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# The influence of mental toughness on the performance of elite intercollegiate athletes

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THE INFLUENCE OF MENTAL TOUGHNESS  
ON THE PERFORMANCE  
OF ELITE INTERCOLLEGIATE ATHLETES

By  
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Accepted in Partial Completion  
Of the Requirements for the Degree  
Master of Science

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## MASTER'S THESIS

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Kelly A. Jones  
May 16, 2011

THE INFLUENCE OF MENTAL TOUGHNESS  
ON THE PERFORMANCE  
OF ELITE INTERCOLLEGIATE ATHLETES

A Thesis  
Presented to  
The Faculty of  
Western Washington University

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science

by  
Kelly A. Jones  
May 2011

## ABSTRACT

Research on mental toughness has gained momentum in the past decade, yet there is still a need for exploration of the topic and definition, especially from a developmental perspective. This study explored the influence of mental toughness on the performance of elite intercollegiate athletes by considering the mental skills athletes used to achieve success in their sport; consideration was also paid to the developmental aspects of the athletes. This study utilized both qualitative and quantitative methodologies. In-depth interviews were conducted with 10 NCAA Division II All-American athletes using pre-determined questions related to the following content categories: developmental aspects, peak performance and flow, general performance characteristics, mental toughness, confidence, achievement motivation and passion for sport, coping with adversity, and performing effectively under pressure. Content analysis identified 418 raw data themes, from which 68 general themes were identified. Further content analysis resulted in 28 emergent themes which were grouped into the following umbrella categories: experiences, motivation, cognitive processes, success related mental skills, and mental toughness attributes. Several developmental aspects, mental skills, and mental toughness attributes were discovered as universal to all or the majority of the athletes who were interviewed. Based on the content analysis results, a definition for mental toughness is proposed. The athletes were also administered the Athletic Coping Skills Inventory – 28 as a quantitative measure of the mental skills used to achieve success in sport. The results obtained from this inventory were used in a descriptive manner. As a group, the athletes scored highest on the subscales of confidence and achievement motivation, coachability, and concentration. There was considerable variation between the athletes with regard to total scores obtained from the inventory.

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## TABLE OF CONTENTS

ABSTRACT.....	iv
ACKNOWLEDGEMENTS.....	v
LIST OF APPENDICES.....	viii
LIST OF TABLES.....	ix
 CHAPTER I: THE PROBLEM AND ITS SCOPE.....	 1
Introduction.....	1
Purpose of the Study.....	2
Statement of the Research Questions.....	2
Significance of the Study.....	2
Limitations of the Study.....	3
Definition of the Terms.....	4
 CHAPTER II: REVIEW OF LITERATURE	
Introduction.....	6
Characteristics of Elite Athletes.....	7
Peak Performance and Success.....	11
Flow.....	16
Mental Toughness.....	22
Characteristics of Mental Toughness.....	35
Confidence.....	35
Achievement Motivation.....	40
Passion for Sport.....	40
Harmonious and Obsessive Passion.....	41
Coping with Adversity.....	43
Performing Effectively Under Pressure.....	45
Psychometric Measurement and Mental Toughness Characteristics.....	49
Athletic Coping Skills Inventory.....	49
Content Analysis.....	52
Summary.....	55
 CHAPTER III: METHODS AND PROCEDURES	
Introduction.....	57
Description of Study Population.....	57
Recruitment of Participants.....	58
Design of the Study.....	59
Data Collection Procedure.....	60
Training Procedures.....	60
Instrumentation.....	61
Athletic Coping Skills Inventory – 28.....	64
Measurement Techniques and Procedures.....	64

Data Processing.....	65
Data Collection/Decision Log.....	65
Data Analysis for Content.....	66
Raw Data Responses.....	66
General Themes.....	66
Emergent Themes.....	67
Data Analysis for ACSI – 28.....	67

#### CHAPTER IV: RESULTS AND DISCUSSION

Introduction.....	68
Analysis of Raw Data and General Themes.....	68
Developmental Aspects.....	69
Peak Performance and Flow.....	72
General Performance Characteristics.....	78
Mental Toughness.....	86
Confidence.....	97
Achievement Motivation and Passion for Sport.....	109
Coping with Adversity.....	112
Performing Effectively Under Pressure.....	120
Analysis of Emergent Themes.....	125
Discussion of Emergent Themes.....	126
Experiences.....	127
Motivation.....	129
Cognitive Processes.....	133
Success Related Mental Skills.....	134
Mental Toughness Attributes.....	139
Analysis of Athletic Coping Skills Inventory – 28.....	143
Discussion of Athletic Coping Skills Inventory – 28.....	144
Descriptive Results.....	144
Reliability and Correlations.....	147

#### CHAPTER V: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary.....	149
Conclusions.....	152
Developmental Experiences and Cognitive Processes.....	152
Success Related Mental Skills.....	154
Mental Toughness.....	156
Recommendations.....	157

REFERENCES.....	159
-----------------	-----

APPENDICES.....	164
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## LIST OF APPENDICES

Appendix A.	Informed Consent Form.....	164
Appendix B.	Demographic Questionnaire.....	166
Appendix C.	Interview Questions and Topics.....	168
Appendix D.	Athletic Coping Skills Inventory – 28.....	171
Appendix E.	Demographic Information.....	174
Appendix F.	Raw Data, General, and Emergent Themes.....	176
Appendix G.	Frequency Distribution of Raw Data Responses.....	191
Appendix H.	Responses Cited Three or More Times.....	207
Appendix I.	Emergent Themes.....	211
Appendix J.	Frequency Distribution of Emergent Themes.....	213
Appendix K.	ACSI – 28 Scores by Athlete.....	215

LIST OF TABLES

Table 1..... 145

## Chapter I

### The Problem and its Scope

#### **Introduction**

Although there is an abundance of research on the differences in psychological characteristics of elite and non-elite athletes, much less is known about the development of mental skills of elite athletes (Bull, Shambrook, James, & Brooks, 2005; Gould & Dieffenbach, 2002; Spieler et al., 2007). For example, Gould and Dieffenbach (2002) conducted thorough investigations with ten Olympic champions and learned of the skills that successful athletes used to attain peak performances. They also interviewed the Olympians regarding how the athletes developed their psychological skills. Gould and Dieffenbach concluded that there is a need for future research to further understand how successful athletes have developed mental skills and the characteristics of mental toughness.

