Examining the relationship between psychological skills and confidence in goalkeepers

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Examining the relationship between psychological skills and confidence in goalkeepers

Abstract
This study examined the relationships that exist between psychological skills and confidence. Analysis of the relationship took place with ice hockey, lacrosse and soccer goalkeepers. Participants (N = 1927) completed measures of psychological skills (ACSI-28) and confidence (CSCI) online. Participants deemed psychological skills as important, but rarely used them to enhance performance. Goalkeepers (N = 412) scored higher on both the personal coping resource score (M = 50.82, SD = 9.24) and confidence (M = 41.88, SD = 5.66) than non-goalkeepers on the personal coping resource score (M = 47.48, SD = 9.60) and confidence (M = 41.84, SD = 5.69). Multiple MANOVAs identified significant differences between goalkeeper and non-goalkeepers on five of seven ACSI-28 subscales. Goalkeepers scored significantly higher on the ACSI-28 subscales coping with adversity; peaking under pressure; goal setting/mental preparation; concentration; and confidence and achievement motivation. A correlational analysis was conducted to determine the relationship between personal coping resource and confidence scores. A significant correlation exists. This study indicates goalkeepers possess a different set of psychological skills and confidence level than their counterparts.

Keywords
Health Sciences, Recreation, Psychology, Behavioral
EXAMINING THE RELATIONSHIP BETWEEN PSYCHOLOGICAL SKILLS AND CONFIDENCE IN GOALKEEPERS

BY

AMANDA E. LAWS
B.A., Yale University, 2003

THESIS

Submitted to the University of New Hampshire in Partial Fulfillment of the Requirements for the Degree of

Master of Science in Kinesiology

September, 2006
This thesis has been examined and approved.

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Date

7/28/06
DEDICATION

To my Mom because she has always given her love and support and was quick with a permanent marker
And to my Dad because he knew where the cookies were hidden and instilled in me a love of learning
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This thesis would never have been written if it were not for a few people. The support of my peers and professors has meant a great deal, and their willingness to listen, suggest and commiserate was more valuable than they know.

My research would not have been possible if not for the coaches across the United States. By viewing my research as valuable, and allowing their athletes to participate, they provided me with a sample I never otherwise would have achieved. To all the student athletes who agreed be a part of the study I am forever grateful for their time and participation.

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To my family goes a tremendous amount of thanks, as the years have gone by you have supported me through my athletic and academic endeavors with equal vigor. And finally thank you to Becca, for always challenging me.
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ABSTRACT

EXAMINING THE RELATIONSHIP BETWEEN PSYCHOLOGICAL SKILLS AND CONFIDENCE IN GOALKEEPERS

by

Amanda E. Laws
University of New Hampshire, September, 2006

This study examined the relationships that exist between psychological skills and confidence. Analysis of the relationship took place with ice hockey, lacrosse and soccer goalkeepers. Participants (N = 1927) completed measures of psychological skills (ACSI-28) and confidence (CSCI) online. Participants deemed psychological skills as important, but rarely used them to enhance performance. Goalkeepers (N = 412) scored higher on both the personal coping resource score (M = 50.82, SD = 9.24) and confidence (M = 41.88, SD = 5.66) than non-goalkeepers on the personal coping resource score (M = 47.48, SD = 9.60) and confidence (M = 41.84, SD = 5.69). Multiple MANOVAS identified significant differences between goalkeeper and non-goalkeepers on five of seven ACSI-28 subscales. Goalkeepers scored significantly higher on the ACSI-28 subscales coping with adversity; peaking under pressure; goal setting/mental preparation; concentration; and confidence and achievement motivation. A correlational analysis was conducted to determine the relationship between personal coping resource and confidence scores. A significant correlation exists. This study indicates goalkeepers possess a different set of psychological skills and confidence level than their counterparts.
Chapter I

INTRODUCTION

Those involved in athletics at high levels are constantly striving to achieve optimal performance. Many elements such as physical and mental training, can promote peak performance. Among them, confidence plays a critical role in the ability of athletes to have successful sport performances (Gould, Weiss, & Weinberg, 1981; Krane & Williams, 1994; Pickens, Rotella, & Gansneder, 1996). Coaches and competitors emphasize the physical side of sport performance both in and out of competition, often neglecting the mental side of performance. Sport constituents may deem athlete confidence as an important part of performance, but neglect to improve confidence through the course of training and competition (Jackson, Thomas, Marsh, & Smethurst, 2001). Psychological skills should be viewed as a method to improve the psychological frame of mind or psyche of athletes, subsequently improving performance. By strengthening the sport mentality, including confidence, athletes will be able to improve and maintain performance at a high level.

The direct correlation between confidence and success is the most consistent finding regarding top performance (Zinsser, Bunker & Williams, 2001). Exceptional athletes are self-confident. Their confidence has been developed as the result of
effective thinking and successful experiences. Successful athletes believe in
themselves more than less successful athletes, demonstrating that confidence is a
key to performance (Williams & Krane, 2001). Positive thinking leads to feelings of
enablement, or the ability to be successful in sport, and contributes to successful
performances (Kendall, Hrycaiko, Martin & Kendall, 1990; Van Raalte, Brewer,
Rivera, & Petitpas, et al., 1994). While positive thinking can promote successful
performance, negative thinking can have the opposite effect. Misguided sport
thoughts lead to negative feelings about self and consequently to poor performance.
Cognitions play a vital role in performance as a person’s thought regarding an event
affects their beliefs. Therefore, the way athletes think about themselves and their
performance affects confidence.

Confidence can be affected by the use of positive thinking as a coping
mechanism. Past experience and our interpretation of such events influence both
confidence and self-efficacy (Feltz & Chase, 1998). The use of psychological skills
can help athletes to interpret these events in a positive manner. By using skills such
as positive self-talk, imagery and goal setting to increase confidence, athletes can
improve their performance (Meyers, LeUnes & Bourgeois, 1996; Zinsser, Bunker &
Williams, 2001). By using skills to cope with performance, athletes are able to
effectively use thoughts to manage perceptions of their performance
(Poczwardowski & Conroy, 2002). Using psychological skills to improve confidence
and performance should be considered a critical component of an athletes’ training.
Athletes can see improvement in their self-confidence and performance by
maintaining a positive view of performance and improving their ability to accomplish a task.

Confidence and Self-Efficacy

Athletes can maintain confidence through sources of efficacy information. Self-efficacy, the specific belief in one's ability to complete a task, is closely related to confidence (Bandura, 1997). Confidence refers to an overall state "the athlete was confident in his ability to play soccer," while efficacy is more specific to a task "the soccer player was sure of her ability to head the ball." Confidence is often demonstrated in the way an athlete carries his or her self, attempts a skill and plays in a game.

Confident athletes can focus on successfully mastering a task rather than worrying about a poor performance (Hardy, Jones, & Gould, 1996; Zinsser, Bunker & Williams, 2001). Seligman (1991) refers to the ability to maintain a positive perspective in the face of setback and disappointment as learned optimism. Optimism is a trait-like expectancy that has been linked to an athlete's ability to cope. Optimism and confidence are related as they both characterize expectancy for successful outcomes (Grove & Heard, 1997). Maintaining a sense of optimism in the face of adversity is vital not only to confidence, but performance as well.

Self-confidence is "the belief that one can successfully execute a specific activity rather than a global trait that accounts for overall performance optimism" (Feltz, 1988 p 423). Self-efficacy, or a belief one has in one's own ability to successfully execute a behavior required to produce a certain outcome, is also
related to both psychological skill usage and performance (Bandura, 1977). Two of
the most influential constructs concerning achievement in sport are self-efficacy and
confidence (Feltz, 1988). Self-efficacy and confidence contribute significantly to
achievement because they give an athlete (or coach) the feeling that they can
accomplish in sport and be successful.

Self-efficacy theory developed from the framework of social cognitive theory
(Bandura, 1977). Social cognitive theory suggests that human behavior represents
an interaction of personal factors, behavior and the environment (Bandura, 1977). A
person uses influences from her own cognitions and environment to form judgments,
or self-efficacy beliefs based on past performance. Success enhances self-efficacy
in athletes, and in turn will lead to enhanced performance in the future. Coaches
and players can contribute to performance accomplishments by helping athletes be
successful before moving on to more difficult tasks. These previous performances
provide one of the largest sources of efficacy information. In addition to
performance accomplishments, vicarious experience, verbal persuasion,
physiological states, emotional arousal and imaginal experiences are other important
sources of efficacy information (Bandura, 1997).

The six sources of efficacy information have a direct impact on psychological
skills. A cyclical relationship exists between self-efficacy and psychological skills.
To execute psychological skills, athletes must be confident in their ability to use their
mental skills (Bandura, 1997). When athletes proficiently use psychological skills,
they become more confident in their ability to use psychological skills to control for
performance-impairing effects of sport (Bandura, 1997). Athletes will not use mental
skills unless they are confident that they have better control over their performance with mental skills than without them. Those who have a low sense of efficacy regarding psychological skills will abandon the practice or use it inefficiently, thereby detracting from their performance (Bandura, 1997). Having greater control over psychological skills leads to increased efficacy in psychological skills usage.

The six sources of efficacy each contribute to an athlete’s cognitive representation of skills being performed. Modeling, or vicarious learning provides the most effective means of transmitting information about a skill (Bandura, 1997). Through modeling, athletes observe the structure of the skill being performed and begin to understand the essential features of the skill. Modeling can take place in various forms — modeling can be done by a coach, or another athlete as he or she demonstrates the skill or behavior that is to be learned.

Modeling takes place as a four-stage process: attention, retention, motor reproduction and motivation (McCallagh, Weiss & Ross, 1989). Effective modeling occurs when one pays attention to the model and the key points being demonstrated. Then, the observer must remember the act being modeled and be able to perform the modeled skills. Finally, without motivation modeling serves little purpose in enhancing efficacy. Observers must have the motivation to remember and practice the new skill being learned, or there will be no contribution to efficacy.

If athletes cannot perform a skill set themselves, a coach or model can assist the athletes by demonstrating the skill for them. Seeing others be successful will contribute to the athlete believing that he or she can be successful as well. Vicarious experience has the greatest effect when the model is most like the athlete.
trying to learn the skill (Gould, Weiss & Weinberg, 1981). When someone similar to the athlete masters a skill, it gives the athlete confidence that they can do it too.

Coaches often play a key role in the performance of their athletes. One of the greatest ways coaches affect efficacy is through verbal persuasion. By offering encouragement and using persuasive techniques, coaches are able to influence behavior (Bandura, 1997). Athletes can also use verbal persuasion to boost their own confidence through the form of self-talk. Weinberg, Grove and Jackson (1992) found that encouraging self-talk was one of the best ways to build athletes self-efficacy. Using positive self-talk and convincing oneself of the ability to do something is a key way for athletes and coaches to influence behavior.

Further, to help athletes prepare for future athletic endeavors using imaginal experiences can contribute to self-efficacy. Visualizing a performance primes the enhancement strategies for the activity. Imaginal experience usually takes place through mental imagery, or simulating performance of a skill or activity in one's mind with accompanying sensory experience. Through cognitive stimulation, athletes are also able to divert attention away from distracting thoughts (Bandura, 1997).

