceived social support, finding a meaning in the

things they do for swimming, goal setting, coachability, personal assumptions, disputing strategies, and de-catastrophizing (Belem et al., 2014; Fletcher & Sarkar, 2012; Howells & Fletcher, 2015; Schinke & Jerome, 2002). The studies suggested that there are many mental skills that provide an effective intervention for better resilience in athletes (Belem et al., 2014; Fletcher & Sarkar, 2012; Howells & Fletcher, 2015; Schinke & Jerome, 2002).

Measurement of Resilience

The main instrument used to measure resilience is the Connor-Davidson Resilience Scale (CD-RISC), which was used in different areas such as business (Manzano-García & Ayala Calvo, 2013), medicine (Fujikawa et al., 2013), socio-economic status (Coates, Phares, & Dedrick, 2013), and with athletes (Belem et al., 2014). However, due to the nature of the current study, the subsequent information will focus on the use of the CD-RISC in athletics.

An example of a study that used the CD-RISC in an athlete population was done with 48 beach volleyball players (Belem et al., 2014). The researchers investigated the athletes' usage of coping skills and the CD-RISC was used to measure resilience of the participants (Belem et al., 2014). Researchers used the Athletic Coping Skills Inventory-28 (ACSI-28) to investigate the use of coping skills and results suggested "the coping skills that had an impact on the resilience of athletes were personal coping resources, coping with adversity, confidence and motivation, goal setting/mental preparation, and coachability" (Belem et al., 2014, p. 447).

In conclusion, resilience has been demonstrated to be an important component of success in the athletic realm (Galli & Gonzalez, 2015; Howells & Fletcher, 2015; Turner & Barker, 2013). Therefore, resilience and its relationship

with swimming performance of NCAA Division I student-athletes was investigated in the current study. It was posited that resilience and a growth mindset have similar characteristics. In the following paragraphs, growth and fixed mindsets will be explored further.

Mindset

Is someone intelligent because of genetics or did the environment shape a person to be either more intelligent or less intelligent? Dweck and her colleagues investigated the idea of the mindset, which would suggest that intelligence would be malleable, hence influenced by the environment through factors like praise after completing certain tasks in school (Dweck, 2008, 2010; Gunderson et al., 2013). However, growth and fixed mindsets have not only been explored in education (Blackwell et al., 2007; Dweck, 2008; Mueller & Dweck, 1998; Paunesku et al., 2015; Romero et al., 2014; Sriram, 2014; Yeager & Dweck, 2012), but also in culture (Dweck, 2012), parenting (Erdley, Loomis, Cain, & Dumas-Hines, 1997; Gunderson et al., 2013), business (Heslin & VandeWalle, 2008; Taberero & Wood, 1999), and physical performance (Evans & Slater, 2014; Kasimatis, Miller, & Marcussen, 1996; Mueller & Dweck, 1998; Ommundsen, 2001; Spray, Biddle, Chatzisarantis, & Wang, 2003).

Education

Dweck and colleagues investigated the two mindsets and their specific relationship with intelligence (Dweck, 2008; Mueller & Dweck, 1998; Paunesku et al., 2015). Studies have suggested that the growth mindset plays a major role in the intelligence of students (Blackwell et al., 2007; Dweck, 2008, 2010; Mueller & Dweck, 1998; Paunesku et al., 2015; Romero et al., 2014; Sriram, 2014; Yeager & Dweck, 2012). The review of literature suggests two approaches of investigating

mindsets in education. The first approach was to identify if a student was in the growth or fixed mindset and then look at improvement in grades over time (Blackwell et al., 2007; Dweck, 2008; Romero et al., 2014). The second approach was to implement an intervention that would teach the growth mindset to students and then compare grades to students who did not receive the growth mindset intervention (Dweck, 2008; Paunesku et al., 2015; Sriram, 2014; Yeager & Dweck, 2012).

For the first approach, researchers investigated how a growth mindset compares with a fixed mindset. Blackwell et al. (2007) examined the differences in math grades from students who believed that intelligence is changeable (growth mindset) and the students who believed that intelligence is unchangeable (fixed mindset). Seventh grade students ($n = 373$) were tested on their beliefs about achievement and if they believed in a growth or fixed mindset. Students were followed for 2 years and their mathematics test scores were collected throughout that period. Students who considered intelligence to be malleable, significantly improved on math test scores compared to the students who thought intelligence is fixed (Blackwell et al., 2007). Similar studies to Blackwell et al. (2007) have found the same results, which supports the idea that having a growth mindset could positively influence grades in school (Dweck, 2008; Romero et al., 2014).

The second approach investigated if a growth mindset intervention could lead to an improvement in grades (Dweck, 2008; Paunesku et al., 2015; Sriram, 2014; Yeager & Dweck, 2012). Paunesku et al. (2015) used a research design, where they investigated four different groups with one group learning that intelligence is changeable; the second group learning that there is a purpose to what they are doing (e.g., “I want to make a difference in life”); the third group learning both the mindset intervention and the purpose to what they are doing, and

the fourth group being the control group. There were 1594 students who participated in this study and the results suggested that the mindset intervention and the combined intervention had a significant impact on the grade point average (GPA) with a mean change in GPA by 0.15. However, this was only significant for the students who were at high risk, which means they were considered to be students who will drop out or fail classes (Paunesku et al., 2015).