Regardless of the source of mental skills, successful athletes have indeed reported practicing such skills intentionally in order to achieve peak performances. One of the highest ranked psychological characteristics reported by Olympic champions was mental toughness (Gould & Dieffenbach, 2002). Mental toughness, as described by Olympic champions and various elite athletes throughout the subsequent reviewed literature, has become a broad term that reflects the ability of an athlete to cope effectively with training and competition demands in an effort to remain resilient (Bull et al., 2005; Connaughton, Wadey, Hanton, & Jones, 2008b; Fourie & Potgieter, 2001; Gould & Dieffenbach, 2002; Jones, Hanton, & Connaughton, 2002, 2007; Thelwell, Weston, & Greenless, 2005). In order to establish any existing relationship between mental toughness and peak performance, athletic experiences

must be described in great detail, and the skills used to achieve such peak experiences must be learned from those who have experienced them.

### **Purpose of the Study**

The purpose of this study was to investigate the influence of mental toughness on the performance of elite intercollegiate athletes.

### **Statement of the Research Questions**

In this study, the following research questions were investigated: Do elite intercollegiate athletes possess the characteristics of mental toughness? In what ways did these athletes develop mental toughness?

### **Significance of the Study**

This study contributes to the body of qualitative research related to mental toughness in several ways. First, the case interviews employed in this study may be used in the accumulation of knowledge about the psychological characteristics of successful athletes and thus provide a framework for developing optimal performance (Jackson, Thomas, Marsh, & Smethurst, 2001; Smith, 1988; Vernacchia, 1998). Another important contribution has been the exploration of certain content areas in which there has been less psychological research, such as passion in sport (Vallerand et al., 2006, 2008). Therefore, this current study explored whether passion and love of sport contributed to the performance attribute of mental toughness. Furthermore, several authors have emphasized a need for the exploration of how athletes have developed their mental toughness (Bull et al., 2005; Gould & Dieffenbach, 2002; Jones et al., 2002; Spieler et al., 2007).

In addition to the qualitative interviews a quantitative element, the Athletic Coping Skills Inventory – 28 (ACSI – 28) (Smith, Schultz, Smoll, & Ptacek, 1995), was added to this

study to provide a more holistic profile of the study population and the mental skills that this population utilized to obtain peak performances. To this end, the exploratory case profiles conducted in this study provided insight and educational content to further advance the field and application of sport psychology, by providing an understanding of human behavior in sport, especially from a psychosocial perspective (Smith, 1988; Vernacchia, 1998).

### **Limitations of the Study**

This investigation was subject to the following limitations:

1. The population of participants was a limited heterogeneous group of National Collegiate Athletic Association (NCAA) Division II All-American athletes.
2. The two crew athletes who participated in this study had no rowing experience prior to college, yet had competed in several other sports. The remaining eight athletes who participated in this study had been competing in their collegiate sport for at least two years prior to college. See Appendix E for specific details on the ages when athletes began their collegiate sport.
3. The case interview approach does not generalize results outside the research population, and, therefore, the external validity may be compromised (Smith, 1988).
4. Data collection in a retrospective interview format relies on recalled information. Furthermore, the quality of the findings is dependent on the validity of responses by participants (Jackson et al., 2001).
5. Since the majority of this study was based on case interviews, no causal relationship was established as may have occurred with the use of an experimental approach (Smith, 1988).

**Definition of Terms**

**Activity Valuation:** The subjective importance of a given activity for the athlete (Vallerand et al., 2006).

**Case Profile:** Rich descriptions of athlete's thoughts, feelings, perceptions, behaviors, and experiences through interviews, comprising the majority of the case profile (Vernacchia, 1977; 1998); included are individual subscale and total coping resource scores from the ACSI – 28 (Smith et al., 1995).

**Content Analysis:** The collection of detailed descriptive data of the population under study; in-depth interviews are conducted, and the data is analyzed to identify patterns of experiences, characteristics, thoughts, feelings, perceptions, and behaviors (Patton, 2002).

**Elite Athlete:** An athlete eligible within the NCAA, who has received, at a minimum, the honor of athletic All-American status.

**Harmonious Passion:** Result of an autonomous internalization of the sport into identity which occurs when the athlete has determined the activity to be of great importance, attaches no contingencies to the activity, and participation is in harmony with other areas of the athlete's life (Vallerand et al., 2006).

**Mental Toughness:** The psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience (Bull et al., 2005; Fourie & Potgieter, 2001; Gould & Dieffenbach, 2002; Jones et al., 2002, 2007; Thelwell et al., 2005).

**Obsessive Passion:** Results from a controlled internalization of the sport into identity. This occurs when the athlete experiences intra/interpersonal pressure to participate, usually due to contingencies (i.e. self-worth or social acceptance) attached to participation (Vallerand et al., 2006).

**Sport Intelligence:** Includes the ability to analyze and innovate, make good decisions, learn quickly, and focus on useful information; a student of the sport and understanding the nature of elite sport (Gould & Dieffenbach, 2002).

## Chapter II

### Review of Literature

#### **Introduction**

Successful athletes utilize a number of mental skills in order to perform effectively, and according to the literature, more successful or elite athletes possess an intangible set of psychological characteristics referred to as mental toughness (Gould & Dieffenbach, 2002; Jones, Hanton, & Connaughton, 2002). Some researchers have explained mental toughness as a psychological advantage over opponents; the ability to cope better than others with situational demands (Jones et al., 2002). Mental toughness has also been referred to, by Olympic champions, as perseverance, persistence, and resilience (Gould & Dieffenbach, 2002).

However, no single definition for mental toughness has been decided on thus far (Jones et al., 2002); nor does every elite athlete fit an exact profile of the ideal sport personality, as every athlete is unique and should be treated individually (Bertollo, Saltarelli, & Robazza, 2009). Through in-depth exploration of highly successful male and female athletes and their peak performances in sport, this current study lends insight into the definition of mental toughness by investigating its influence within peak athletic performance. Specific mental skills were also investigated, through interviews and as assessed by the Athletic Coping Skills Inventory – 28 (ASCI – 28) (Smith, Schultz, Smoll, & Ptacek, 1995), and consideration was paid to how these skills might be related to mental toughness. This study also provided a first-hand developmental perspective regarding the psychosocial characteristics of elite athletes by focusing on the following content areas



related to mental toughness: peak performance and flow, confidence, achievement motivation and passion for sport, coping with adversity, and performing effectively under pressure.