Distracting thoughts may take away from an athlete's performance; yet so can physiological distractions. Physiological states can both aid and hinder performance, and the impact largely depends on the interpretation. Athletes can understand physical arousal as a sign of preparedness or a sign of anxiety. The interpretation an athlete makes of such signs can have significant effects on self-efficacy. If athletes interpret an increase in heart rate as a sign of readiness, they will likely perform well, because they feel ready. However, if athletes understand
butterflies in the stomach to signal a lack of preparation, their confidence will be diminished and it will reflect negatively in their performance.

In a comparable manner, emotional states or moods can have a similar effect on the athletes' beliefs in their own abilities. Energized and excited athletes will likely interpret such feelings as signs of readiness. Conversely, athletes who feel anxious and nervous are likely to have lowered self-efficacy as a result of their mood. However, positive emotional states are more likely to have an effect on efficacy than negative states (Maddux & Meier, 1995). By interpreting mood states as positive, athletes should be able to improve their confidence.

Psychological skills such as self-talk, reframing of events, an optimistic state, and a positive interpretation of events can all lead to enhanced self-efficacy. With a proficiency in coping skills, athletes should be able to successfully enhance their self-efficacy. This heightened sense of self-efficacy comes largely from an athlete's belief that he or she has the mental tools to appropriately handle any situation.

Confidence is largely associated with the ability to cope with adversity (Cresswell & Hodge, 2004). This may be due to the role confidence plays in the appraisal of situations, as confidence increases the effectiveness of coping strategies (Hardy et al, 1996). For instance, Cresswell and Hodge (2001) have shown that athletes who have high confidence were able to cope effectively by peaking under pressure and successfully dealing with adverse situations. Confident athletes use psychological skills and sources of efficacy to enhance their interpretation of events in a positive manner. Athletes who interpret events to gain confidence are often those who succeed at making it to higher levels of competition.
Confidence is often a mental state that often distinguishes elite athletes from others. For example, confidence was attributed to Olympic gymnasts who made the team, compared to those who did not make the team (Mahoney & Avener, 1977).

The importance of confidence to successful sport performance dictates a need to both measure and understand the construct of confidence. Manzo, Silva, and Mink (2001) developed the Carolina Sport Confidence Inventory (CSCI) to measure sport confidence using dispositional optimism and perceived competence.

Sport confidence is defined as:

A relatively enduring belief system which is the result of the interaction between possessing an expectation that good things will happen (dispositional optimism), believing one's skills and abilities can successfully fulfill the demands of a sport task (sport competence), and a positive estimation of the cause and effect contingency between one's ability and the resultant performance and outcome.

The CSCI can be seen as combining the ideas of learned optimism and self-efficacy. Athletes who are more optimistic will believe more strongly in their ability to successfully accomplish a task.

Confidence, optimism and self-efficacy are all important contributors to performance. Past experience of individuals influences confidence, optimism and self-efficacy, making them difficult to directly manipulate. While coaches have opportunities to enhance confidence, an athlete's own cognitions serve as a greater source of efficacy information (Feltz, 1988). Psychological skills should be employed to help athletes have positive experiences and positive interpretations of those experiences to enhance their confidence. Psychological skills and coping skills are often referred to as different constructs, depending on their cognitive nature (Crocker, Kowalski, & Graham, 1998). However, for the purpose of this
study they will be used interchangeably as they both refer to skills and methods by which athletes use cognitions to manage performance. Investigating differences in the coping skills employed by athletes will help determine which skills should be improved to lead to a stronger sense of confidence.

Psychological Skills

Often, those involved in athletics understand that a psychological component to sports exists, but fail to see the direct relationship to confidence and athletic performance. The relationship between performance and psychological skills has been well documented (Bunker, Williams, & Zinsser, 1998; Gould, Weiss, & Weinburg, 1981; Jackson, Thomas, Marsh, & Smethurst, 2001; Kreiner-Phillips, & Orlick, 1992; Mahoney, Gabriel & Perkins, 1987; Williams & Krane, 2001;). Sport constituents need to develop a greater understanding of how psychological skill usage and confidence differs between athletes. By gaining an understanding of who has superior or inferior skills, coaches and athletes will be able to adapt training programs to enhance confidence and performance through mental skills. The importance of using psychological skills as a means of increasing confidence cannot be underestimated. Given the indication that psychological skills can be just as influential as physical skills, understanding their influence on an athlete should be given the same priority as physical training.

The link between psychological skills and performance has been the focus of many investigations (Williams & Krane, 2001; Bunker, Williams, & Zinsser, 1998; Gould, Weiss, & Weinburg, 1981; Jackson et al, 2001; Kreiner-Phillips, & Orlick,
Such investigations have found that a strong relationship exists between the use of psychological skills and enhanced performance. Mental skills are most often examined for their ability to serve as a predictor of performance. Psychological skills such as goal setting, imagery, emotional control, and relaxation have all been identified as indicators of successful performance (Mahoney et al., 1987; Smith & Christiansen, 1995; Thomas et al., 1999). While not explicitly examined in prior investigations, it should be considered whether these psychological skills had an influence on confidence that in turn aided successful performance.

The use of psychological skills in the athletic arena has been the focus of researchers for quite some time. Initially, in the 1950s through the 1970s, most research focused on personality characteristics associated with successful athletes. Studies regarding personality also progressed to include playing position (Kirkcaldy, 1982; Schurr, Ruble, Nisbet, & Wallace, 1984). However, such research failed to take into account the wide variance in personalities that comprised successful athletes (Abbott & Collins, 2004). Additionally, the ability to measure the psychological skill proficiency provides researchers with a greater ability to gain information about different athlete competencies.

With a link between psychological skills and performance established, the implementation of such skills should be examined further. Murphy and Tammen (1998) suggest a three-step process by which psychological skills use should be considered. First, the athlete must identify the psychological state that is optimal for high performance. In doing so, the athlete recognizes the "goal" state or the mental
state needed. In the second step the athlete must monitor his current psychological state. By analyzing his current state, the athlete becomes aware of their deficiencies and strengths in his mental state. Engaging in changes to affect behaviors, cognitions or emotions represents the last step. This final step is where psychological skills are likely to become involved, as it is specific skills such as positive self-talk, focus, and imagery may be employed to achieve the desired mental state (Murphy & Tammen, 1998).

Given the link between certain psychological skills and performance, recent studies have followed a logical step in examining where athletes develop their psychological skills. Gould, Dieffenbach, and Moffett (2002) examined psychological characteristics and their development in Olympic athletes. Characteristics such as confidence, anxiety control and goal setting were identified as aiding performance. Findings indicate that highly skilled athletes demonstrate greater motivation and confidence levels, higher ability to concentrate, fewer thoughts of failure and a better ability to use imagery than lower skilled athletes (Gould, Weiss, & Weinberg, 1981; Mahoney, Gabriel, & Perkins, 1987; Hanton & Jones, 1999). Further, Williams and Krane (2001) found psychological characteristics such as having a well developed routine, high levels of motivation, coping skills for dealing with distractions, heightened concentration and high levels of self-confidence to be associated with peak performance. Results also demonstrated the importance of support networks such as family, coaches, sport personnel, and the community in helping to develop such skills (Gould et al, 2002).
This information may serve as a foundation for helping to improve athlete's psychological skills. By improving mental skills athletes can use these skills to improve confidence and performance. Jackson, et al., (2001) found that the relative time spent developing psychological skills was low to non-existent. By increasing the time spent developing psychological skills, athletes can make progress towards improvement on the playing field.

Research indicates that psychological skills often make the difference between an athlete who achieves, and one who cannot (Smith & Christensen, 1995). Confidence has been found to have a similar impact on performance. Many studies have examined the difference in psychological skill usage between athletes of varying achievement levels, ranging from amateur to elite (Gould, Weiss, & Weinberg, 1981; Hanton & Jones, 1999; Mahoney, Gabriel, & Perkins, 1987). Kreiner-Phillips and Orlick (1992) discovered that psychological factors distinguish between athletes who suffered slumps, and those who were able to consistently perform at a desired level. Similarly, Smith and Christensen (1995) determined that psychological and physical skills accounted for the same amount of variance in batting ability in baseball players. At the same time, Burton (1988) discovered that self-confidence accounted for 21% of variance in performers in swimmers. Sewell and Edmonson (1996) found that soccer and field hockey defenders reported significantly higher levels of self-confidence than goalkeepers. Given the findings of these studies, it appears that confidence and psychological skill account for considerable variance in athletic performance, and may vary by position.
Psychological skills and confidence contribute to and indicate athletic performance. It would be beneficial to examine various sport populations to see the confidence levels and use of psychological skills with in those populations. In doing so, we may begin to find that certain athletic subsets, such as those who play certain mentally demanding positions, possess a unique psychological skill set and confidence level.

**Goalkeeper Differences**

Confidence and psychological skills, as they pertain to positional play, have been largely neglected by research. For studies that do examine mental skills as they relate to positions, analyses often leave out goalkeepers (Junge, Dvorak, Rosch, Graf-Baumann, Chomiak, & Peterson, 2000; Weigand & Stockham, 2000). As a result, little is known about the psychological framework of goaltenders. Their position requires a specific skill set, both mentally and physically different from other players on the same team.

If you were to ask a coach or a player what he would most like to see in a goalie, he would, after some rambling out-loud thoughts, probably settle on something like: consistency, dependability, and the ability to make the big save. Only in the latter, and then only in part, is the physical element present. Instead, what these qualities suggest is a certain character of mind...a mind emotionally disciplined, one able to be focused and directed, a mind under control. Because the demands on a goalie are mostly mental, it means that for a goalie, the biggest enemy is himself. Not a puck, not an opponent, not a quirk of size or style. Him. The stress and anxiety he feels when he plays, the fear of failing, the fear of being embarrassed, the fear of being physically hurt, all are symptoms of his position, in constant ebb and flow, but never disappearing. The successful goalie understands these neuroses, accepts them, and puts them under control. The unsuccessful goalie is distracted by them, his mind in knots, his body quickly following." (Ken Dryden, 1983 p. 119.)

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To examine the psychological skills of goalkeepers, it is important to analyze them in terms of a game context. Practice and competition settings vary greatly for goalkeepers. During practice, goalies often participate in drills where they see a large number of shots during a short period of time. However, during games, goalies often see very few shots overall, often with a large time span between shots. This element of time is critical as it gives the goalkeeper time to engage in negative coping strategies – such as negative self talk, or decreased confidence – or positive coping strategies such as coping with adversity, concentration or peaking under pressure.

Improving performance through increased confidence may be especially important for athletes in high profile positions. In a highly visible position, such as that of goalkeeper, an athlete's confidence might be endangered by the high evaluation threat. A stronger possibility of evaluation threat occurs when athletes are concerned they will incur negative evaluations from an audience (Bray, Martin & Widmeyer, 2000). Because of an increased threat to confidence the relationship between the mental and the physical can become especially important for the goalkeeper position. Given what is known about psychological skills and confidence -- their development, and effect on performance -- it would be beneficial to further investigate the psychological skills of this select group of athletes. Little attention has been paid to athletes with positions that require both finely developed mental and physical skills. Athletes who play high profile positions such as quarterback and goalkeeper often play in the spotlight, and must use mental skills to meet the high demands of their positions. The position of goalkeeper is high profile because of the
positive outcomes that arise from their successes, and the negative outcomes that stem from their mistakes. When a goalkeeper makes a mistake, a goal is scored, whereas whenever others make a mistake, teammates can compensate. It seems reasonable that given the circumstances on the field, the psychological characteristics of those playing key positions may vary from those who play a less visible role (Cox & Yoo, 1995). Goalies in particular represent a unique situation where they act as a part of a team yet must possess an individualized skill set and be subject to intense scrutiny.