The results were supported by Yeager and Dweck (2012). Sriram (2014) investigated a similar concept to Paunesku et al. (2015) and Yeager and Dweck (2012), but did not find a statistically significant increase in GPA. Though the results in education on the effects of a growth mindset intervention are not completely consistent, there is a positive trend that the intervention is beneficial for students, especially for the ones that are considered to be at high-risk of dropping out or failing classes (Paunesku et al., 2015; Yeager & Dweck, 2012).

Culture

Another topic that has been investigated about the effects of the two different mindsets is culture or more specifically stereotyping between cultures (Dweck, 2012). Dweck (2012) examined how growth and fixed mindsets affected responses to attitudes between Palestinians and Israelis. First, Israelis were studied and they were divided into two groups. One group received an article, which described that a group can change and that their traits are not fixed. The other group received an article, which described that groups cannot change and that their traits are fixed. Afterwards both groups received a 75-item questionnaire asking questions geared towards Israeli society and the results suggested that the group who read the growth mindset article were more likely to have positive attitudes

towards Palestinians than the group who read the fixed mindset article (Dweck, 2012).

The same study was also done with Palestinians but the measures and questionnaires were changed to Palestinian society and their attitudes towards Israelis (Dweck, 2012). Similar results were found with Palestinians compared with Israelis. Simply by reading an article about how a group can change, participants were led to a growth mindset. This shows the effectiveness of a simple intervention to promote a growth mindset (Dweck, 2012).

Parenting

Parenting is important in the development of the child because parents are the child's first teachers and they are the ones who will direct their child into a growth or fixed mindset (Dweck, 2008). Parenting, and more specifically, the types of feedback used by parents toward their children were investigated. Gunderson et al. (2013) observed parents of 53 children between the ages of 14 and 38 months. The researchers documented praise that the parents gave to their children and if it emphasized their effort or inherent ability. After 5 years, Gunderson et al. (2013) studied the children to determine their beliefs regarding mindset. Results suggested that the children who received parental praise for effort were significantly more likely to have a growth mindset as compared to those who received praise for their inherent ability.

This suggests that parental praise is very important in the development of a child's mindset (Gunderson et al., 2013). With the correct praise, parents can give their children the opportunity to be in a growth mindset, which will have a positive impact on success later on in life in various aspects like for example intelligence or physical activity (Blackwell et al., 2007; Kasimatis et al., 1996).

Business

In a business setting, the investigation of the mindsets was considered vital, as employees are required to perform in a way that will lead to a company's success (Dweck, 2008). The studies reviewed suggest that a growth mindset has a positive impact on tasks required by managers (Heslin & VandeWalle, 2008; Taberero & Wood, 1999).

Taberero and Wood (1999) and Heslin and VandeWalle (2008) explored how a fixed or growth mindset differed related to the field of business. Students who had no prior knowledge and experience of managerial tasks were investigated (Taberero & Wood, 1999). First, participants filled out a questionnaire, which included two questions about their mindset. One question was if a managerial task was something that could be learned from practice and experience, and the other question was if it was an ability that cannot be improved. Participants were given a task to assign employees to different jobs based on ability and task difficulty. "Participants with an implicit personal conception of ability as an incremental skill had stronger perceived self-efficacy, were less dissatisfied with their performance, and set themselves more challenging goals, than those with a fixed-entity conception" (Taberero & Wood, 1999, p. 117).

In a second business-related study, actual managers were categorized as having either a growth or fixed mindset (Heslin & VandeWalle (2008). Afterwards, participants watched a video of a hypothetical employee who performed poor negotiations. The ratings of the employee were compared between growth and fixed mindset managers.

The extent to which the managers held a growth mindset positively predicted their accurate recognition of improvement in the employee's performance. In other words, managers with a fixed mindset did not fully

acknowledge the extent to which the employee's performance had improved (Heslin & VandeWalle, 2008, p. 220). Both studies support the idea that a growth mindset allows for better performance on managerial tasks and better evaluation of employees by managers (Heslin & VandeWalle, 2008; Taberero & Wood, 1999).

Physical Performance

Growth and fixed mindsets have also been investigated with respect to physical performance. It is proposed that a growth mindset could have a positive influence on motivation with coordination tasks (Kasimatis et al., 1996), athletic ability (Spray et al., 2003) and self-handicapping in physical education classes (Ommundsen, 2001).

Kasimatis et al. (1996) and Spray et al. (2003) studied motivation in physical performance and how it related to mindset. Mindsets were manipulated to investigate their impact on the performance of a physical activity (Kasimatis et al., 1996). First, all participants did an easy physical activity task, which was a 5-min step exercise video with an easy difficulty. One group was told that learning new physical tasks is either an ability that can be learned (growth mindset), while the other group was told that learning new physical tasks was genetically predisposed and therefore can't be changed (fixed mindset). Afterward, they performed a more difficult physical activity program, which was also a 5-min step exercise but was much more challenging. Students who had the growth mindset intervention reported higher motivation and self-efficacy as compared to the fixed mindset intervention (Kasimatis et al., 1996). Also, a growth mindset predicted more enjoyment in physical activity (Spray et al., 2003) and a lower amount of self-handicapping (Ommundsen, 2001).