### **Characteristics of Elite Athletes**

Although athletes at all levels have the ability to be successful, there are a number of psychological differences between elite and non-elite athletes. Specifically, Olympic athletes possess an array of mental skills which lead to their success and may not be as highly represented in non-elite athletes (Gould & Dieffenbach, 2002). Olympic champions, along with corroborating interviews from their coaches and family, identified skills they attributed to successful performances. These included, in order of ranking: ability to focus and mental toughness, competitive attitude, sport confidence, sport intelligence, and being coachable as the skills they attributed to successful performances (Gould & Dieffenbach, 2002).

Gould and Dieffenbach (2002) thoroughly investigated the psychological characteristics of ten Olympic champions through in-depth interviews and a selection of psychometric inventories, in order to gain insight regarding these successful athletes mental ability and its development. In addition to qualitative methods, they employed use of the Sport Anxiety Scale, Multidimensional Perfectionism Scale, revised Life Orientation Test, Adult Trait Hope Scale, Task Ego Orientation Scale Questionnaire, Test of Performance Strategies (TOPS), and the ACSI – 28. Of the seven subscales in the ACSI – 28, the Olympic champions scored highest on confidence, concentration, freedom from worry, and coachability than on other scales (Gould & Dieffenbach, 2002).

Resulting from the qualitative exploration of these athletes, several umbrella categories of psychological characteristics emerged, which were comprised of higher-order themes and subthemes. From the subtheme emotional, data responses indicated strong

emotions, such as passion for sport. Another subtheme of headstrong/self-centered revealed overall confidence by the athlete. The overall handling of adversity and pressure umbrella category was cited by a majority of participants and included the psychological capacity to respond effectively to setbacks and competition-related anxiety. Perhaps the most informative umbrella category, however, was performance enhancement skills and characteristics (Gould & Dieffenbach, 2002).

In relation to performance enhancement skills and characteristics, the higher-order theme ability to focus and subthemes of ability to focus on what one can control and ability to focus/not easily distracted were extracted. Additional performance enhancing skills and characteristics identified by Gould and Dieffenbach (2002) were the higher-order themes mental toughness, competitive attitude, sport confidence, sport intelligence, and coachability. Once all responses were tabulated, the largest higher-order themes within this umbrella category were ability to focus and mental toughness – both were cited by 73.3 percent of the study's participants (Gould & Dieffenbach, 2002).

In order to gain a much needed understanding of how Olympic champions developed athletic-related psychological skills and characteristics, Gould and Dieffenbach (2002) asked Olympians how they developed these important mental skills. Overall, athletes attributed their development of psychological skills such as focus and mental toughness by acknowledging the community, family, individual development, non-sport personnel, sport environment personnel, and the sport process. Two of these sources were mentioned by 100 percent of participants as being an influential for their development of mental skills – sport environment personnel and family (Gould & Dieffenbach, 2002).

Vernacchia, McGuire, Reardon, and Templin (2000) also discovered factors in the development of elite athletes that were deemed critical to the athletes. They interviewed 15 Olympic athletes who had competed in the Games from 1984 to 1996 and found, through content analysis, the most often cited source related to the athlete's development was the influence of coaches, parents, and role models. Athletes knew the importance of the coach-athlete relationship and greatly valued the guidance they received (Vernacchia et al, 2000.).

The Olympians also reported work ethic, consistency of training, and competition as important to their development, and many emphasized the importance of their social support networks. The athletes interviewed by Vernacchia et al. (2000) learned the importance of patience as they developed, and spoke of their persistent attitude, self-motivation, emphasis on enjoyment, and adopting a process orientation as factors which contributed to their development as elite athletes. Furthermore, the Olympic athletes made it clear that confidence was essential for peaking in competition, and mental preparation was the means to gain confidence. The Olympic athletes reported using visualization and mental imagery most often for mental preparation (Vernacchia et al., 2000).

Gould and Dieffenbach (2002) as well as Vernacchia et al. (2000) were able to lend insight into the thoughts, behaviors, and general psychological skills that Olympic athletes have developed and used, but what about elite athletes at the collegiate level? Frey, Laguna, and Ravizza (2003) made strides toward answering questions in that demographic as they determined whether or not collegiate athletes used mental skills in practice and competition settings. Furthermore Frey et al. explored the data obtained through administration of the TOPS to detect if a significant difference existed in the use of mental skills between practice and competition in an NCAA Division I baseball and softball population.

Frey et al. (2003) selected the TOPS as a measure of mental skills use because it has questions pertaining to goal setting, emotional control, automaticity, relaxation, activation, self-talk, imagery, and attentional control. The higher the score obtained, the more mental skills demonstrated by the athlete, with scores at or above 128 designated as high mental skill usage. Of the 199 baseball and softball players in the study, only 11 had high mental skill use during practice; 150 had moderate use, and 38 had low use. In support of the author's hypothesis, more athletes used mental skills in competition than in training environments with 51 of the athletes reporting high mental skill use during competition (Frey et al., 2003).

Interestingly, an ANOVA revealed no significant differences between the athletes who reported having had mental skills training in the past and those who had not. In addition to this result, the one-way factorial ANOVA also determined that the athlete's use of mental skills during practice was not significantly influenced by previous training (Frey et al., 2003). Despite the lack of relationship established between the use of mental skills and previous training for mental skills, Frey et al. (2003) found significant support for the importance of mental skills use in this elite intercollegiate population. Four of the researcher's hypotheses were statistically supported in that high levels of mental skills use, in both practice and competition settings, were significantly different from athletes with low levels, when related to self-perceptions of success (Frey et al., 2003).

Frey and colleagues (2003) also administered a shortened version of the Self-Perception of Quality of Performance Questionnaire as a measurement of how successful the athlete believed their previous month of training and competition had been. There were significant relationships found between the level of mental skills used and the athlete's

perception of success in both practice and competition, with higher levels of mental skills equating to higher levels of perception of success (Frey et al., 2003).