Limited resources exist regarding the goalkeeper position, yet some research does exist regarding positional play. Significant differences were found in the relationship between psychological skills and playing position. Cox and Yoo (1995), used the Psychological Skills Inventory for Sports to assess the psychological skills of football players in the areas of anxiety control, concentration, confidence, mental preparation, motivation and emphasis upon team goals. While the findings of Cox and Yoo (1995) demonstrated that backfield players exhibit superior psychological skills when compared to linemen, they fail to distinguish among specific positions – most importantly, that of quarterback. This study represents a first step towards understanding the psychological skill differences of various positions. Differences between positions warrant a more in depth investigation.

By examining the psychological skill difference of various positions, an understanding can be gained of how athletes should be coached, and the skills they need to improve upon. For many sports that require a goaltender, the nature of the game is similar. The goalkeeper's job is made up of periods of intense work, and
moments of inactivity when play stops, or takes place at the other end of the field (or ice) (Babour & Partington, 1993). This ebb and flow presents an opportunity for goalies to use psychological skills such as centering, and positive self-talk. However, it also requires that a goalie have developed activation skills so that they are sufficiently prepared when play resumes on their end. To gain an understanding of how to use psychological skills to improve performance, the effect of the skills on the outcome must be understood, as seen in Figure 1.

Figure 1.
Sources of Efficacy, Confidence and Goalkeepers

In a study with junior hockey goaltenders, Rogerson and Hrycaiko (2002) found that save percentage could be improved by mental skills training employing centering and self-talk. Self-talk can be used as an aid for athletes in learning skills,
preparing for performance, building confidence and focusing attention (Williams & Leffingwell, 1998). Refocusing may be especially important to goaltenders because they cannot leave the rink or field after a bad goal (Rogerson & Hrycaiko, 2002). Self-talk plays an important role in goalkeeper confidence, as positive self-talk can build confidence, while negative self-talk can decrease confidence.

Sewell and Edmondson (1996) found that soccer and field hockey goalkeepers had significantly higher levels of cognitive anxiety than players in other positions. At the same time, goalkeepers demonstrated more somatic anxiety and less confidence than defenders. Sewell and Edmondson suggest that a goalkeeper’s increased anxiety stems from being singled out as individuals with clearly defined responsibilities within the context of a team sport. The mistakes of goalkeepers tend to have severe consequences, whereas other players on the team have a greater diffusion of responsibility. Fans, players and coaches often view goalkeepers apart from their teammates, and mistakes made by them are viewed as their own, not as a team mistakes. This puts the goalkeeper in the position of an individual athlete on a team and problems facing individual athletes often face goalkeepers. Athletes in individual sports often report more frequent problems with anxiety and confidence as well as greater difficulty concentrating (Mahoney, Gabriel & Perkins, 1987).

The role of a goalkeeper demands a different set of skills than those found in other field players. The perceptual-motor skills of goalies vary from those of field players, as do the mental skills required of the position. The very nature of goalkeeping lends itself to higher levels of anxiety given the task demands of the
position, the consequence of mistakes, the evaluation threat associated with the position, in addition to the time during the game to reflect on errors (Sewell & Edmondson, 1996). Goalkeepers play a highly complex position, and when coupled with the mental and physical demands, the position leads to higher levels of pre-game cognitive anxiety when compared to other positions (Sewell & Edmondson, 1996). When levels of cognitive competitive anxiety are higher, there is a greater probability that a mental error in sport performance will occur (Bird & Horn, 1990). Mental errors and cognitive anxiety can contribute to a decrease in confidence. In contrast mental skills can help athletes combat anxiety and increase confidence.

When goalkeepers have high anxiety, and they do not meet the mental demands of their position, goaltenders may be left less confident with their performance. In a study of ice hockey goalkeepers (Smith et al., 1998), the major sources of satisfaction with their play were seen as intrinsic, and related to individual achievements, such as a great save. Goalkeepers deemed the most frightening aspect of the position to be a poor personal performance, which they considered more frightening than a poor team performance, highlighting the individual aspect of this position on a team sport (Smith et al., 1998). A poor personal performance for a goalkeeper will likely decrease their confidence level, as past experience has the largest implications for confidence (Bandura, 1977).

For all athletes, there are psychological factors that lend themselves to improved performance. Having superior mental skills and confidence as well as physical ability appears to indicate a propensity for athletic success. However, given the unique demands of the goalkeeper's position, goalies likely possess a different
mental skill set than their field-playing counterparts. If research finds goalies have a different psychological skills set than other players on the field, it may explain some of the success and failure in the position. Variance in the position may be attributed to any combination of psychological skills, confidence and physical ability. However, by understanding the factors that impact the performance of goalkeepers, a better understanding can be gained of the constructs, and athletes in high profile positions.

**Purpose**

Given the lack of research that exists on the position of goalkeeper, the purpose of this study is to gain an understanding of the psychological skills of goalkeepers, how they relate to confidence, and how the skills compare to the psychological skills of their field-playing counterparts. With the established relationship between psychological skills and performance as well as confidence and performance, it is important to understand the interaction between psychological skills and confidence. In further examination of the relationship between psychological skills and confidence in goalkeepers, a better understanding of the position will be gained.

Based on previous studies, it can be hypothesized that goalkeepers who demonstrate higher levels of psychological skill usage will also demonstrate higher levels of confidence. When compared to their field-playing counterparts, it is expected that goalkeepers will demonstrate higher levels of confidence. Goalkeepers need confidence to help them bolster their mental state, and help them feel able to succeed in the position. Given the increased scrutiny of the position,
goalkeepers are likely to have developed an ability to disregard poor performance and use other sources of self-efficacy.
Chapter II

METHOD

Purpose
The purpose of this study is to gain an understanding of the psychological skills of
goalkeepers, how these skills relate to confidence, and how they compare to the
psychological skills of their field-playing counterparts.

Participants
Participants, N =1927, include male and female Division I, II, and III soccer,
lacrosse and ice hockey players in the United States. These sports have been
chosen because they require the participation of a goalkeeper. In addition, the
NCAA sanctions these sports for both males and females, whereas other sports,
such as field hockey, only have female participants at the collegiate level in the
United States.

Instruments
This study used a demographic questionnaire (see Appendix B) to collect
information regarding the participant’s collegiate sport playing experience; it included
information such as sport(s) played, playing time, position and experience.
Questions employing a likert type scale were used to ask participants to rate both
their performance in their last competitive season, and the importance of psychological skills.

**Athletic Coping Skills Inventory -28**

The Athletic Coping Skills Inventory-28 (ACSI-28) (see Appendix C) was used to measure various aspects of coping strategies in sport by examining seven psychological skills factors including: coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence and achievement motivation, and coachability. Smith, Schutz, Smoll and Ptacek (1995) designed the ACSI-28 as a multidimensional scale that measures individual differences in psychological skills within a sport context. The ASCI-28 was designed to assess psychological skills that athletes use to aid their performance (Thomas et al., 1999). The measure has been shown to be related to performance, supporting the construct validity of the instrument (Crocker, et al., 1998). The internal consistency of the measure was high, with an alpha of .87 (Smith, et al., 1995). The alpha of each individual subscale measured: coping with adversity .66; peaking under pressing .78; goal setting/mental preparation .71; concentration .62; freedom from worry .76; confidence/achievement motivation .66; and coachability .72. Using this measurement tool provides an ability to gain an overall profile regarding an athletes' use of coping skills. Such a profile will help in determining which areas should be bolstered to improve confidence and in turn performance.

There are twenty eight questions which use a 4 point likert type scale ranging from 0 to 3, with 0=almost never, 1= sometimes, 2= often and 3= almost always. A
sample question is: "When things are going badly, I tell myself to keep calm, and this works for me." (Smith et al., 1995). The ACSI-28 has seven subscales that are each composed of four items. From the combination of the seven subscales, each athlete yields a "Personal Coping Resources" score. A higher score reflects higher levels of psychological skill (Smith et al., 1995). The ACSI has been employed in previous studies including Smith and Christensen (1995) and Bourgeois, Loss, Meyers and LeUnes (2003).

**Carolina Sport Confidence Inventory**

The Carolina Sport Confidence Inventory (CSCI) (see Appendix D) was used to measure sport-confidence. The measure consists of an interactional model of sport competence and dispositional optimism. The measure contains thirteen items that use a four-choice structured alternative format. A sample question is: I feel that if something can go wrong for me during sports activities, it will OR I feel that if something can go right for me during sports activities, it will. Respondents are then asked to answer “very true for me” or “somewhat true for me” to either of these statements. The CSCI contains 13 items that ask participants to answer how true statements are of them such as: "I feel that if something can go wrong for me during sports activities, it will" (Manzo, Silva, & Mink, 2001). For the purposes of this study, the measure was modified to for online use. Modifications maintained a forced choice, but presented questions in a vertical drop multiple choice format. The measure has been used before, in previous studies such including Manzo, Silva & Mink, 2001. The CSCI yields a strong internal consistency with an overall alpha of
.92, .92 for the subscale of perceived sport competence and .86 for dispositional optimism.

Procedure

All head coaches of NCAA Division I, II and III soccer, lacrosse and ice hockey teams were contacted via e-mail to give permission for their teams to participate in the study (see Appendix E and F). Coaches who agreed to have their teams participate were then asked to forward an e-mail to their teams regarding the study. Players then received the e-mail which contained a link for a website.

The data was collected via an online survey posted on the internet. Participants were first asked to electronically sign for consent. The Institutional Review Board at the University of New Hampshire approved the use of human subjects for participation in this investigation. Athletes were informed that their participation was voluntary, and there was no obligation to participate (see Appendix A). Then participants were asked to fill out demographic data, the ACSI-28 and the CSCI. The entire survey took approximately fifteen to thirty five minutes to complete. Participants were asked to electronically sign for consent with a pin number. In signing for consent, students also agreed to participate in the study no more than once.

Data Analysis

To effectively analyze the data, a number of analyses were conducted. Scores from the personal coping resource scale and confidence subscales were compared to determine the relationship of psychological/coping skills to confidence. Correlational analysis was conducted to determine the relationship between the
personal coping resource score and confidence. Multivariate analysis of variance (MANOVA) was used to analyze how the scores of goalkeepers and non-goalkeepers compared on the personal confidence resource score and confidence subscales. Additionally, the effect of gender on both psychological skills and confidence was examined using an additional MANOVA.
Chapter III

RESULTS

This study was conducted to analyze the psychological skills and confidence levels of goalkeepers and how they compared to non-goalkeepers. The hypothesis stated that goalkeepers would receive higher personal coping resource and confidence scores. In addition, it was suggested that personal coping resource scores relates to confidence. As personal coping resource scores got higher, so would confidence scores according to the hypothesis. A number of analyses were conducted to examine the data. Reliability of each of the measures was tested. A report of descriptive statistics was conducted to gain a profile of participants and their sport experiences. Multivariate analysis of variance was utilized to examine the relationship between goalkeepers and non-goalkeepers on each of the measures, the Athletic Coping Skills Inventory-28 and the Carolina Sport Competence Inventory and their subscales.