The mindset was examined in physical activity in mostly PE classes but no research is available for athletes at the collegiate level. College athletes could greatly benefit from a growth mindset, as the collegiate level is the pre-stage of most professional athletes, and which is why this population was chosen for the current study.

Summary

The literature about resilience and mindsets show that these variables are important to performance success in many different fields such as education (Blackwell et al., 2007; Paunesku et al., 2015; Yeager & Dweck, 2012), business (Heslin & VandeWalle, 2008; Taberero & Wood, 1999), and physical performance (Kasimatis et al., 1996; Spray et al., 2003). Resilience is shown to have a similar concept to a growth mindset, which is why the literature of the mindset was reviewed. Resilience is also suggested as an important factor for athletic success. However, studies exploring resilience and as it relates to swimming performance is limited. The current investigation is critical in the field of swimming because of the minimal amount of time difference that separates success and failure, which suggests that the current study is warranted. The current study contributes to filling a gap in the literature and may also provide a starting point for applied sport psychology consultants seeking to develop resilience interventions for their work with athletes. Finally, results of the current study could assist coaches in looking for resilient athletes to recruit into their programs.

CHAPTER 3: METHODS

Participants

Participants included 246 NCAA Division I student-athlete swimmers, who competed on their collegiate swimming and diving team. A random sample from all United States Division I schools was used to comprise the participant pool. Consistent with swimming programs throughout the country, the age range for the participants was 18 to 24 years ($M = 19.71$; $SD = 1.60$) and the ethnic distribution was African American = 1, Asian = 8, Hispanic = 14, Pacific Islander = 1, Caucasian = 205, other = 14, and chose not to disclose = 3. Additionally, the sample included more females ($n = 188$) than males ($n = 58$) due to larger numbers of swimming programs for female athletes as a result of Title IX compliance requirements.

Instruments

Data were collected via the Connor-Davidson Resilience Scale 10 (CD-RISC 10) (Davidson & Connor, 2015) a demographics survey, and a Power Point calculator. The CD-RISC 10 and the demographic survey were distributed electronically via Qualtrics. The Power Point calculator was used to convert swimming times into a Power Point score.

The CD-RISC 10 was designed to measure the level of resilience in participants. The CD-RISC 10 is a shortened version of the CD-RISC 25, which was reduced from 25 items to 10 items. Coates et al. (2013) suggested that it has strong reliability and validity. The ten questions are answered on a 5-point Likert scale with the anchors ranging from 0 (not true at all) to 4 (true nearly all the time). The total score ranges from 0 to 40, with 40 being the highest level of resilience. No sample items were provided due to copyright restrictions.

The demographics survey (see Appendix A) solicited standard demographic information including age, years of competitive swimming, personal top three events, athletic scholarship, gender, year in college, nationality, ethnicity, and injury and illness. As part of the data collection process, swimming times from the fall 2015 season were gleaned from USASwimming (2016). The website is a public database of collegiate swim performance times. The participant's name was entered to receive all times that have been swum by the individual in collegiate competition. In order to match the participants' questionnaire data with their swim performance, the demographic survey requested participants to provide their names. However, participant names were kept separate from other information to ensure confidentiality. To measure swimming performance, the best times from the fall 2015 season of the self-reported top three events of the participant were recorded.

The Power Point calculator (USASwimming, 2016) was used to convert swimming times into Power Point scores. Power Point scores are used to rank individuals on a standardized score, which allows comparison of swimming times across different swimming strokes, distances, ages, and gender (USASwimming, 2016). The scores range from 1-1100, with 1100 points representing the United States record (USASwimming, 2016). The Power Point calculator is available on the website (USASwimming, 2016) and allowed the researchers to enter an individual's swimming time and the calculator converted it to a Power Point score.

Procedures

The head coaches of Division I swimming and diving teams (132 Men's and 194 Women's programs) were contacted via e-mail (see Appendix B) on December 19th, 2015. This initial e-mail informed the coaches about the current

research study and requested student-athlete participation. This e-mail message was informational only, as coaches received a second e-mail approximately one week later with the survey link (see Appendix C). Coaches were asked to send the e-mail to their student-athletes and encourage them to participate in the study. In an effort to increase the response rate, reminder e-mails (see Appendices D, E, F, and G) were sent to the coaches at weekly intervals. The final e-mail (Appendix H; sent out February 1st, 2016) notified coaches that this is the last time that they were contacted about the study and included the closing date for data collection, which was February 5th, 2016. On this date, the access to the survey was closed and data collection was completed.

When participants clicked on the survey link they were directed to a statement about informed consent. If student-athletes continued to the surveys after reading the informed consent statement, they were consenting to participate. The surveys were hosted in Qualtrics with student-athletes completing the instruments in the following order: the CD-RISC 10 (10 items) and then the demographic survey (10 items). After completing the instruments, student-athletes were thanked for their participation. Student-athletes who wished to receive a copy of the results were asked to provide their name and contact information and were assured that this did not compromise the confidentiality of their data.