Waples (2003) investigated the psychological differences between elite and non-elite USA Gymnastics club level gymnasts, and discovered that elite gymnasts had significantly higher scores than non-elite gymnasts on the ACSI – 28 subscales of coping with adversity, goal setting/mental preparation, concentration, confidence and achievement motivation, as well as a higher total personal coping resources score. Gymnasts within Waples dissertation study were divided and compared based on the competitive levels of the gymnasts. The significantly higher scores obtained by level 11 gymnasts, as detected through MANOVA, ANOVA, and post hoc analyses, were in comparison to level 8 and level 9 athletes who were defined by Waples as intermediate to advanced.

### **Peak Performance and Success**

Peak performance has been recognized by athletes as well as sport psychology researchers and professionals as the ultimate experience for an athlete (Jackson & Roberts, 1992). Some athletes may never attain such moments of glory in sport, while others have been able to consistently achieve peak performances during competition (Hanson, 1992). In a case study of one of the all-time greatest hitters in American baseball, Hanson (1992) interviewed Hank Aaron and reported the insightful discussion in order to emphasize the need for learning about peak performances from the most successful athletes themselves. Hank Aaron consistently prepared himself mentally for his performances, and the result was a 23 year season batting average of .305 with 33 home runs and 100 RBIs (Hanson, 1992).

In an unstructured interview, Hank Aaron revealed that he relied heavily on mental preparation by visualizing himself at bat against the opposing pitcher, as his mind created

various scenarios he faced while at the plate (Hanson, 1992). Furthermore, he believed this skill was the difference between maintaining his focus for the duration of an at bat. Hank Aaron emphasized that a highly successful athlete not only has the ability to focus at an intense level, but also to focus on a consistent and regular basis. Consistent concentration, in Hank Aaron's opinion, was what separated a great hitter from a good hitter (Hanson, 1992).

Aaron attributed much of his initial source of motivation from his pure love for playing the game of baseball (Hanson, 1992). Later in his career, Aaron derived his achievement orientation from wanting to be the best at his sport, to break Babe Ruth's homerun record (which he accomplished), receive the long overdue recognition for his talents on the field, and most importantly, to be in a position to help other African Americans in the fight for equality. He was not distracted by the on and off-field stressors he faced (Hanson, 1992). As an alternative to blocking out the distractions, he focused solely on task-relevant cues (e.g. the ball and pitch being thrown). Furthermore, Aaron stated that his anxiety was low, and all of the skills he used to achieve "greatness" were learned (Hanson, 1992). Finally, Hank Aaron suggested that any athlete could learn them as well if he or she was willing to practice the skills.

Peak performances, such as those Hank Aaron discussed, have been described as a positive extreme in performance, a performance in which the athlete has met and exceeded the demands of competition and typically resulted in a successful outcome (Jackson & Roberts, 1992). Through a combination of qualitative and quantitative investigation, Jackson and Roberts (1992) provided an elementary foundation of the elements needed for achieving peak performance. As 200 Division I individual sport athletes recalled their best and worst performance, a distinct relationship between the experiences of flow and achieving peak

performance emerged. Jackson and Roberts found athletes with high perceived ability, and a mastery orientation (versus ego orientation) during performance, contributed to the experience of flow occurring.

Furthermore, athletes were twice given the 6-item Flow Scale questionnaire and asked to consider their best and worst performance respectively while answering the items. Results from this measurement of the study revealed that athletes scored significantly higher on the Flow Scale while recalling their peak performance, and significantly lower while recalling their worst performance (Jackson & Roberts, 1992). Sixty-six percent of the athletes reported having mastery (process) related thoughts during their best performance, whereas 88 percent of athletes reported having ego (outcome) related thoughts during their worst performance.

Regardless of whether an athlete was recalling a best or worst performance, he or she tended to perceive that he or she was highly challenged by performance situations. The main difference between best and worst performances was in the perception of whether or not he or she had the necessary skills to cope with challenge (Jackson & Roberts, 1992). The most frequently mentioned mental skill athletes cited as beneficial during those athletic performance situations was focus. Although the results linked the experience of flow to the occurrence of peak performance, only 13 percent of the variance in frequency of flow was explained by perceived ability and a mastery orientation. In other words, flow also depended on other factors that were not examined by Jackson and Roberts (1992).

Some researchers have even attempted to create a profile for predicting success, especially at the collegiate level of sport (Spieler et al., 2007). Through predictive discriminant analysis, Spieler et al. (2007) attempted to provide a physical, psychological,

and environmental framework that would be reliable in predicting a collegiate football player's starting status. Two inventories were given to 108 Southeastern Division I football players from six teams - the ACSI - 28 and the Ten-Item Personality Inventory (TIPI), and appropriate demographic information, such as starting status, was collected.

Statistical analyses of the study's data revealed a significant main effect for starting status. Specifically, the starters were older than non-starters, had played in larger high schools, and most interestingly had higher scores on the coping with adversity subscale of the ACSI - 28. Spieler et al. (2007) explained the significant result of age through years of playing experience. The fact that starters in college football came from larger high schools was best explained as a function of more resources available to the athletes. Finally, the significantly higher scores obtained by starters in regards to coping with adversity was explained again by the years of experience and likelihood that the starters had faced adversity in past situations, thus preparing them for collegiate level football. Spieler et al. suggested that future researchers explore the unfavorable situations an athlete has the ability to cope with, and specifically to qualitatively examine the different types of coping strategies (task-focused versus emotion-focused) athletes have used in challenging circumstances. It was also recommended that future researchers consider developmental aspects regarding participation and family involvement (Spieler et al., 2007).

Spieler et al. (2007) noted that years of playing experience were critical to achieving successful athletic performances. This finding was supported by a landmark study involving the effect of deliberate practice on the acquisition of expert performance (Ericsson, Krampe, & Tesch-Römer, 1993). Full mastery may require ten years of deliberate practice to master knowledge and technique, but according to Ericsson and colleagues (1993), to truly become



successful an expert must have also contributed to their field with innovation, and thus success reached by an expert was more dynamic than deliberate practice alone. Ericsson et al. established several predictions related to the amount of time spent practicing and level of elite performance.