Reliability

For the purposes of the present study, all 28 items of the ACSI-28 were summed to produce a total score, which yielded an internal consistency (Cronbach's alpha) coefficient of .84. Individually of each subscale was analyzed, and the internal consistency for each was as follows: Coping with adversity, .70; Peaking under Pressure, .87; Goal Setting and Mental Preparation, .75; Concentration, .68;
Freedom from Worry, .79; Confidence, .34 and Coachability, .30. The internal consistency for confidence and coachability were low, and may suggest that something else is being measured by these subscales. Therefore, caution should be taken in the interpretation of analysis with the use of these subscales. However, in the case of confidence, the use of the CSCI to measure confidence provides a more reliable measure.

Reliability of the CSCI was also tested, and produced an internal consistency of .84. The subscales of dispositional optimism and sport competence were examined individually and found to have internal consistencies of .78 and .76 respectively.

To ensure the scales did not show evidence of multicollinearity, a correlation matrix was run among CSCI subscales of dispositional optimism and sport competence. Results demonstrate a significant moderate correlation among CSCI subscales of dispositional optimism and sport competence, .548, p<.01.

Additionally, a second correlation matrix was run among the subscales of the Personal Coping Resource (ACSI-28). Results indicated a lack of multicollinearity as shown by the low to moderate correlations. Results are found in Table 1.
Table 1.

Correlations between ACSI-28 Subscales

<table>
<thead>
<tr>
<th></th>
<th>conf/ach</th>
<th>copeadv</th>
<th>peakpre</th>
<th>gsment</th>
<th>concen</th>
<th>freeworry</th>
<th>coac</th>
</tr>
</thead>
<tbody>
<tr>
<td>confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>achievement</td>
<td></td>
<td>-.056*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cope w/ adversity</td>
<td>.351**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>adversity</td>
<td></td>
<td>.360**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>peak under pressure</td>
<td>.392**</td>
<td>.360**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pressure</td>
<td></td>
<td>.262**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>goal setting/mental prep</td>
<td>.419**</td>
<td>.528**</td>
<td>.262**</td>
<td></td>
<td>.279**</td>
<td>-.074**</td>
<td>.029</td>
</tr>
<tr>
<td>mental prep</td>
<td></td>
<td></td>
<td></td>
<td>.279**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>concentration</td>
<td>.464**</td>
<td>.536**</td>
<td>.435**</td>
<td>.279**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>freedom from worry</td>
<td>.150**</td>
<td>.332**</td>
<td>.220**</td>
<td>-.074**</td>
<td>.269**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>coachability</td>
<td>-.056**</td>
<td>.238**</td>
<td>.104**</td>
<td>.029</td>
<td>.200**</td>
<td>.140**</td>
<td></td>
</tr>
</tbody>
</table>

* p<.05, **p<.01

Descriptive Statistics

A total of N= 1927 responded to the online survey. Of that number, 412 were goalkeepers and 1515 were non-goalkeepers. The majority of participants were female (1353, 70%) vs. males (574, 30%). Of those participants, 137 males and 275 females were goalkeepers. The higher number of female participants is likely a result of more female teams being fielded by the NCAA in the sports of ice hockey, soccer and lacrosse. Participants included 729 Division I athletes, 205 athletes from Division II and 993 participants from Division III schools. Freshman (653, 34%) made up the largest group of participants, with Sophomores (537, 28%); Juniors (387, 20%) and Seniors (295, 16%) following. Most participants (1246, 66%) did not
receive athletic scholarship while 656 (34%) did receive some form of athletic scholarship.

Experience

Goalkeepers had on average 8.58 years of playing experience (SD = 3.38). Soccer goalkeepers made up 63% (n=260), 27% (110) were lacrosse goalies and 10% (42) were ice hockey goalkeepers. The majority of goalkeepers, 215 (53%), indicated their percentage of playing time at 100-75%.

Performance

Respondents who deemed mental skills to be very important to their performance numbered 1473 (76%). Another 419 (22%) found them important to performance. In a self-rating of their performance [How would you rate your individual performance overall for this season (or your most recent season)?] on a scale of 1-4 (1= poor, 4=excellent) 540 (28%) participants indicated average; 1089 (57%) participants indicated their individual performance was good and 215 (11%) excellent.

Mental Skills

Participants indicated mental skills were important, and used mental skills to a degree which suggested that importance. Participants were asked to rate their use of goal setting, self-talk, imagery and a mental skills routine, on a 1-4 scale. Questions included "How often do you use goal setting to aid your performance?"; "How often do you use self-talk to aid your performance?"; "How often do you use imagery to aid your performance?"; and "How often do you use a mental skills
"The results of these questions are displayed in Table 2. Most participants used mental skills to some degree, though with varying frequency.

Table 2.

*Mental Skills Usage*

<table>
<thead>
<tr>
<th>Skill</th>
<th>M</th>
<th>SD</th>
<th>Almost Always</th>
<th>Usually</th>
<th>Sometimes</th>
<th>Almost Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal Setting</td>
<td>2.93</td>
<td>.84</td>
<td>536 (20%)</td>
<td>773 (40%)</td>
<td>544 (28%)</td>
<td>74 (4%)</td>
</tr>
<tr>
<td>Self talk</td>
<td>2.91</td>
<td>.93</td>
<td>607 (31%)</td>
<td>678 (35%)</td>
<td>501 (26%)</td>
<td>141 (7%)</td>
</tr>
<tr>
<td>Imagery</td>
<td>2.65</td>
<td>.94</td>
<td>414 (21%)</td>
<td>633 (33%)</td>
<td>670 (35%)</td>
<td>210 (11%)</td>
</tr>
<tr>
<td>Mental Skills Routine</td>
<td>2.41</td>
<td>.97</td>
<td>298 (15%)</td>
<td>554 (29%)</td>
<td>707 (37%)</td>
<td>368 (19%)</td>
</tr>
</tbody>
</table>

*Measure Subscales*

Table 3 displays mean subscales of the personal coping resource score and confidence for both goalkeepers and non-goalkeepers. Subscales of the personal coping resource score are: coping with adversity; peaking under pressure; goal-setting/mental preparation; concentration; freedom from worry; confidence and achievement motivation and coachability. Confidence subscales consist of dispositional optimism and sport competence. The mean scores of goalkeepers were higher on five of seven subscales of the personal coping resource score including: coping with adversity; peaking under pressure; goal setting mental preparation; concentration; and confidence and achievement motivation. Scores of goalkeepers were also higher for dispositional optimism, while mean scores were the same between goalkeepers and non-goalkeepers for sport competence.
A difference can also be seen in the scores of males and females on measure subscales. The mean scores were higher for males on six out of seven subscales of the personal coping resource score. The only subscale on which females scored higher than males was coachability. Male participants also scored higher on both of the confidence subscales. Results can be seen in Table 4.
### Table 3.
**Goalkeeper vs. Non-Goalkeeper Difference on ASCI-28 and CSCI Subscales**

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Position</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACSI-28</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping w/adversity</td>
<td>GK</td>
<td>412</td>
<td>6.84</td>
<td>2.28</td>
</tr>
<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>6.49</td>
<td>2.19</td>
</tr>
<tr>
<td>Peaking under Pressure</td>
<td>GK</td>
<td>412</td>
<td>8.90</td>
<td>2.57</td>
</tr>
<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>7.49</td>
<td>2.79</td>
</tr>
<tr>
<td>Goal Setting/Mental Prep</td>
<td>GK</td>
<td>412</td>
<td>5.79</td>
<td>2.69</td>
</tr>
<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>5.03</td>
<td>2.57</td>
</tr>
<tr>
<td>Concentration</td>
<td>GK</td>
<td>412</td>
<td>8.08</td>
<td>2.00</td>
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<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>7.54</td>
<td>2.12</td>
</tr>
<tr>
<td>Freedom from Worry</td>
<td>GK</td>
<td>412</td>
<td>5.96</td>
<td>2.95</td>
</tr>
<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>6.11</td>
<td>2.83</td>
</tr>
<tr>
<td>Confidence &amp; Achievement Motiv.</td>
<td>GK</td>
<td>412</td>
<td>7.22</td>
<td>1.65</td>
</tr>
<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>6.70</td>
<td>1.71</td>
</tr>
<tr>
<td>Coachability</td>
<td>GK</td>
<td>412</td>
<td>8.02</td>
<td>1.41</td>
</tr>
<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>8.13</td>
<td>1.40</td>
</tr>
<tr>
<td><strong>CSCI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispositional Optimism</td>
<td>GK</td>
<td>412</td>
<td>22.47</td>
<td>3.05</td>
</tr>
<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>22.44</td>
<td>3.28</td>
</tr>
<tr>
<td>Sport Competence</td>
<td>GK</td>
<td>412</td>
<td>19.40</td>
<td>3.37</td>
</tr>
<tr>
<td></td>
<td>Non-GK</td>
<td>1515</td>
<td>19.40</td>
<td>3.17</td>
</tr>
</tbody>
</table>

*The highest possible score for each ACSI-28 subscale was a 12*
**Table 4**

*Male vs. Female Difference on ASCI-28 and CSCI Subscales*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Sex</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACSI-28</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping w/adversity</td>
<td>Male</td>
<td>574</td>
<td>6.82</td>
<td>2.17</td>
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<td></td>
<td>Female</td>
<td>1353</td>
<td>6.45</td>
<td>2.22</td>
</tr>
<tr>
<td>Peaking under Pressure</td>
<td>Male</td>
<td>574</td>
<td>8.45</td>
<td>2.64</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1353</td>
<td>7.51</td>
<td>2.82</td>
</tr>
<tr>
<td>Goal Setting/Mental Prep</td>
<td>Male</td>
<td>574</td>
<td>5.48</td>
<td>2.60</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1353</td>
<td>5.07</td>
<td>2.61</td>
</tr>
<tr>
<td>Concentration</td>
<td>Male</td>
<td>574</td>
<td>8.06</td>
<td>2.02</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1353</td>
<td>7.49</td>
<td>2.13</td>
</tr>
<tr>
<td>Freedom from Worry</td>
<td>Male</td>
<td>574</td>
<td>6.65</td>
<td>2.73</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1353</td>
<td>5.83</td>
<td>2.87</td>
</tr>
<tr>
<td>Confidence &amp; Achievement Motiv.</td>
<td>Male</td>
<td>574</td>
<td>7.20</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1353</td>
<td>6.65</td>
<td>1.68</td>
</tr>
<tr>
<td>Coachability</td>
<td>Male</td>
<td>574</td>
<td>7.97</td>
<td>1.66</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1353</td>
<td>8.17</td>
<td>1.62</td>
</tr>
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<td><strong>CSCI</strong></td>
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<td></td>
</tr>
<tr>
<td>Dispositional Optimism</td>
<td>Male</td>
<td>574</td>
<td>22.88</td>
<td>3.14</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1353</td>
<td>22.27</td>
<td>3.26</td>
</tr>
<tr>
<td>Sport Competence</td>
<td>Male</td>
<td>574</td>
<td>20.15</td>
<td>2.90</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>1353</td>
<td>19.08</td>
<td>3.30</td>
</tr>
</tbody>
</table>

*The highest possible score for each ACSI-28 subscale was a 12*
Group Differences

Mental Skills Profile

An independent samples t-test was conducted to see how goalkeepers compared to non-goalkeepers on their mental skills profile, indicated by overall personal coping resource scores. There was a significant difference between the two groups with goalkeepers ($M = 50.82$, $SD = 9.24$) scoring higher on the measure than non-goalkeepers ($M = 47.48$, $SD = 9.60$) $t(1925) = 6.312, p<.01$.