Data Analysis

Descriptive statistics were performed on the demographic data. To analyze the main hypothesis of the current study, the relationship between resilience and swimming performance, a Pearson's r correlation was used. Data analysis for the secondary hypotheses varied. More specifically, a one-way ANOVA was administered to analyze the differences between athletic scholarships on resilience

scores and a *t*-test was used to compare the differences in resilience scores between swimmers who experienced injury/illness to swimmers who did not. Statistics were computed using SPSS.

CHAPTER 4: RESULTS

The main purpose of this study was to (1) investigate the relationship between resilience and swimming times. Other purposes were to study resilience scores and the differences in (2) athletic scholarship (full athletic scholarship, partial athletic scholarship, no athletic scholarship), (3) nationality (U.S. Citizen, international student), (4) injury/illness.

Research Question 1

Is there a significant positive relationship between high resilience scores and higher Power Point Scores (faster swimming times)?

NCAA Division I swimmers scored high on the CD-RISC 10 ($M = 28.78$, $SD = 4.87$) with the scores ranging from 15 to 40. The Power Point scores were high ($M = 753.94$, $SD = 117.74$) with scores ranging from 204 to 995. To determine the relationship between resilience and Power Point scores, a Pearson's r correlation coefficient was calculated. The main hypothesis that high resilience scores will have a positive relationship with higher Power Point scores was not supported. There was no relationship between the two variables resilience and Power Point scores ($r = -.036$, $p = .57$). Therefore, it is suggested that resilience does not have a relationship with faster swimming times.

Research Question 2

Is there a significant difference between resilience scores and athletic scholarship (full athletic scholarship, partial athletic scholarship, no athletic scholarship)?

Frequency distribution revealed the distribution of athletic scholarship being mainly partial athletic scholarship ($n = 136$, 55.3%), then no athletic

scholarship ($n = 70$, 28.5 %), and full athletic scholarship ($n = 40$, 16.3%). A one-way analysis of variance was conducted to explore the impact of athletic scholarship on resilience. There was no statistically significant difference at the $p < .05$ level for the three groups of athletic scholarship: $F(2, 243) = 0.03$, $p = .97$. The results suggest that athletic scholarships did not have a difference in resilience scores.

Research Question 3

Is there a significant difference between resilience scores and nationality (U.S. Citizen and International Student)?

A frequency distribution revealed that the majority of the participants were U.S. Citizens ($n = 221$, 89.8 %), and only a small number were international students ($n = 25$, 10.2 %). Due to the uneven distribution of U.S. Citizens and international students, statistical analysis was not performed.

Research Question 4

Is there a significant difference between resilience scores and injury/illness?

A total of 68 student-athletes (27.6%) experienced a major injury or illness that resulted in a withdrawal from swimming practice for at least 2 months, whereas 178 student-athletes (72.4%) did not. An independent-samples t -test was conducted to compare resilience scores for swimmers who experienced a major injury/illness and swimmers who did not experience a major injury illness. There was no significant difference between swimmers with a major injury/illness ($M = 29.74$, $SD = 4.8$) and swimmers without a major injury/illness ($M = 28.41$, $SD = 4.86$; $t(244) = 1.92$, $p = .056$; Cohen's $d = .28$).

CHAPTER 5: DISCUSSION

Resilience was assumed to have a relationship with peak performance as previous studies investigated the importance of resilience in Olympic level athletes (Howells & Fletcher, 2015; Turner & Baker, 2013). This assumption was investigated in the current study. The hypotheses for the current study were (1) resilience scores and power point scores will have a significant positive relationship, (2) resilience scores will be significantly higher in swimmers with higher scholarships compared to swimmers with lower scholarships, (3) resilience scores will be significantly higher in swimmers who are international students compared to swimmers who are U.S. citizens, (4) resilience scores will be significantly higher in swimmers who experienced injury/illness compared to swimmers who did not experience injury/illness. No significance was found for all the hypotheses. The current study provided insight into the mindset of NCAA Division I swimmers. The results of the hypotheses were discussed in this chapter. Even though there was no significance, the results revealed information applicable for coaches, certified athletic trainers, and mental training practitioners. Limitations of the current study, along with directions for future research, are suggested to further the research on this topic.

Resilience and Swimming Times

The main research question investigated the relationship between resilience scores and swimming times. It was hypothesized that higher resilience scores had a relationship with faster swimming times. Results indicated no relationship between the two variables. This contradicts Howells and Fletcher (2015) and Turner and Baker (2013). Both studies conducted qualitative research with Olympic medal winning athletes (Howells & Fletcher, 2015; Turner & Baker,

2013). The results suggested that resilience was considered an important factor in achieving success (Howells & Fletcher, 2015; Turner & Baker, 2013). However, the researchers acknowledged that resilience was not the only contributing factor in the athletes' peak performance (Howells and Fletcher, 2015; Turner & Baker, 2013). More specifically, a study by Belem and colleagues (2014) identified factors such as confidence, motivation, and goal-setting as important as well. In this study, researchers investigated what coping strategies affected resilience in elite beach volleyball players (Belem et al., 2014).

One reason for the lack of significant findings in the current study could be that there were too many factors that can have an effect on swimming performance. For example, it is possible that some athletes were high in resilience, but that they may have not performed well in competition which would have influenced the results. Perhaps these swimmers were on a team that did not perform well at competitions as a whole. There is also the possibility that participants could have slower swim times in competition, but perhaps they are working very hard during training. This work ethic may result in positive attention from coaches and teammates, resulting in them achieving high resilience on the CD-RISC 10. In this scenario, the athletes would be defined as resilient, but because of their low swim performance, the hypothesis of a positive relationship between higher resilience scores and higher Power Point sores is not supported.