To test their hypotheses, Ericsson et al. (1993) had three groups of 10 elite adult violinists, whose performance levels differed based on international career potential, record their use of time for one week. Two brief interview sessions preceded the week of diary keeping in which participants were asked to rate effort and enjoyment, and answered questions about practice and concentration. The elite violinists were also asked to record the previous day's activities and learned how to encode each activity on the report form in order to familiarize them with the following week-long task.

Violinists returned for a third and final interview session after one week of encoding their use of time and deliberate practice. The groups differed as they were categorized as the best violinists (international career), good violinists, and music teachers. Remarkable similarities were found between the groups. For example, they had all begun practicing the violin at a mean age of 7.9 years, and decided to become musicians at a mean age of 14.9 years. All groups, in other words, had similar developmental backgrounds and by age 23 all thirty violinists had accumulated a minimum of ten years of practice (Ericsson et al., 1993).

Ericsson and colleagues (1993) discovered that the two best groups of violinists, during the diary week, both averaged 24.3 hours of practice, which was considerably more than the music teacher's 9.3 hours per week. Retrospective estimates of developmental practice hours from the various levels of violinists revealed significant differences as well. The group of ten best violinists had accumulated an average of 7,410 hours of practice by age

18, whereas the good violinists had averaged 5,301 hours and the music teachers 3,420 hours. The statistical difference in hours of practice corresponded with the skill level attained by early adulthood (Ericsson et al., 1993).

**Flow.** Within the last three decades, prominent researchers have developed the concept of flow states within athletics as it emerged from the study of peak experience and performance (Csikszentmihalyi, 1990; Jackson, 1992). As mentioned previously, Jackson and Roberts (1992) discovered strong support for the psychological process of flow underlying peak performance in elite athletes. Originally, the concept and description of flow emerged from the work by Csikszentmihalyi (1990) as he studied the elements of enjoyment of many individuals from various cultures around the world. One of the fundamental conclusions of his collective work was that regardless of the culture or endeavor, nine themes would consistently emerge as the underlying mechanisms for the flow experience: a challenging activity that requires skills; the merging of action and awareness; clear goals and feedback; concentration on the task at hand; the paradox of control; the loss of self-consciousness; the transformation of time, and the autotelic experience (Csikszentmihalyi, 1990).

Jackson (1992) had the opportunity to qualitatively explore the dynamics of flow state and peak performance in a population of 16 national champion figure skaters, some of whom received additional medals at world championships and Olympic Games. Skaters were asked to give a rich description of their best or most satisfying performance and were questioned about their perceptions of flow and if it related to their best performance. The athletes were also given a flow questionnaire that was modified from the original version developed by the

same author. Through content analysis, Jackson extrapolated vivid descriptions of what it was like for the skaters as they experienced flow during their best performances.

The elite skaters described flow as a performance including clarity, awareness, perceived control, an effortless mind, mind-body unison, enjoyment of the activity, and a balance between challenge and skills. The highest ratings obtained from the flow questionnaire were for that of challenge and skill level coinciding (Jackson, 1992). Participants further generated factors they believed were critical to getting into flow. Eleven of the 16 skaters identified confidence, positive thinking, and high motivation to do well as crucial elements; nine respondents of the group identified being relaxed, controlling anxiety, and enjoying what one was doing (Jackson, 1992). Maintained focus was illustrated by seven of the skaters and included keeping a narrow focus, staying in the present, focusing before the performance, and focusing on key points in the program.

Jackson (1992) questioned the athletes on whether or not they believed flow was controllable and what were the most important aspects of controlling it. Nearly half the group believed it was within their control, and four skaters believed it was partially controllable. Being well-trained, maintaining appropriate focus, channeling energy/staying relaxed, confidence and positive thinking, enjoyment, and surrender (not trying to control it) were the characteristics mentioned by those who believed it was to some degree controllable (Jackson, 1992). Eighty-one percent of all skaters said the experience of flow was rare, and they saw it as a unique occasion when everything came together at an important competition (Jackson, 1992).

For this reason, flow has mostly been studied in elite athletic populations, as Jackson (1996) noted that the likelihood of awareness of performance states (e.g. flow) would best be

comprehended and experienced at a high-skill level. To expand her previous findings, Jackson considered the logical next step of comparing athletes from various sports in order to detect any differences in the experience of flow (Jackson, 1996). She addressed this idea by interviewing 28 international-level competitors from Australia and New Zealand who competed in seven different sports.

Through content analysis, using both inductive and deductive procedures to analyze raw data, triangulation, peer debriefing, and audit checking, Jackson (1996) thoroughly explored the concept of flow and presented trustworthy results and discussion of the interviews. Specifically, she presented the generated dimensions as interpreted through the model of flow presented by Csikszentmihalyi (1990). Csikszentmihalyi spent a dozen years collecting and analyzing in-depth interviews and questionnaires from a plethora of populations before determining the elements that make an experience purely enjoyable, as the state of flow has been described. Nine elements have been presented from the work of Csikszentmihalyi and further support has been offered to corroborate the findings by Jackson. These findings are also in support of the later collective writings of Jackson and Csikszentmihalyi (1999).

The first dimension of flow has the requirement that challenge and skill are balanced (Csikszentmihalyi, 1990; Jackson, 1996; Jackson & Csikszentmihalyi, 1999). Thirty-six percent of athletes interviewed by Jackson (1996) mentioned raw data themes falling under this category, and included responses such as challenging but able to meet the challenge. Csikszentmihalyi (1990) broadened the meaning of this dimension by explaining that enjoyment happened at a specific point just in between a person's boredom and anxiety,

where the challenge of the situation has been equally matched to the capabilities of the participant.

The merging of action and awareness has been categorized as the second dimension of flow (Csikszentmihalyi, 1990; Jackson, 1996; Jackson & Csikszentmihalyi, 1999). This dimension has been explained as the total absorption in an activity as it has required the participant to engage all skills in order to remain focused on the task at hand and meet the challenge. The merging of action and awareness dimension received the second highest response rate by athletes, and included descriptions of: everything flows, things happening automatically, nothing else enters awareness, and felt easy (Jackson, 1996).