A multivariate analysis of variance (MANOVA) was conducted to determine how goalkeepers compared to non-goalkeepers on their mental skills profile, indicated by their scores on seven individual subscales. Significant differences were found between goalkeepers and non-goalkkeepers, Wilks's $\Lambda = .95$, $F(7, 1919) = 15.56, p < .01$. Univariate follow up tests indicated that goalkeepers and non-goalkeepers differentiated significantly on 5 of 7 scales as seen as Table 5. An examination of the means indicated that goalkeepers scored significantly higher on five out of seven subscales: Coping with adversity ($M = 6.84$); Peaking under Pressure ($M = 8.90$); Goal Setting/Mental Preparation ($M = 5.79$); Concentration ($M = 8.08$); and Confidence and Achievement Motivation ($M = 7.22$). These results are seen in Table 3.
Table 5.

Scores on ACSI-28 subscale

<table>
<thead>
<tr>
<th>Subscale</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping with adversity</td>
<td>1</td>
<td>8.24</td>
<td>40.19</td>
<td>.004</td>
</tr>
<tr>
<td>Peaking under Pressure</td>
<td>1</td>
<td>85.86</td>
<td>645.42</td>
<td>.000</td>
</tr>
<tr>
<td>Goal Setting/Mental Prep</td>
<td>1</td>
<td>28.15</td>
<td>189.71</td>
<td>.000</td>
</tr>
<tr>
<td>Concentration</td>
<td>1</td>
<td>21.68</td>
<td>95.68</td>
<td>.000</td>
</tr>
<tr>
<td>Confidence and Achiev</td>
<td>1</td>
<td>30.13</td>
<td>86.95</td>
<td>.000</td>
</tr>
<tr>
<td>Freedom from Worry</td>
<td>1</td>
<td>.742</td>
<td>6.04</td>
<td>.389</td>
</tr>
<tr>
<td>Coachability</td>
<td>1</td>
<td>1.61</td>
<td>4.29</td>
<td>.205</td>
</tr>
</tbody>
</table>

Relationship Between Confidence and Position

A one-way independent samples t test was conducted to determine the relationship of total confidence score between goalkeepers and non-goalkeepers as assessed by the confidence scores. There was no significant difference between goalkeepers and non-goalkeepers on confidence scores. While goalkeepers (M = 41.87, SD = 5.66) scored higher than non-goalkeepers (M = 41.84, SD = 5.69) the results were not significant.

Relationship Between Confidence Subscales and Position

A multivariate analysis of variance was performed to determine the differences between goalkeepers and non-goalkeepers on each of the scales. There was not a significant overall main effect for either subscale. Wilks's Λ = .1, F (2, 1924) = .013, p = .987. The dispositional optimism scores of goalkeepers (M =
22.47, \( SD = 3.05 \) were slightly higher than non goalkeepers \( (M = 22.44, SD = 3.28) \). Scores for sport competence were nearly indistinguishable between goalkeepers \( (M = 19.40, SD = 3.37) \) and non-goalkeepers \( (M = 19.40, SD = 3.18) \).

**Overall Sex Differences**

In order to determine if there was any difference on the Personal Coping Resource Score and confidence measures by sex, multivariate analyses of variance were performed. There was significant difference between sexes subscales of the ACSI-28 with Wilks’s \( \Lambda = .951, F (7, 1919) = 14.13, p < .01 \). The differences on individual subscales by sex can be seen in Table 6.

Another MANOVA was used to examine the difference by sex on the confidence measure. A significant difference by sex was seen on both the sport competence and dispositional optimism subscales of the confidence measure by sex Wilks’s \( \Lambda = .976, F (2, 1924) = 23.18, p < .01 \). The results are seen in Table 6.
Table 6.

*Univariate Difference by Sex on ACSI-28 and CSCI Subscales*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>df</th>
<th>F</th>
<th>η</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACSI-28</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coping w/adversity</td>
<td>1</td>
<td>11.67**</td>
<td>56.80</td>
<td>.001</td>
</tr>
<tr>
<td>Peaking under Pressure</td>
<td>1</td>
<td>47.37*</td>
<td>363.08</td>
<td>.000</td>
</tr>
<tr>
<td>Goal Setting/Mental Prep</td>
<td>1</td>
<td>10.15*</td>
<td>69.02</td>
<td>.000</td>
</tr>
<tr>
<td>Concentration</td>
<td>1</td>
<td>30.70*</td>
<td>134.83</td>
<td>.000</td>
</tr>
<tr>
<td>Freedom from Worry</td>
<td>1</td>
<td>33.26*</td>
<td>266.15</td>
<td>.000</td>
</tr>
<tr>
<td>Confidence &amp; Achievement Motiv.</td>
<td>1</td>
<td>43.20*</td>
<td>123.86</td>
<td>.000</td>
</tr>
<tr>
<td>Coachability</td>
<td>1</td>
<td>5.91**</td>
<td>15.75</td>
<td>.015</td>
</tr>
<tr>
<td><strong>CSCI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dispositional Optimism</td>
<td>1</td>
<td>14.64*</td>
<td>152.42</td>
<td>.000</td>
</tr>
<tr>
<td>Sport Competence</td>
<td>1</td>
<td>46.36*</td>
<td>469.79</td>
<td>.000</td>
</tr>
</tbody>
</table>

*p<.01, **p<.05

**Sex Difference by Position**

In order to compare male goalkeepers to female goalkeepers, a one way independent samples t test was conducted to determine any differences as assessed by personal coping resource and overall confidence scores. A significant difference was seen on confidence scores between male and female goalkeepers. Male goalkeepers ($M = 42.74$, $SD = 5.25$) scored higher than females ($M = 41.44$, $SD = 5.82$) and the results were statistically significant at the $p<.05$ level.
A difference was also seen between male and female goalkeepers on personal coping resource scores. Male goalkeepers \((M = 52.10, SD = 8.52)\) scored higher than female goalkeepers \((M = 50.18, SD = 9.53)\). Results were statistically significant at the \(p<.05\) level.

**Relationship between Personal Coping Resource Score and Confidence**

A correlational analysis was conducted to examine the relationship between overall Personal Coping Resource scores and overall confidence scores. The analysis was conducted to determine whether the second hypothesis, that a higher Personal Coping Resource score would be indicative of higher confidence scores, could be supported. There was a significant moderate correlation between the Personal Coping Resource Score and confidence of \(.558, p <.01\). Results indicated that higher Personal Coping Resource scores indicated higher confidence scores. In addition, there was a moderate correlation of \(.432, p<.01\) between the CSCI overall score, and the confidence and achievement motivation subscale of the ACSI.

**Relationship between ACSI-28 subscales and CSCI subscales**

Psychological skills and confidence are both considered influences on performance. A canonical correlation was conducted to examine the relationship between confidence and psychological skills of the participants. The multivariate relationship was significant, Wilks' Lambda = .61, \(F (14, 3836) = 77.96 p <.05\). Two canonical correlations were found to be significant. The canonical correlation of the first function was \(r_c = .60\), and for the second function was \(r_c = .21\). Canonical loadings of \(.3\) or higher were determined to be significant (Pedhazur, 1991). The first function demonstrates moderate strength, while the second function
demonstrates fairly low strength. Sport competence is negatively related to freedom from worry as well as confidence and achievement motivation. Dispositional optimism is positively related to coachability and coping with adversity. Dispositional optimism was negatively related to confidence and achievement motivation, concentration and peaking under pressure.

The first sport competence variate accounted for 28% of the variance and the second sport competence variate accounted for 1% of the variance. Together, the two variates accounted for 29% of the variance in sport competence. In the dispositional optimism set, the first variate accounted for 13% variance, the second for 1%. Together, the two variates accounted for a total of 14% of the variance. According to Pedhazur (1991), a redundancy index of 10% is considered to be meaningful.
Table 7.

*Canonical Loadings, Canonical Correlations, and Redundancy Indices for Personal Coping Resource and Confidence*

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>First Canonical Variate</th>
<th>Second Canonical Variate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Correlation</td>
<td>Coefficient</td>
</tr>
<tr>
<td>Sport Competence</td>
<td>.786</td>
<td>-.38</td>
</tr>
<tr>
<td>Disposition Optimism</td>
<td>-.947</td>
<td>-.74</td>
</tr>
<tr>
<td>Percent of Variance</td>
<td>.76</td>
<td></td>
</tr>
<tr>
<td>Redundancy</td>
<td>.28</td>
<td></td>
</tr>
<tr>
<td>Criterion Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coachability</td>
<td>-.136</td>
<td>-.09</td>
</tr>
<tr>
<td>Freedom from Worry</td>
<td>-.413</td>
<td>-.48</td>
</tr>
<tr>
<td>Confidence &amp; Achievement Motivation</td>
<td>-.426</td>
<td>-.40</td>
</tr>
<tr>
<td>Concentration</td>
<td>-.417</td>
<td>-.18</td>
</tr>
<tr>
<td>Goal Setting/Mental Skills</td>
<td>-.202</td>
<td>-.06</td>
</tr>
<tr>
<td>Peaking under Pressure</td>
<td>-.396</td>
<td>-.26</td>
</tr>
</tbody>
</table>
Summary

Descriptive statistics demonstrated that the population of goalkeepers who participated in this study are relatively experienced. Participants also indicated mental skills to be important to performance, and demonstrated this importance through the use of mental skills. Through analysis it was revealed that goalkeepers scored higher on both measures, the personal coping resource score and confidence, indicating higher psychological skills usage. The relationship between psychological skills and confidence was explored. It was found that higher ACSI-28 scores indicated higher levels of confidence.

The results of this study both support and refute the hypothesis presented. The idea that high ACSI-28 scores would correlate to high CSCI scores was found to be correct. The suggestion that goalkeepers would score higher on CSCI scores compared to non-goalkeepers was not supported with significance.
The results of this study indicate that goalkeepers have a different set of mental skills and beliefs compared to their non-goalkeeper counterparts. Goalkeepers are significantly different than non-goalkeepers in their use of psychological skills. There is no apparent difference in confidence scores. The higher scores of goalkeepers on the Personal Coping Resource indicate goalkeepers demonstrate a stronger mental skills profile than non-goalkeepers.

Other important information was gathered regarding the use and importance of mental skills among all participants.

One of the most telling findings of this study was the importance placed on mental skills and the use of those skills. Participants largely indicated that psychological skills should be employed, but their use was varied among participants. This indicates a disconnect within the field of athletics. Athletes have come to realize the importance of mental skills but are not being taught how to use them in conjunction with their physical skills (Jackson, Thomas, Marsh, & Smethurst, 2001). This finding is important because it represents an area in which coaches can improve their athletes training. By improving confidence and mental skills in athletes, coaches can enhance performance (Meyers, LeUnes & Bourgeois, 1996;
Coaches who have a strong understanding of mental skills and ways to employ them can help their athletes find greater success.