Resilience and Athletic Scholarship

The second hypothesis was that resilience scores will be significantly higher in swimmers with higher scholarships compared to swimmers with lower scholarships. According to Milton and colleagues (2012), athletes with higher athletic scholarships had higher GPAs. This suggested that athletes with higher

scholarships experienced less adversity because they had better grades (Milton et al., 2012). However, athletic scholarship might result in a mindset change of “I want to practice” to “I have to practice” (Raedeke, 1997). This can lead to added pressure for the athlete and can result in burnout (Judge et al., 2012). Therefore, it was hypothesized that swimmers with a full athletic scholarship would score higher on the CD-RISC 10 than swimmers with either a partial athletic scholarship or no athletic scholarship. Results suggested that there was no significant difference between any of the three groups.

A full athletic scholarship in swimming determines if a swimmer is one of the top performers on the team. It is suggested that fast swimming does not predict higher resilience scores. Similarly, with the discussion of the main research question, athletes swimming performance cannot be determined by resilience scores. These results also suggest that receiving a monetary compensation through an athletic scholarship does not predict a swimmer’s resilience.

An explanation could be derived from Judge and colleagues (2012), who suggested that females with high athletic scholarships also have higher academic scholarships. This suggests that female athletes experience less burnout with higher athletic scholarships than males because they do not rely solely on this scholarship (Judge et al., 2012).

Also, Rubin and Rosser (2014) suggested that student-athletes who compete in revenue sports experienced more academic difficulties and time management issues. The majority of the current study’s sample was female and swimming is a non-revenue sport. This supports the findings of past research that females and non-revenue sports have less occurrences of adversity (Judge et al., 2012; Rubin & Rosser, 2014).

Resilience and Nationality

The third hypothesis was that resilience scores will be significantly higher in swimmers who are international students compared to swimmers who are U.S. citizens. There are many international students who study in the United States (Kaczmarek et al., 1994; Olivas & Li, 2006; Baba & Hosoda, 2014). Factors that result in adversity for international students are described as academic pressure, financial stress, homesickness (Baba & Hosoda, 2014), culture shock, changes in social and economic status, and discrimination (Oropeza et al., 1991). Jing (2009) studied 207 international students and investigated if international students with higher resilience had less adjustment problems coming to the United States. Results suggested that international students with higher resilience had fewer adjustment problems and were able to cope with changes more effectively (Jing, 2009). It is anticipated that international athletes with high resilience would deal with the transition well and would have good athletic performance. However, no statistical analysis was calculated for the current study as a frequency distribution revealed that the two groups studied were uneven with U.S. citizens ($n = 221$) being a much larger group than international students ($n = 25$).

Resilience and Injury/Illness

The fourth hypothesis was that resilience scores will be significantly higher in swimmers who experienced injury/illness compared to swimmers who did not experience injury/illness. Statistical analysis revealed no significance $t(244) = 1.92, p = .056$, Cohen's $d = .28$. The findings for this hypothesis give insight into the mindset of swimmers that dealt with injury/illness.

Swimmers who experienced an injury/illness that caused a two-month withdrawal from swim practice showed resilience by the swimmer still being active in the sport despite adversity. Past research on the topic of resilience and

injury was mostly investigated in Traumatic Brain Injury (TBI) patients (Hanks et al., 2016), and spinal cord injuries (Kilic et al., 2013; White et al., 2010). Hanks and colleagues (2016) looked at the differences between resilience scores of patients experiencing TBI and individuals who do not have a cognitive impairment. The results suggested there was no difference between these two populations, which contradicts the findings of the current study (Hanks et al., 2016).

According to White and colleagues (2010), there was no difference in resilience when comparing scores at different time points during rehabilitation. Scores were collected in the first week of admission to rehabilitation, 3 weeks after admission, and at the week of discharge (White et al., 2010). However, it was unknown what the resilience scores were before the injury happened to identify if the injury caused a change in resilience. Another study by Kilic and colleagues (2013), studied resilience and spinal cord injury. More specifically, the researchers examined the differences in resilience scores between the severity of injury. Results with the 60 participants suggested that there were no differences of resilience scores between the severity of the injury (Kilic et al., 2013). There is evidence to support that participants with a severe physical injury relied the most on resilience during the rehabilitation process (Quale & Schanke, 2010). This goes along with the findings of the current study, as participants scored higher on resilience, who experience injury/illness compared to the athletes who did not.

Being out of the water for 2 months in swimming is a major setback, which could cause many swimmers to quit the sport or give up trying to get back to previous levels of competitiveness. However, it is unclear if resilience should be considered a trait or state. Did the swimmers who experienced the injury/illness, score high on resilience because of that event, which caused them to be more

resilient, or were these swimmers resilient before, which is why they were able to overcome the adversity? This question could not be answered in this current study and will be discussed in more detail in the suggestions for future research.