The third and fourth dimensions of flow contain clear goals and feedback (Csikszentmihalyi, 1990; Jackson, 1996; Jackson & Csikszentmihalyi, 1999). A performer in flow knew ahead of time what he or she intended to do in competition and also knew ahead of time and during performance that he or she was succeeding in that goal. Thirty-nine percent of athletes reported to Jackson (1996) that they had established clear goals prior to a flow performance and 54 percent of athletes experienced unambiguous feedback during the performance. The descriptions of feedback were expressed by knowing everything went perfectly or was in harmony during their performance (Jackson, 1996).

Complete focus and maintained concentration throughout the performance were deemed critical components of flow experiences by athletes (Jackson, 1996) and created the fifth dimension of flow (Csikszentmihalyi, 1990; Jackson & Csikszentmihalyi, 1999). Eighty-two percent responded within this dimension and described the flow experience as one in which their concentration was always on the task at hand, and could only recall that they thought of nothing else. Although athletes reported an awareness of the environment,

concentration on the task at hand left no room for irrelevant thoughts (Csikszentmihalyi, 1990; Jackson, 1996; Jackson & Csikszentmihalyi, 1999).

The sixth dimension of flow has been termed the paradox of control (Csikszentmihalyi, 1990; Jackson, 1996; Jackson & Csikszentmihalyi, 1999). By not trying to control their performances, 82 percent of athletes interviewed by Jackson (1996) believed they were in fact in control of the performance due to confidence, calmness, and feeling as if nothing could go wrong. Composure and a state of relaxation accompanied many of the athletes' descriptions of flow. Csikszentmihalyi (1990) speculated that it was the sense of exercising control in challenging circumstances which may have explained the enjoyment of this element.

Dimension seven included the loss of self-consciousness as there is no room in the flow experience for self-inspection (Csikszentmihalyi, 1990; Jackson & Csikszentmihalyi, 1999). Rather, athletes reported feeling in complete unison with the environment and that all elements within the performance worked together as one piece of flawless machinery (Jackson, 1996). Thirty-two percent of athletes gave descriptions which comprised the dimension of flow.

Losing sight of the concept of self was not the only dimension of flow that athletes experienced. The transformation of time also occurred for 29 percent of athletes (Jackson, 1996). The dimension of time would sometimes accelerate or decelerate, depending on the athlete questioned, but Csikszentmihalyi (1990) noted that time rarely was felt to have lapsed as in normal activities. The phenomenon of time disorientation was commonly mentioned by participants in the studies of Csikszentmihalyi as the eighth critical component of the flow state (Jackson & Csikszentmihalyi, 1999).

The end result of flow and the ninth dimension has been referred to as the autotelic experience (Csikszentmihalyi, 1990; Jackson, 1996; Jackson & Csikszentmihalyi, 1999). In other words, the intrinsic reward of the experience is the state of flow produced by the performance, and provided the enjoyment of the activity. The autotelic experience of flow was the dimension that captured most respondent's support at 96 percent, and represented 25 percent of all themes generated by the interviews of Jackson (1996). Performing for the sake of loving their sport and experiencing flow was deemed highly relevant to these elite athletes.

Flow has been extremely difficult to study and measure as the researcher does not want to interrupt the occurrence since it is a special and sacred occasion in an athlete's performance when he or she is focused to the point of total immersion in the activity (Jackson, 1992; Jackson & Roberts, 1992). Therefore, it has mostly been through recall of the experience that researchers have gathered, analyzed, and compared information from the athlete on their state of flow. Jackson, Thomas, Marsh, and Smethurst (2001) were able to collect data immediately following competition by a number of elite athletes from the sports of road cycling, surf lifesaving, and orienteering.

Prior to competition, the 208 athletes completed a demographic questionnaire, Dispositional Flow Scale, Elite Athlete Self-Description Questionnaire, and the TOPS. Post-competition evaluation included the Flow State Scale (FSS), performance-related questions, and finishing position data (Jackson et al., 2001). Regression analyses revealed that dispositional flow was predicted by positive self-concept combined with keeping an appropriate level of energy and relaxation, and maintaining control of thoughts and emotions. A similar result was found for predicting state flow, although the relationship was weaker. Self-reported performance ratings were also predicted by flow state, as demonstrated by the

significance of the regression equation obtained by the FSS dimensions autotelic experience and challenge-skill balance. FSS scores regarding clear goals, challenge-skill balance, and action-awareness merging were significant as well in predicting finishing positions among these athletes (Jackson et al., 2001).

### **Mental Toughness**

One explanation for the differences in mental skills between elite and non-elite athletes, that has gained increasing support in the last decade, has been termed mental toughness (Jones et al., 2002). In order to ensure that the concept of mental toughness was fully explored, Jones et al. (2002) constructed a qualitative study to examine what highly successful athletes believed were the psychological components to their international performances in the sports of swimming, sprinting, artistic and rhythmic gymnastics, trampolining, middle-distance running, triathlon, golf, rugby union, and netball. Those 10 elite competitors identified and ranked key components of mental toughness and cultivated the following definition:

Mental toughness is having the natural or developed psychological edge that enables you to generally cope better than your opponents with the many demands (competition, training, and lifestyle) that sport places on a performer and, specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure (Jones et al., 2002, p. 209).

In addition to this definition, twelve distinct attributes pertaining to each athlete's explanation of mental toughness were identified by Jones et al. (2002). These attributes included, in order of importance as ranked by the athletes: having an unshakeable self-belief in one's ability to achieve competition goals; bouncing back from performance set-backs as a



result of increased determination to succeed; having an unshakeable self-belief that one possesses unique qualities and abilities that make one better than one's opponents; having an insatiable desire and internalized motives to succeed; remaining fully focused on the task at hand in the face of competition-specific distractions; regaining psychological control following unexpected uncontrollable events; pushing back the boundaries of physical and emotional pain while still maintaining technique and effort under distress in training and competition; accepting that competition anxiety is inevitable and knowing that one can cope with it; not being adversely affected by others' good and bad performances; thriving on the pressure of competition; remaining fully focused in the face of personal life distractions, and switching a sport focus on and off as required (Jones et al., 2002).

Jones and his colleagues (2002) pointed out that the athletes stressed the importance of mental toughness attributes in all aspects of their lives, not just in athletics. As part of their methodology, Jones et al. instructed the participants to consider training and lifestyle demands in addition to competition as they evaluated the meaning of mental toughness. In accordance with that, the athletes considered the entire balancing act of what was entailed for each of them to reach and maintain performance success. As Jones et al. stated, mental toughness has to do with knowing what the priority is at any given moment and remaining focused on that. The advantage mental toughness provided these successful athletes during competition enabled them to have superior performances (Jones et al., 2002).