For coaches to use mental skills with their athletes, they must understand how skills are affected and the relationship between various skills. The relationship between coping skills and confidence as explored by the canonical correlation presents interesting findings. As confidence and achievement motivation increase, sport competence lessens. No other studies have examined sport competence in relation to the construct of confidence and achievement motivation. This new finding may be explained by a greater universal confidence, and less specific feelings of competence toward a particular sport or skill. For instance, an athlete may exhibit higher levels of confidence as a "good athlete", but at the same time have fewer feelings of confidence in relation to their skill as a Div I goalkeeper in soccer or lacrosse. Though sport competence may be negatively affected by overall feelings of confidence, dispositional optimism is affected in a different way.

Dispositional optimism was found to be negatively related to confidence and achievement motivation, concentration and peaking under pressure. This may be explained as more specific feelings of confidence and achievement. As players strengthen their coping skills, they no longer feel the need to demonstrate a dispositional optimism, because they have specific feelings of confidence and the ability to peak under pressure. For example, while a player is not confident in their playing ability, they may remain optimistic as a way of maintaining a positive attitude. However, once their confidence increases, that feeling of confidence helps them realize success, and a sense of optimism is no longer needed.
Additionally, dispositional optimism was found to be positively related to both coachability and coping with adversity. The feeling an athlete has when they are able to cope with challenges may help an athlete to remain optimistic – if they have been able to cope with challenges, they should remain able to handle challenges that arise in the future. Along the same lines, when a player has been coached and improves their skills or ability to perform because of that instruction, the player is likely to feel as if they are able to improve through coaching, lending a sense of optimism toward future situations.

Just as a relationship exists between various psychological skills and confidence, a relationship is present between the goalkeeper position and mental skills. Goalkeepers scored higher overall on Personal Coping Resources than non-goalkeepers. A relationship exists between position (goalkeeper or non-goalkeeper) and the subscales of the personal coping resource score and confidence. Goalkeepers scored higher on subscales of the ACSI-28 that measured: coping with adversity; peaking under pressure; goal setting and mental preparation; concentration and confidence and achievement motivation. The two subscales on which goalkeepers did not score significantly higher were freedom from worry and coachability. The scores of this mental skills profile indicate that goalkeepers have a strong grasp of psychological skills when compared to non-goalkeepers. Given the nature of the position, which requires intense focus and concentration, this finding is not surprising. Goalkeepers are required to face a high number of shots – in lacrosse and ice hockey that number can range as high as twenty to forty shots a game. When goalkeepers are being shot at, their
concentration and focus must be high in order to perform well. The two subscales on which goalkeepers did not score significantly higher—freedom from worry and coachability—are two that would are not as easily improved by learning psychological skills. Lower coachability scores of goalkeepers may be a reflection on the fact that many goalkeepers are coached by non-goalies. Because this is the case, a goalkeeper may regard their coaches as having little knowledge of the demands of the position, reflected as lower coachability. Goalkeepers lower scores on the freedom from worry scale may reflect the high mental demands of the positions (e.g. higher evaluation threat; higher concentration demands.) Goalies may be worried of negative consequences, but are able to compensate with other psychological skills. This further demonstrates the grasp most goalkeepers have on psychological skills, and suggest those skills are important contributors to the performance of goalkeepers.

The ability of goalkeepers to use mental skills to stay “in the moment” is vital. Based on the threat of evaluation in the position, goalkeepers must be able to focus on the task at hand, rather than let distracting thoughts such as “I better make the next save, or my parents and teammates will think I blew the game.” The opinions of peers have been found to pose one of the most significant evaluation threats to athletes (Bray, Martin, & Widmeyer, 2000). By using psychological skills such as positive self-talk and concentration a goalkeeper can keep their mind in the game, rather than concerned about outside factors. When a goalkeeper concentrates on the task at hand, ignoring negative thoughts, they are more likely to experience success. This ability to keep their head in the game becomes more salient because
of the temporal challenges associated with the position. Especially in soccer and
lacrosse, the elapsed time between shots can be significant. Delays of ten to
twenty-five minutes without a shot are not unheard of. A goalkeeper then must be
able to remain focused throughout the game, even when they are not a part of the
action. It is during this time between shots that many goalkeepers spend obsessing
over the last goal they let in, or his or her past mistakes. During lapses in the game
goalkeepers should be able to refocus themselves on the upcoming play, or keep
their minds clear of any negative and distracting thoughts. Goalkeepers who have
stronger mental skills are able to move forward from their mistakes and remain
focused during the time between shots.

Goalkeepers are often faced with stark contrasts in styles of play between
practice and competition. In practice, many goalies are subject to a barrage of
shots, with little rest or time in between to refocus. In games, goalkeepers may face
an onslaught of shots, but may also spend significant amounts of time with little to no
action. This discrepancy between practice and competition may make it difficult for
goalkeepers to use practice as a mental preparation for games. In practice, a goalie
must use their psychological skills to remain focused during the action of long drills
in which they see over five times the number of shots faced in a game. However,
during games, goalkeepers must be able to use other psychological skills to
concentrate both when there is little to no action and during periods of intense work.
The differences between practice and games means that goalkeepers must hone a
wide variety of psychological skills in order to be both effective in games and
practice.
Goalkeepers use mental skills to cope with the mentally taxing demands of the position. The high personal coping resource scores demonstrated by goalkeepers have likely developed because of the psychological demands of the position. The goalkeeper position is mentally demanding, and requires tremendous mental skills in addition to the physical requirements of the position. It remains unknown whether these skills are developed with experience in the goalkeeper position, or if perhaps these players possessed the skills first and that’s what lead to their selection for the job. Regardless, once assigned to the position, goalkeepers must maintain superior mental skills to compensate for psychological demands of the position. The use of psychological skills may be a distinguishing factor between goalkeepers who continued to participate at the collegiate level, and those who have discontinued participation due to the demands of the position. It stands to reason that goalkeepers who have been unsuccessful in developing the psychological skills needed to cope with the demands of the position, may withdraw from the sport/position.

While psychological skills distinguish collegiate goalkeepers from counterparts, no difference is seen in terms of confidence. The scores of goalkeepers on the confidence measure indicate there is no significant difference when compared to non-goalkeepers. Confidence remains a key to performance and heightened confidence is a key factor for all positions. Such feelings of confidence likely come from different sources for each position. For goalkeepers, they must be able to bounce back from the adversity that the position brings (Williams & Krane, 2001). To gain the support of their teammates goalkeepers must demonstrate
confidence in their own abilities so that others will believe in their abilities as well. Positions other than goalkeeper may demonstrate heightened confidence because the confidence of these players is not tested to the same degree as it is with goalkeepers. It remains possible that goalkeepers may naturally suffer from lower confidence due to the demands of the position, but have learned to compensate with greater use of psychological skills. The confidence of non-goalkeepers may also be equal to that of goalkeepers because of the varying levels of confidence that exist in players of each position.

This finding was in contrast to Sewell and Edmonson (1996) who found that in soccer and field hockey defenders reported significantly higher levels of self-confidence than goalkeepers. Their study largely examined confidence as it relates to anxiety, and included only 11 goalkeepers. The findings of Sewell and Edmonson (1996) may also have varied due to their measure, the Competitive State Anxiety Inventory-2 (CSAI-2). The instrument, designed to measure anxiety and confidence does so differently than was done in this current study. In the CSAI-2 the measure of confidence is not made up of sport competence and dispositional optimism. The CSAI-2 is designed to be administered just prior to competition, and was administered to athletes 30 minutes prior to competition in the Sewell and Edmonson (1996) study. Contextual effects may have lowered confidence of those goalkeepers. The results of Sewell and Edmonson (1996) may also differ from the current study due to their inclusion of anxiety as a factor. If goalkeepers face higher levels of anxiety, their knowledge of psychological skills may allow them to overcome any hurdles anxiety presents.
One method of coping with adversity in athletics is to maintain a positive outlook on the game, even in the face of difficulty. Scores of dispositional optimism, a subscale of the confidence measure, demonstrates that goalkeepers are no different than their peers in the ability to keep a positive attitude on the game. Such thinking is important for all players as positive thinking leads to feelings of enablement and serves as a strong contributor to performance (Kendall, Hrycaiko, Martin & Kendall, 1990; Van Raalte, Brewer, Rivera, & Petitpas, et al., 1994). Though scores indicate goalkeepers to be similar to their counterparts, there are times when maintaining a positive outlook can be crucial to goalkeepers. Following a goal, optimism, and a belief in the ability to perform, is vital to goalkeepers. If a goalkeeper lets down, or loses belief in their abilities following a goal, their performance is likely to suffer for the remainder of the competition. For this reason, goalkeepers must be able to bounce back from set backs in performance. By using verbal persuasion (e.g. positive self talk or encouragement from a coach) and concentration, goalkeepers should be able to maintain a constant positive mental state, lending itself to optimal performance.

Due to the lack of literature that exists regarding the goalkeeper position, the findings of this study represent a significant gain in the area of goalkeeper research. Previous research focused largely on anxiety as it relates to the position, as goalkeepers were found to be more anxious than their counterparts (Sewell & Edmondson, 1996). Other studies that examined the use of psychological skills by goalkeepers such as self talk found them to enhance performance (Rogerson and Hrycaiko, 2002). Though performance was not assessed as a part of the current
study, we can infer that with strong psychological skills goalkeepers are better prepared for performance. With the results of the current study, a mental skills framework of goalkeepers is presented. Goalkeepers use more psychological skills than their counterparts and are equally as confident. Such a finding indicates that goalkeepers possess a strong mental skills profile as a way to cope with the demands of the job.

The current study suggests what many involved with athletics already knew – that goalkeepers have different mental skills than their counterparts. Many have described this difference as craziness, yet it can be identified as a stronger personal coping resources. Variance in psychological skills and confidence may not account for all the differences between goalkeepers and non-goalkeepers. However, the results demonstrated by this study provide a solid foundation on which to base future research on goalkeepers. The use of psychological skills testing to differentiate between positions can also be expanded to include other sports with highly specialized positions. Football and baseball are sports with positions such as quarterback, kicker, catcher and pitcher who might benefit from a mental skills profile.

Results from this study provide us with a new understanding of the mental skills and confidence of goalkeepers. By understanding the mental skills and confidence levels that goalkeepers and non-goalkeepers possess, coaches can gain a better understanding of how to most effectively train their players for peak performance. Using the six sources of efficacy outlined by Bandura (1997) coaches and players can help goalkeepers and others improve their confidence. Many
coaches do not know how to effectively elevate the confidence levels of their goalkeepers. Using sources of efficacy is an effective way to help goalkeepers improve their sport competence and dispositional optimism. Highlighting past successful performances of goalkeepers and elaborating on the positives of that performance is one the strongest ways to improve confidence. Using vicarious experiences, such as those of other goalkeepers on the team can improve confidence especially if the coach is able to make the goalkeeper see himself or herself as like the model. Verbal persuasion is particularly valuable for goalkeepers — especially self-talk. By helping goalkeepers use positive self-talk "I can save the next shot, I've done it before" rather than negative self-talk "I've missed every shot so far, there's no way I can save the next one" coaches can have a significant impact on their goalkeepers. The positive interpretation of physiological and emotional states can also have a significant effect on goalkeepers. Coaches can aid in this by helping players to understand physiological and emotional changes are normal and can be interpreted as signs of readiness. Sources of efficacy are an important part of heightening the confidence of all players, but may be especially useful for goalkeepers.