Implications

Data analysis revealed no significant differences on the variables of interest in the present study. Regardless, these results provide insight into resilience for coaches, certified athletic trainers, and mental skills practitioners. Coaches can use this information for recruiting purposes. There was no significant finding for the relationship between resilience and swimming times. However, the positive trend for the differences of resilience between swimmers with injury/illness and swimmers without, suggests that coaches take a closer look at the athlete's past history. Being resilient is considered an important factor for athletes in general (Belem et al., 2014; Howells et al., 2015; Turner & Baker, 2013). While recruiting, a coach should consider learning more detail about the athlete's past and the responses to certain situations. The knowledge of having a swimmer that overcame an injury/illness that caused a withdrawal from swimming practice for at least 2 months, could potentially indicate that he/she is more resilient. That will distinguish this athlete from others, when it comes to adversity the swimmer might experience throughout the college career. It is suggested that this swimmer will have a more positive reaction to adversity and will be able to handle difficult situations better.

Certified Athletic Trainers (ATCs) could use the CD-RISC 10 at the beginning of the season with every athlete to determine their resilience score. Knowing how resilient an athlete is could help an ATC to determine whether the

athlete will be able to overcome setbacks like injury/illness with ease or if more support will have to be provided in case of an injury/illness.

Mental training practitioners could consider using the CD-RISC 10 when they begin consultation with an athlete. This will help the mental training practitioner to establish the athlete's resilience, which will help to predict an athlete's response to adversity. Especially when an athlete experiences an injury or illness, the mental training practitioner will be able to have a prediction of the athlete's reaction and his/her ability to cope with this adversity. Mental training practitioners can also use the resilience scores to determine interventions with the athlete. If an athlete had low scores, it would be recommended to use resilience building consulting sessions to prevent negative reactions to adversity such as injury or illness.

Limitations and Recommendations for Future Research

A limitation of the current study is that the sample comprised only NCAA Division I swimmers. For future research it is recommended to include NCAA Division II and III as well as NAIA and club teams. Additionally, researchers may want to expand the participant pool beyond the collegiate level by including professional swimmers. This way, the resilience scores of collegiate athletes could be compared to those who compete professionally.

The age range was limited to 18 to 24 years, which excludes a large population of swimmers. Including High School and post-graduate swimmers would provide a wider age range, which would also allow for a wider range of Power Point scores. This leads to another limitation concerning that the performance level of swimmers was a close cluster of Power Point scores. The majority of the athletes in the current study had very similar Power Point scores.

For future studies, researchers may want to include a wider variety of athletes scoring in the lower and higher ends of the Power Point scores to explore the relationship between resilience and swimming times.

A recommendation for future research would be to conduct a longitudinal design. Taking resilience scores from swimmers in their high school, college, and post graduate level would be suggested to see changes in swimmers resilience scores. This design with the inclusion of high school and post-graduate resilience scores would give insight into the changes in resilience throughout the three major stages of a swimmer's career.

To further this idea, changing the research design to a case study, could possibly reveal more detailed information. Using one group of freshmen and following them for all 4 years of college and taking resilience scores once or twice a year may provide opportunities to see observable changes in resilience. If this amount of time is not available, taking the resilience scores at the beginning of the season and the end of the season of one team could possibly be long enough to examine differences in resilience.

Another recommendation is to supplement the CD-RISC 10 with qualitative research. Qualitative research would allow investigators to examine the concept of resilience in more detail. It would provide information of every swimmer individually and it would give more information on why a swimmer might be more resilient than other swimmers. The inclusion of qualitative research might give an insight into the causes of being resilient and if resilience is a trait or a state.

It was recommended to include other sports in future research. This inclusion will allow researchers to investigate if resilience plays a role in peak performance on the collegiate level in general across sports. Supplementing the

CD-RISC 10 with qualitative research including questions relating to resilience would provide a more detailed insight into the actual resilience of an athlete. This approach would possibly give information regarding the causes of the variations in resilience scores.

A different approach would be examining coach-athlete relationships and how a coach can build an athlete's resilience. A study by Philippe, Sagar, Gerber, and Hauw (2016), suggested an importance of how athletes perceive their coach and how he portrays mental toughness. Also, important for future research would be reviewing the mindset literature and how coaches can affect athletes' mindsets. A coach who has a fixed mindset could be a role model to the athletes and display the idea that natural talent is the most important, which would set athletes into the believe that there is no room to grow (Dweck, 2009).

Summary

The current study took a novel approach by exploring resilience and its relationship with sport performance. Also, the study's population was swimmers, which is not a common population for research in the sport psychology field. Even though there was no significance for any of the hypotheses, this study yields a beginning for more research to follow in the future.

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APPENDICES

APPENDIX A: DEMOGRAPHIC SURVEY

Demographic Survey

Please fill in the following information:

Age: _____

Years of competitive swimming: _____

Your personal top 3 events: 1) _____

(ex. 50 free, 100back, 200back) 2) _____

3) _____

Please check the following that you most identify with:

Athletic Scholarship:

- Full Athletic Scholarship
- Partial Athletic Scholarship
- No Athletic Scholarship

Gender:

- Male
- Female
- Other / Choose not to disclose

Year in College:

- Freshmen
- Sophomore
- Junior
- Senior
- Super Senior
- Graduate Student

Nationality:

- U.S. Citizen
- International Student

Ethnicity:

- African American
- Asian
- Hispanic
- Indian
- Native American
- Pacific Islander
- White / Caucasian
- Other: _____
- Choose not to disclose

Injury and Illness:

Have you ever experienced a major injury or illness that caused a withdrawal from swimming participation for at least 2 months?