In a follow-up study Jones, Hanton, and Connaughton (2007) further supported their original definition of mental toughness by validating their original research with another focus group comprised of world and Olympic champions, coaches, and sport psychology professionals. Despite the use of a new population of elite athletes, Jones and colleagues

found remarkably similar descriptions of mental toughness and psychological skills used between the two studies. In the more recent study, the focus group agreed with the definition proposed in the Jones et al. (2002) original study, and generated 30 attributes for a mental toughness framework comprised of attitude/mindset, training, competition, and post-competition dimensions. Through qualitative interviews, Jones et al. (2007) explored the mental skills elite athletes used in obtaining their achievements, and proposed a framework which clustered these 30 distinct attributes into four dimensions.

The four dimensions of the mental toughness framework were attitude/mindset, training, competition, and post-competition (Jones et al., 2007). Belief and focus were at the core of attitude and mindset. Using long-term goals as the source of motivation, controlling the environment, and pushing oneself to the limit comprised the training dimension. Competition was supported by belief, staying focused, regulating performance, handling pressure, awareness and control of thoughts and feelings, and controlling the environment. Finally, the post-competition dimension relied on handling failure and success (Jones et al., 2007). Once the researchers developed the framework, it was validated by the athletes themselves for accuracy and support.

Jones and colleagues (2007) pointed out that athletes speculated mental toughness might either be natural or developed, and that it could have fluctuated throughout their careers. The researchers have highlighted that more exploration on mental toughness is needed and encouraged future researchers to investigate the means by which athletes have developed these characteristics, and under which conditions mental toughness may have fluctuated. It has been suggested that the relevance and importance of validating a mental toughness definition and framework has potential to prompt investigators to seek

development of a much needed instrument of sound reliability and validity for a specific measurement of mental toughness (Jones et al., 2007).

Connaughton, Wadey, Hanton, and Jones (2008b) also recommended such an instrument be developed to investigate how mental toughness develops in elite athletes. Connaughton et al. re-interviewed seven of the ten internationally competitive athletes from the study conducted in 2002 by Jones et al. with the specific purpose of gaining a perspective on how these athletes acquired their mental toughness attributes.

The semi-structured interviews were based on four subthemes of early, middle, and later years of development along with the maintenance of mental toughness (Connaughton et al., 2008b). They analyzed the raw data into the various years of development based upon the twelve attributes of mental toughness originally described by the same athletes in the 2002 study by Jones and colleagues. Trustworthiness of the analysis was carefully considered by having all athletes check their manuscripts for wording; the athletes concurred with the representations reported by Connaughton et al. (2008b).

Results from the early years included the foundations of developing three mental toughness attributes: having an unshakeable self-belief in one's ability to achieve competition goals; having an unshakeable self-belief that one possesses unique qualities and abilities that make one better than opponents; and having an insatiable desire and internalized motives to succeed (Connaughton et al., 2008b; Jones et al., 2002). Athletes attributed much of these early developments to observing and learning from superior athletes who radiated confidence, and to exposure of coaches who nurtured the performance-related goals of these athletes. The coaches also provided an appropriate amount of encouragement, which was

emphasized at home by family members as well, and was not interpreted by the athletes to have been overbearing in nature (Connaughton et al., 2008b).

Athletes were aware of an element of mastery when related to their peers, which led them to believe in their unique talent and ability in sport (Connaughton et al., 2008b). The early success they had, along with enjoyment and intrinsic motivation to work and train harder for subsequent success was thought to be foundational in the elementary years of development. Athletes validated the role their parents had in this developmental phase by stating they felt their parents encouraged them to enjoy their participation in competition, rather than emphasize winning (Connaughton et al., 2008b).

The middle years appeared to have cultivated the majority of mental toughness attributes (Connaughton et al., 2008b). The athletes' reports supported the previous three that were identified, and an added five additional attributes of the twelve defined originally by Jones et al. (2002). Therefore, as each athlete progressed through the phases, he or she developed attributes that built on one another and were further developed in addition to new ones being learned. New attributes of mental toughness developed in the middle years were: bouncing back from performance set-backs as a result of increased determination to succeed; pushing back the boundaries of physical and emotional pain while still maintaining technique and effort under distress in training and competition; accepting that competition anxiety is inevitable and knowing that one can cope with it; thriving on the pressure of competition; and regaining psychological control following unexpected uncontrollable events (Connaughton et al., 2008b; Jones et al., 2002).

Two new underlying mechanisms for an attribute first learned in the early years were discovered during the middle years. Regarding the insatiable desire and internalized motives

to succeed, athletes attributed competing with challenging opponents and sibling rivalries as crucial for further development of this aspect of mental toughness. They felt these two added elements specifically cultivated the development of an ability to bounce back from performance set-backs (Connaughton et al., 2008b). In turn, the support they received from coaches, family, and superior athletes, along with continued enjoyment, helped them push through the physical and psychological pain associated with training and competition. One athlete emphasized this aspect by stating that he or she actually thrived on it.

During the middle years, athletes attributed much of their mental toughness development to the support they received from social networks (e.g. coaches and family) in rationalizing their thoughts and feelings (Connaughton et al., 2008b). Without that support they realized they may not have coped as well with the anxiety and pressure of competition. Similarly, athletes recognized the crucial role these support personnel had after unexpected, uncontrollable events. The received social support by coaches and family helped the athletes' process their thoughts and feelings, and most importantly they learned how to respond appropriately and regain focus during competition (Connaughton et al., 2008b).

In the later years, athletes continued to develop the already established mental toughness attributes. Self-belief was further cultivated during this phase through the increased use of reflection on past performance, increased competition, and mental preparation including goal-setting, imagery, and self-talk (Connaughton et al., 2008b). The ability to perform effectively while pushing back the boundaries of physical and emotional pain was further developed in the later years by introduced simulation training and was perceived as vital to the athletes for development of mental toughness.