Through this study we have begun to understand the effects of position on psychological skills and confidence. Before it was not known if players who played distinct positions possessed a specific mental skills set. Now, based on these results, it is understood that goalkeepers have different coping skills than their counterparts.
Unique challenges face goalkeepers – high evaluation threat and levels of anxiety, temporal challenges, and high personal performance demands. Goalkeepers have higher levels of anxiety than players in other positions (Sewell & Edmondson, 1996). Given the need to counter demands, it is understandable that goalkeepers possess a high level of psychological skills. With a strong mental skills profile, goalkeepers are able to use such skills to overcome adversity that faces them in their position. Based on their high level of psychological skills usage, it comes as little surprise that goalkeepers also have increased levels of confidence.

**Strengths and Limitations**

Through this study, the differences between goalkeepers and non-goalkeepers have begun to emerge. Psychological skills and confidence are important to the mental side of athletics. Other factors such as anxiety and motivation also contribute to performance and were not accounted for specifically in this study. In this study a large number of goalkeepers was evaluated, something previous studies had not been able to accomplish. Using the results from this study as a foundation, further examination regarding the position will be able to explore other differences and similarities with goalkeepers.

In addition to differences regarding the goalkeeper position, significant gender differences emerged from participants when examining the entire study population as a whole, and not broken down by position. The majority of participants were female. Due to high female participation, results may have differed than they would with a more even male female split between participants. Females were found to have lower scores than males in most areas, with the exception of coachability. This
finding represents an unexpected finding within the study, due in part to the large number of participants.

This study was able to garner such a large number of participants due to the method of data collection. By contacting participants via e-mail and collecting data online the number of participants was much larger than it might have been with other methods of data collection. Administering the instruments online may have led results to be different than they would have been if the measure were given on paper.

The ACSI-28 is a measure that has been previously employed in a number of studies including Smith and Christensen (1995) but the CSCI has not been used as extensively. The possibility exists that by employing other measures, different results would have been seen. In using the CSCI as a measure of confidence, the instrument was examining sport competence and dispositional optimism – two components of confidence that are important to the goalkeeping position. The CSCI measures confidence in a way that is beneficial to the study, and the ACSI-28 provides a comprehensive examination of psychological skills. For this reason, the two measures were used in conjunction for this study. These two measures had not been used together before in any published studies. Low reliability of the coaching and confidence subscales present a shortcoming associated with the instrument and therefore caution should be taken with the interpretation of the results.

A significant limitation to this study was the inability to measure performance. Given the large number of participants, the variance in position, and level of competition performance was unable to be measured. Measuring performance
would have provided significant information as to its relationship to Personal Coping Resource and confidence scores. Normalization of the performance measurement would have needed to be conducted. This would have been difficult, especially for positions in which statistics do not always measure performance. Coaches could have been used as judges of performance, but coaches are not always subjective.

Practical Implications

There is a lack psychological skills education on most collegiate sports teams. Given this circumstance, the question remains as to where goalkeepers have developed their psychological skills. It is possible that the nature of the position has demanded that these athletes learn psychological skills in order to function as a goalkeeper. Through this study it is understood that goalkeepers have a good understanding of psychological skills. Coaches and players alike can use this information to improve upon performance.

Through using sources of efficacy to enhance confidence goalkeepers are likely to improve their performance. In addition, by employing psychological skills training, both confidence and performance can be improved upon.

Differences between goalkeepers and non-goalkeepers are also highlighted in this study. While the nature of these positions on the field has often been viewed as different, it is now understood that they players themselves are different with regards to psychological skills. Coaches should use this information to build training programs that are most appropriate for each position, and the mental and physical skills of those players.
Using the information gather in this study, coaches and players alike should have greater understanding of the psychological skills employed by athletes. By improving self-efficacy and confidence through sources of efficacy and psychological skills, sport constituents should be able to improve confidence and performance.

**Future Research**

More work is needed to further understand the relationship between psychological skills and confidence in high-profile positions. A more in-depth look should be taken regarding goalkeepers and non-goalkeepers to further understand some of the differences that affect the positions. An understanding of their psychological skills and confidence is just the beginning. In addition, studies such as this should be replicated using other sports such as football and baseball to see if high-profile positions in other sports demonstrate similar characteristics to goalkeepers, or if those demonstrated by this study are unique to the goalkeeper position. A similar study should also be conducted in which mental skills and confidence are compared to a measure of performance. In doing so, optimal performance will be better understood as it relates to mental skills. Tying mental skills and confidence to performance will help to demonstrate better where success and failure in a position stem from.

Additional research should be done examining the effectiveness of online data collection and the potential to reach a greater population through electronic means. Given the popularity of the internet with college students, it appears that online data collection may yield larger sample sizes. Especially for studies that
concern athletes who have limited time to participate in research studies, electronic data collection may represent an improvement in data collection.

**Summary**

This study examined the differences that exist between goalkeepers and non-goalkeepers as related to psychological skills and confidence. Goalkeepers were found to receive higher scores on both Personal Coping Resource and confidence. Based on these results, coaches and athletes should examine the use of psychological skills in their programs. Improving psychological skills among goalkeeper and non-goalkeepers is likely to have a strong effect on performance. Given their natural propensity to employ psychological skills, if goalkeepers were to be educated in the matter, their performances may be even stronger than before.


Psychological Skills and Confidence

This is a study designed to gain an understanding of the athletic experiences of collegiate athletes. Specifically, it aims to examine psychological skills and confidence as they relate to different positions within team sports.

You should understand that this project is not expected to present any greater risk of your loss of personal privacy than you would encounter in everyday life when sending and/or receiving information over the Internet. You should also understand that while it is not possible to identify all risks in such research, all reasonable efforts have been undertaken to minimize any such potential risks. Further, you should understand that any form of communication over the Internet does carry a minimal risk of loss of confidentiality.

If you have any questions regarding this study or its intended purpose please contact the researcher Amanda Laws via e-mail at: amanda.laws@unh.edu

If you have any questions about your rights as a research subject you may contact Julie Simpson in the UNH Office of Sponsored Research at 603-862-2003 or julie.simpson@unh.edu to discuss them.

Thank you for choosing to participate in this online survey. By agreeing to participate you confirm all the following as true:

- You are at least 18 years old.
- You understand that participation in this study is completely voluntary, and that in no way are you obligated to participate.
- You agree to complete the survey in one sitting.
- You have at least 15 minutes to complete the survey.
- You have not taken the survey before.
- You are currently a collegiate athlete participating at the Division I, II, or III level.
- You participate at the Varsity level in the sport of ice hockey, lacrosse or soccer.
- You understand that participation is completely anonymous.

If you agree to these terms please click "YES" below and enter a two digit number combination to electronically sign the consent form.

If you do not agree, or have already taken this survey before please click "No" to
exit the survey.

Thank you.

1. I agree to the terms of the study.
   - [ ] YES
   - [ ] NO

2. Please enter a two digit number to electronically sign. You do not need to remember this number, and it will not be used again.

   [ ]

   [Submit]

Survey Page 1

Psychological Skills and Confidence

3. Do you play goalkeeper in ice hockey, soccer or lacrosse?
   - [ ] Yes
   - [ ] No

   [Submit]

Survey Page 2

Psychological Skills and Confidence

4. What sport do you play?
   
   If you play more than one of the sports listed, pick one. Then answer all survey questions based on this sport.
   
   - [ ] Ice Hockey
   - [ ] Lacrosse
   - [ ] Soccer

5. Position
Psychological Skills and Confidence

7 What sport do you play goalkeeper for?

If you play goalkeeper for more than one of these sports, pick your primary sport. Then answer all questions based on that sport.

- Ice Hockey
- Lacrosse
- Soccer

8 Percentage of playing time per game:

- 100-75%
- 74-50%
- 49-25%
- less than 25%

9 How many years of goalkeeping experience do you have?

10 Please give three reasons you feel goalkeepers are different than non-goalkkeepers.
## Psychological Skills and Confidence

11 How would you rate your individual performance overall for this season (or your most recent season)?

<table>
<thead>
<tr>
<th></th>
<th>poor</th>
<th>average</th>
<th>good</th>
<th>excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>34</td>
<td>36</td>
<td>38</td>
<td>40</td>
</tr>
</tbody>
</table>

12 How important do you feel mental skills are to your performance?

<table>
<thead>
<tr>
<th></th>
<th>Not important</th>
<th>Somewhat important</th>
<th>Important</th>
<th>Very important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>32</td>
<td>36</td>
<td>38</td>
<td>40</td>
</tr>
</tbody>
</table>

13 How often do you use goal setting to aid your performance?

<table>
<thead>
<tr>
<th></th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>31</td>
<td>35</td>
<td>37</td>
<td>40</td>
</tr>
</tbody>
</table>

14 How often do you use self-talk to aid your performance?

<table>
<thead>
<tr>
<th></th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>31</td>
<td>35</td>
<td>37</td>
<td>40</td>
</tr>
</tbody>
</table>

15 How often do you use imagery to aid your performance?

<table>
<thead>
<tr>
<th></th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Usually</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>31</td>
<td>35</td>
<td>37</td>
<td>40</td>
</tr>
</tbody>
</table>

16 How often do you use a mental skills routine?

---

http://www.zoomerang.com/members/print-survey.zgi?ID=L22HSFZPVM6L

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17 Which best represents the status for the sport you are CURRENTLY participating in:

Definitions:
In-Season = competing in games
Out of Season = not practicing, possibly conditioning
Pre/Post Season = are in practice preparing for competitive season OR have already completed a competitive season this year but are still practicing

- In-Season
- Out of Season
- Pre/Post Season

18 Your most recent team record:

[Blank]

19 Please list any individual athletic awards received in college:

[Blank]

Psychological Skills and Confidence

Survey of Athletic Experiences

A number of statements that athletes have used to describe their experiences are given below. Please read each statement carefully and then recall as accurately as possible how often you experience the same thing. There are no right or wrong answers. Do not spend too much time on any one statement.
On a daily or weekly basis, I set very specific goals for myself that guide what I do.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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</table>

When a coach or manager tells me how to correct a mistake I've made, I tend to take it personally and feel upset.

<table>
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<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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</table>

I get the most out of my talent and skills

<table>
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<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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When I'm playing sports, I can focus my attention and block out distractions.

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<th>often</th>
<th>almost always</th>
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I remain positive and enthusiastic during competition, no matter how badly things are going.

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<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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</thead>
<tbody>
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</table>

I tend to play better under pressure because I think more clearly.