- Yes
- No

If yes, when did it occur?

- _____ (mm/yyyy - mm/yyyy)

Name: _____

Note: Your name will be used to look up personal best times from www.usaswimming.org. Your name will not be used for any other purposes and will be held separate from other information to ensure confidentiality.

Thank you for your participation in this study. If you would like to see the results of this study, please provide your e-mail address. (Please note that your responses will remain confidential.)

APPENDIX B: INITIAL E-MAIL

Hello,

My name is Igor Kowal and I am a graduate student in Kinesiology – Sport Psychology at California State University, Fresno. I am conducting my Master’s thesis on the relationship between resilience and swimming performance in NCAA Division I swimmers.

I personally competed for four years at Drury University with Coach Brian Reynolds and am currently working with the women’s Fresno State Swimming & Diving team with Coach Jeanne Fleck. I am very passionate about my thesis topic because of my lifelong participation in swimming. I would greatly appreciate if your team would participate in this study.

A week from now, I will be following up this e-mail with a link to my survey. The survey should take no longer than 5 minutes to complete and is easily accessible on the phone. This study has been approved for the use of human subjects. The questionnaire will ask for the participant’s name, which will be used to look up swimming results from the past season on www.usaswimming.org. All information will be confidential.

If you have any questions please feel free to contact me at igorkowal@mail.fresnostate.edu or my Thesis Chair, Dr. Jenelle N. Gilbert (jgilbert@csufresno.edu or 559-278-8902).

Sincerely,

Igor Kowal

California State University, Fresno

Kinesiology - Sport Psychology

Graduate Assistant - Kinesiology Graduate Department

Teaching Associate - KAC 4

Student-Manager - Women's Swimming & Diving

APPENDIX C: E-MAIL WITH LINK TO SURVEY

Hello,

My name is Igor Kowal and I am a graduate student in Kinesiology – Sport Psychology at California State University, Fresno. I contacted you a week ago that I am conducting my Master’s thesis on resilience and its relationship with swimming performance in NCAA Division I swimmers. There is limited research on resilience as it relates to swimming performance, which is why I encourage your swimmers to participate by filling out the questionnaires.

Below you can find a link that will bring you to an informed consent statement, and the questionnaires. Please provide this link to your swimmers. The survey supports phone access, which will make the completion more convenient and should take no longer than 5 minutes.

The questionnaire will ask for the participant’s name, which will be used to look up swimming results from the fall 2015 semester www.usaswimming.org. The name will be kept separate from the questionnaires to ensure confidentiality. This study has been approved for the use of human subjects and all information will be confidential.

https://fresnostate.co1.qualtrics.com/SE/?SID=SV_4Pfd1sw9DdLbowd

If you have any questions please feel free to contact me at igorkowal@mail.fresnostate.edu or my Thesis Chair, Dr. Jenelle N. Gilbert (jgilbert@csufresno.edu or 559-278-8902).

Sincerely,

Igor Kowal

California State University, Fresno

Kinesiology - Sport Psychology

Graduate Assistant - Kinesiology Graduate Department

Teaching Associate - KAC 4

Student-Manager - Women's Swimming & Diving

APPENDIX D: E-MAIL REMINDER 1

Hello,

As a friendly reminder, my name is Igor Kowal and I am a graduate student in Kinesiology – Sport Psychology at the California State University, Fresno. I contacted you about me conducting my Master's thesis on resilience and its relationship with swimming performance in NCAA Division I swimmers.

If your team completed the survey already, thank you very much and please disregard this request. If you have distributed the link to your team already, please remind them about taking the survey. If you have not yet done so, please provide the link below to your swimmers, which will provide all the information for the participants and the questionnaires.

The questionnaire will ask for the participant's name, which will be used to look up swimming results from the past season on www.usaswimming.org. The name will be kept separate from the questionnaires to ensure confidentiality. The survey should take no longer than 5 minutes to complete. This study has been approved for the use of human subjects and all information will be confidential.

https://fresnostate.co1.qualtrics.com/SE/?SID=SV_4Pfd1sw9DdLbowd

If you have any questions please feel free to contact me at igorkowal@mail.fresnostate.edu or my Thesis Chair, Dr. Jenelle N. Gilbert (jgilbert@csufresno.edu or 559-278-8902).

Sincerely,

Igor Kowal

California State University, Fresno

Kinesiology - Sport Psychology

Graduate Assistant - Kinesiology Graduate Department

Teaching Associate - KAC 4

Student-Manager - Women's Swimming & Diving

APPENDIX E: E-MAIL REMINDER 2

Hello,

As a friendly reminder, my name is Igor Kowal and I am a graduate student in Kinesiology – Sport Psychology at the California State University, Fresno. I contacted you about me conducting my Master's thesis on resilience and its relationship with swimming performance in NCAA Division I swimmers.

If your team completed the survey already, thank you very much and please disregard this request. If you have distributed the link to your team already, please remind them about taking the survey. If you have not yet done so, please provide the link below to your swimmers, which will provide all the information for the participants and the questionnaires.