<table>
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<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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<tbody>
<tr>
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</table>

I worry quite a bit about what others think about my performance.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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<tbody>
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</table>
27 I tend to do lots of planning about how to reach my goals.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
</tr>
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<tbody>
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<td></td>
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</table>

28 I feel confident that I will play well.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

29 When a coach or manager criticizes me, I become upset rather than helped.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

30 It is easy for me to keep distracting thoughts from interfering with something I am watching or listening to.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

31 I put a lot of pressure on myself by worrying how I will perform.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

32 I set my own performance goals for each practice.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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<td></td>
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</tbody>
</table>

33 I don't have to be pushed to practice or play hard; I give 100%.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
<td>Question</td>
<td>Scale</td>
<td>Rating</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------------------------------------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>34</td>
<td>If a coach criticizes or yells at me, I correct the mistake without getting upset about it.</td>
<td>almost never</td>
<td>28</td>
</tr>
<tr>
<td>35</td>
<td>I handle unexpected situations in my sport very well.</td>
<td>almost never</td>
<td>26</td>
</tr>
<tr>
<td>36</td>
<td>When things are going badly, I tell myself to keep calm, and this works for me.</td>
<td>almost never</td>
<td>25</td>
</tr>
<tr>
<td>37</td>
<td>The more pressure there is during a game, the more I enjoy it.</td>
<td>almost never</td>
<td>24</td>
</tr>
<tr>
<td>38</td>
<td>While competing, I worry about making mistakes or failing to come through.</td>
<td>almost never</td>
<td>23</td>
</tr>
<tr>
<td>39</td>
<td>I have my own game plan worked out in my head long before the game begins.</td>
<td>almost never</td>
<td>22</td>
</tr>
<tr>
<td>40</td>
<td>When I feel myself getting too tense, I can quickly relax my body and calm myself.</td>
<td>almost never</td>
<td>21</td>
</tr>
</tbody>
</table>
41 To me, pressure situations are challenges that I welcome.

42 I think about and imagine what will happen if I fail or screw up.

43 I maintain emotional control no matter how things are going for me.

44 It is easy for me to direct my attention and focus on a single object or person.

45 When I fail to reach my goals, it makes me try even harder.

46 I improve my skills by listening carefully to advice and instruction from coaches and managers.
47 I make fewer mistakes when the pressure is on because I concentrate better.

<table>
<thead>
<tr>
<th>almost never</th>
<th>sometimes</th>
<th>often</th>
<th>almost always</th>
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Survey Page 6

Psychological Skills and Confidence

The Carolina Sport Confidence Inventory

What am I like?

These are statements which allow people to describe themselves.

There are no right or wrong answers since people differ.

First, decide which one of the two statements best describes you. Then pick whether that statement is "somewhat true" or "very true" FOR YOU.

48 I feel I am not very good when it comes to playing sports - VERY TRUE FOR ME
   I feel I am not very good when it comes to playing sports - SOMEWHAT TRUE FOR ME
   I feel I am really good at many sports - VERY TRUE FOR ME
   I feel I am really good at many sports - SOMEWHAT TRUE FOR ME

49 I always look on the bright side when it comes to sports - VERY TRUE FOR ME
   I always look on the bright side when it comes to sports - SOMEWHAT TRUE FOR ME
   I think of the bad things that might occur when I play sports - VERY TRUE FOR ME
   I think of the bad things that might occur when I play sports - SOMEWHAT TRUE FOR ME
50
In the company of my peers I feel that I am always one of the best when it comes to joining sports activities - VERY TRUE FOR ME
In the company of my peers I feel that I am always one of the best when it comes to joining sports activities - SOMEWHAT TRUE FOR ME
In the company of my peers I am not among the best when it comes to joining in sports activities - VERY TRUE FOR ME
In the company of my peers I am not among the best when it comes to joining in sports activities - SOMEWHAT TRUE FOR ME

51
I feel that I am among the best in my peer group when it comes to athletic ability - VERY TRUE FOR ME
I feel that I am among the best in my peer group when it comes to athletic ability - SOMEWHAT TRUE FOR ME
I feel that I am average or below my peers when it comes to athletic ability - VERY TRUE FOR ME
I feel that I am average or below my peers when it comes to athletic ability - SOMEWHAT TRUE FOR ME

52
I feel that if something can go wrong for me during sports activities, it will - VERY TRUE FOR ME
I feel that if something can go wrong for me during sports activities, it will - SOMEWHAT TRUE FOR ME
I feel that is something can go right for me during sports activities, it will - VERY TRUE FOR ME
I feel that is something can go right for me during sports activities, it will - SOMEWHAT TRUE FOR ME

53
I feel that things will never work out the way I want them to, during sporting activities- VERY TRUE FOR ME
I feel that things will never work out the way I want them to, during sporting activities- SOMEWHAT TRUE FOR ME
I believe that things will work out for me, during sporting activities - VERY TRUE FOR ME
I believe that things will work out for me, during sporting activities - SOMEWHAT TRUE FOR ME

54
I am not quite confident when it comes to taking part in sporting
activities - VERY TRUE FOR ME
I am not quite confident when it comes to taking part in sporting activities - SOMEWHAT TRUE FOR ME
I am among the most confident when it comes to taking part in sporting activities - VERY TRUE FOR ME
I am among the most confident when it comes to taking part in sporting activities - SOMEWHAT TRUE FOR ME

55
I believe that I have a bright future in sporting activities - VERY TRUE FOR ME
I believe that I have a bright future in sporting activities - SOMEWHAT TRUE FOR ME
I feel that the worst is yet to come for me in sporting activities - VERY TRUE FOR ME
I feel that the worst is yet to come for me in sporting activities - SOMEWHAT TRUE FOR ME

56
I am a little slower than most when it comes to learning new skills in a sports situation - VERY TRUE FOR ME
I am a little slower than most when it comes to learning new skills in a sports situation - SOMEWHAT TRUE FOR ME
I always seem to be among the quickest when it comes to learning new sport skills - VERY TRUE FOR ME
I always seem to be among the quickest when it comes to learning new sport skills - SOMEWHAT TRUE FOR ME

57
I hardly ever expect things to go my way in sporting activities - VERY TRUE FOR ME
I hardly ever expect things to go my way in sporting activities - SOMEWHAT TRUE FOR ME
I feel that things will often go my way in sporting activities - VERY TRUE FOR ME
I feel that things will often go my way in sporting activities - SOMEWHAT TRUE FOR ME

58
I believe that during sporting activities "every cloud has a silver lining" - VERY TRUE FOR ME
I believe that during sporting activities "every cloud has a silver lining" - SOMEWHAT TRUE FOR ME
I have trouble during sporting activities seeing the "light at the end of the tunnel" - VERY TRUE FOR ME

http://www.zoomerang.com/members/print-survey.zg?ID=L22H5FZPVM6L

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I have trouble during sporting activities seeing the "light at the end of the tunnel" - SOMEWHAT TRUE FOR ME

59
Given the chance, I am always the first to join in sports activities - VERY TRUE FOR ME
Given the chance, I am always the first to join in sports activities - SOMEWHAT TRUE FOR ME
I sometimes hold back and am not usually among the first to join in sports activities - VERY TRUE FOR ME
I sometimes hold back and am not usually among the first to join in sports activities - SOMEWHAT TRUE FOR ME

60
I feel that there is no use in really trying to get something I want in sport because I will probably not get it - VERY TRUE FOR ME
I feel that there is no use in really trying to get something I want in sport because I will probably not get it - SOMEWHAT TRUE FOR ME
I believe that if you work hard enough you will attain your sport goals - VERY TRUE FOR ME
I believe that if you work hard enough you will attain your sport goals - SOMEWHAT TRUE FOR ME

Survey Page 7

Psychological Skills and Confidence

61 Sex
• Male
• Female

62 Division:
• Division I
• Division II
• Division III
School: 

Race
- African-American
- Asian
- Caucasian
- American-Indian or Alaska Native
- Hispanic or Latino
- Other, Please Specify

Year of Athletic Eligibility:
- Freshman
- Sophomore
- Junior
- Senior
- 5th Year

Are you currently receiving an athletic scholarship at the Varsity level (either full or partial)?

[ ] Yes
[ ] No

Submit
Appendix G

Initial E-mail to Ice-Hockey, Soccer and Lacrosse Coaches

Dear Coach,

My name is Amanda Laws and I am currently an assistant lacrosse coach and Master's degree student at the University of New Hampshire. From 1999-2003 I played goalie for the women's lacrosse team at Yale University. Have you always wondered what makes goalkeepers so different than most other players on your team? So have I. For my Master’s thesis I am conducting a study to examine the psychological skills of goalkeepers and their relationship to confidence. I will be studying collegiate ice hockey, lacrosse and soccer players as a part of my study.

In a few days I will be e-mailing you a second e-mail with a link to my survey. I hope that you will allow all of your players (goalkeepers and non-goalkeepers) to participate by forwarding my next e-mail to your team.

If you have any questions or concerns regarding the use of human subjects as participants in this study you may contact my faculty advisor Karen Collins [Karen.Collins@unh.edu / 603-862-0361] or Julie Simpson [Julie.simpson@unh.edu / 603-862-2003]

Thank you in advance for your help. If you have any questions, please feel free to contact me.

Sincerely,
Amanda Laws

amanda.laws@unh.edu
Appendix H

Second E-mail to Ice-Hockey, Soccer and Lacrosse Coaches

Dear Coach and Players,

I first wrote you a couple of days ago. In case you did not get the chance to read my initial e-mail my name is Amanda Laws and I am currently an assistant lacrosse coach and Master’s degree student at the University of New Hampshire. From 1999-2003 I played goalie for the women’s lacrosse team at Yale University. For my Master’s thesis I am conducting a study to examine the psychological skills of goalkeepers and their relationship to confidence. I will be studying collegiate ice hockey, lacrosse and soccer players as a part of my study.

Coaches, please forward this e-mail to your team so that they can participate in the study. Please be sure to include the following statement in your e-mail to your players:

Players -
Thank you for agreeing to participate in this study regarding psychological skills and confidence. To begin the study click on the following link: http://www.zoomerang.com/survey.zgi?p=WEB224W5JJYHJH

If you need assistance if forwarding this e-mail, or prefer that I contact your team directly, please reply to this e-mail so it can be arranged.

If you have any questions or concerns regarding the use of human subjects as participants in this study you may contact my faculty advisor Karen Collins [Karen.Collins@unh.edu / 603-862-0361] or Julie Simpson [Julie.simpson@unh.edu / 603-862-2003].

Thank you in advance for your help. If you have any questions, please feel free to contact me.

Sincerely,
Amanda Laws

--
amanda.laws@unh.edu
Appendix I. IRB Approval Form

February 6, 2006

Amanda Laws
Kinesiology, NH Hall
Durham, NH 03824

**IRB #:** 3604  
**Study:** Psychological Skills of Goalkeepers and their Relationship to Confidence  
**Approval Date:** 02/03/2006

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Exempt as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 101(b). Approval is granted to conduct your study as described in your protocol.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, *Responsibilities of Directors of Research Studies Involving Human Subjects.* (This document is also available at [http://www.unh.edu/osr/compliance/irb.html](http://www.unh.edu/osr/compliance/irb.html).) Please read this document carefully before commencing your work involving human subjects.

Upon completion of your study, please complete the enclosed pink Exempt Study Final Report form and return it to this office along with a report of your findings.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,

[Signature]
Julie F. Simpson  
Manager

cc: File  
Karen Collins

---

Research Conduct and Compliance Services, Office of Sponsored Research, Service Building, 51 College Road, Durham, NH 03824-3585 * Fax: 603-862-3564