The questionnaire will ask for the participant's name, which will be used to look up swimming results from the past season on www.usaswimming.org. The name will be kept separate from the questionnaires to ensure confidentiality. The survey should take no longer than 5 minutes to complete. This study has been approved for the use of human subjects and all information will be confidential.

https://fresnostate.co1.qualtrics.com/SE/?SID=SV_4Pfd1sw9DdLbowd

If you have any questions please feel free to contact me at igorkowal@mail.fresnostate.edu or my Thesis Chair, Dr. Jenelle N. Gilbert (jgilbert@csufresno.edu or 559-278-8902).

Sincerely,

Igor Kowal

California State University, Fresno

Kinesiology - Sport Psychology

Graduate Assistant - Kinesiology Graduate Department

Teaching Associate - KAC 4

Student-Manager - Women's Swimming & Diving

APPENDIX F: E-MAIL REMINDER 3

Hello,

As a friendly reminder, my name is Igor Kowal and I am a graduate student in Kinesiology – Sport Psychology at the California State University, Fresno. I contacted you about me conducting my Master's thesis on resilience and its relationship with swimming performance in NCAA Division I swimmers.

If your team completed the survey already, thank you very much and please disregard this request. If you have distributed the link to your team already, please remind them about taking the survey. If you have not yet done so, please provide the link below to your swimmers, which will provide all the information for the participants and the questionnaires.

The questionnaire will ask for the participant's name, which will be used to look up swimming results from the past season on www.usaswimming.org. The name will be kept separate from the questionnaires to ensure confidentiality.

The survey should take no longer than 5 minutes to complete. This study has been approved for the use of human subjects and all information will be confidential.

https://fresnostate.co1.qualtrics.com/SE/?SID=SV_4Pfd1sw9DdLbowd

If you have any questions, please feel free to contact me at igorkowal@mail.fresnostate.edu or my Thesis Chair, Dr. Jenelle N. Gilbert (jgilbert@csufresno.edu or 559-278-8902).

Sincerely,

Igor Kowal

California State University, Fresno

Kinesiology - Sport Psychology

Graduate Assistant - Kinesiology Graduate Department

Teaching Associate - KAC 4

Student-Manager - Women's Swimming & Diving

APPENDIX G: E-MAIL REMINDER 4

Hello,

As a friendly reminder, my name is Igor Kowal and I am a graduate student in Kinesiology – Sport Psychology at the California State University, Fresno. During my undergraduate studies, I competed for Drury University under Brian Reynolds and am currently working with the Fresno State Women's Swimming and Diving team under Jeanne Fleck. I contacted you about me conducting my Master's thesis on resilience and its relationship with swimming performance in NCAA Division I swimmers.

If your team completed the survey already, thank you very much and please disregard this request. If you have distributed the link to your team already, please remind them about taking the survey. If you have not yet done so, please provide the link below to your swimmers, which will provide all the information for the participants and the questionnaires.

Currently I do not have enough participants to conduct statistics with my data and I would really appreciate if you would consider providing this study to your swimmers. The survey should take no longer than 5 minutes to complete. This study has been approved for the use of human subjects and all information will be confidential.

The following is the link through which your swimmers can access the survey:

https://fresnostate.co1.qualtrics.com/SE/?SID=SV_4Pfd1sw9DdLbowd

If you have any questions, please feel free to contact me at igorkowal@mail.fresnostate.edu or my Thesis Chair, Dr. Jenelle N. Gilbert (jgilbert@csufresno.edu or 559-278-8902).

Sincerely,

Igor Kowal

California State University, Fresno

Kinesiology - Sport Psychology

Graduate Assistant - Kinesiology Graduate Department

Teaching Associate - KAC 4

Student-Manager - Women's Swimming & Diving

APPENDIX H: E-MAIL REMINDER 5

Hello,

As a friendly reminder, my name is Igor Kowal and I am a graduate student in Kinesiology – Sport Psychology at the California State University, Fresno. I contacted you about me conducting my Master's thesis on resilience and its relationship with swimming performance in NCAA Division I swimmers. This is the last e-mail you will receive about this study. The access to the survey will be closed Friday, February 5th.

If your team completed the survey already, thank you very much and please disregard this request. If you have not yet done so, please provide the link below to your swimmers, which will provide all the information for the participants and the questionnaires. The questionnaire will ask for the participant's name, which will be used to look up swimming results from the fall season on www.usaswimming.org. The name will be kept separate from the questionnaires to ensure confidentiality. The survey should take no longer than 5 minutes to complete. This study has been approved for the use of human subjects and all information will be confidential.

https://fresnostate.co1.qualtrics.com/SE/?SID=SV_4Pfd1sw9DdLbowd

If you have any questions, please feel free to contact me at

igorkowal@mail.fresnostate.edu or my Thesis Chair, Dr. Jenelle N. Gilbert (jgilbert@csufresno.edu or 559-278-8902).

Sincerely,

Igor Kowal

California State University, Fresno

Kinesiology - Sport Psychology

Graduate Assistant - Kinesiology Graduate Department

Teaching Associate - KAC 4

Student-Manager - Women's Swimming & Diving

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Type full name as it appears on submission

April 14, 2015

Date