The later years further fostered their development of mental toughness as support networks continued to provide assistance to the athletes' interpretations of thoughts and feelings regarding anxiety and pressure. More specifically though, athletes believed their coping responses to internal anxiety and the ability to thrive on the external pressure were a direct result of increased competition and heightened physical training and mental preparation (Connaughton et al., 2008b). Athletes learned that in order to be successful, they would have to respond in this manner to competition demands.

Added dimensions of mental toughness during the later years were the following: switching a sport focus on and off as required; remaining fully focused on the task at hand in the face of competition-specific distractions; not being adversely affected by others' good and bad performances, and remaining fully focused in the face of personal life distractions (Connaughton et al., 2008b; Jones et al., 2002). Athletes reported they developed the additional mental toughness attributes through the use of imagery, pre-competition routines, and establishing process goals. Family and related support networks were also credited with helping athletes to switch a sport focus off, and were often relied on for outside influence to relax between events (Connaughton et al., 2008b).

As for maintenance of mental toughness, the athletes deemed three distinct underlying mechanisms as required throughout the years. Having the insatiable desire and internalized motives to succeed was essential, and only developed more over the years with each phase (Connaughton et al., 2008b). The construction and strength of social support networks throughout their careers was also paramount to their development of mental toughness. The size of the social support network was not critical; it was more important to athletes that the individuals in their support networks be trustworthy and dependable

(Connaughton et al., 2008b). Finally, athletes believed that time, patience, and effort to master psychological skills were essential in order for them to maintain mental toughness. It was emphasized that by practicing psychological skills consistently, mental toughness was maintained, and resulted in effective performances (Connaughton et al., 2008b).

Gucciardi, Gordon, and Dimmock (2009a, 2009b) designed a two part study to investigate the usefulness of providing mental skills training to youth-aged male Australian football players. In the first study, Gucciardi et al. (2009a) divided the group of players through random assignment into three groups for the purpose of having a control, a psychological skills training (PST) group, and a third group that received mental toughness training (MTT). The control group received no psychological skills training of any kind, and the other two groups received two hours per week (for six weeks prior to competition) of either PST or MTT.

Prior to the beginning of the experiment, all participants within the two experimental groups, completed the following measurements: the Australian football Mental Toughness Inventory (AfMTI), the Dispositional Resilience Scale (DRS), and the Dispositional Flow Scale – 2 (DFS-2). The same inventories were used at the completion of the competition season in order to measure the effectiveness of the PST and MTT interventions (Gucciardi et al., 2009a). One parent of each player and the coaching staff also completed the AfMTI at the start and end of the season for an analysis of the interventions.

In general, the PST program included sessions related to self-regulation, arousal regulation, attentional control, self-efficacy, mental rehearsal, and ideal performance state. The MTT program included the components of personal and team values, work ethic, tough

attitude, self-motivation, self-belief, concentration and focus, resilience, emotional intelligence, sport intelligence, and physical toughness (Gucciardi et al., 2009a).

Results from the various MANCOVA analyses demonstrated significant differences between the three groups with regard to the inventories used to measure the programs' effectiveness for the young athletes (Gucciardi et al., 2009a). Significantly different scores were found in the PST and MTT groups than the control group for the ability to thrive through challenges and tough attitude (AfMTI). Results from the DRS revealed that both the PST and MTT groups had greater positive change than the control group on the control and challenge subscales. Commitment was also enhanced in the MTT group, and results were significantly greater than those in the PST group which were also significantly greater than the control group. The PST and MTT groups were discovered to have made significantly greater improvements in concentration (DFS-2) than the control group, but the control subscale of the DFS - 2 revealed a significantly higher change in the PST group than the MTT and control groups, with the MTT group being statistically higher than the control group on that particular measurement (Gucciardi et al., 2009a).

The parent and coach data collected and analyzed from the AfMTI revealed a significant improvement on the thrive through challenge subscale for the PST and MTT groups, but not in the control group. Only the MTT group of parents noticed significantly improved sport awareness in their children. Both PST and MTT parental groups saw significant positive changes in tough attitude when compared to the control group, whereas coaches revealed this same positive change in tough attitude only in the MTT group (Gucciardi et al., 2009a). Overall, Gucciardi and his colleagues (2009a) concluded that both



the psychological skills training and mental toughness training programs did not yield significantly different outcomes, and the control group remained relatively stable.

To follow-up with the athletes, parents, and coaches involved in the MTT program (Gucciardi et al., 2009a), Gucciardi and colleagues (2009b) conducted a qualitative exploration with the purpose of investigating the value of mental toughness training. Program benefits mentioned by participants included: quality preparation that reduced anxiety and facilitated clear goal-setting and focus; team cohesion; receptiveness to criticism and willingness to use feedback; developed work ethic and realization of the importance of character; responsibility and accountability; tough attitudes for achieving goals, and the ability to transfer mental skills to all areas of life (Gucciardi et al., 2009b).

Another study that involved coaches' understanding of mental toughness was conducted by Fourie and Potgieter (2001) and sampled 131 expert coaches and 231 elite athletes as designated by national sport bodies. Coaches and athletes were asked to list the characteristics of a mentally tough performer and then ranked the top three attributes they felt determined mental toughness.

Through inductive content analysis, Fourie and Potgieter (2001) determined twelve higher order themes which included: motivational level (perseverance, determination, desire, responsibility, and commitment); coping skills (composure, acceptance, activation control, and adaptability); confidence maintenance (competence, self-confidence, and attitude); cognitive skill (concentrate, focus, think, make decisions, and analyze); discipline and goal-directedness (discipline, goal-orientation, and idealism); competitiveness (appear as a winner, consistent performance, high competitive level, and temperament); possession of prerequisite physical and mental requirements (displays conditioning, cope with pain, and self-sacrifice);

team unity (respect, cohesion, and relationship skills); preparation skills (balance and visualization); psychological hardiness (strong personality, emotional well-being, and autonomy); religious convictions (religious beliefs), and ethics (sense of righteousness).

A frequency distribution revealed that motivation level was individually mentioned most often by all participants (24.58%) and by the entire group as well, with 20.86 percent of coaches and 28.05 percent of athletes listing motivation (Fourie & Potgieter, 2001). When mental toughness attributes were ranked by coaches, 25 percent believed concentration was most important, whereas only 13 percent of athletes supported this. When mental toughness attributes were ranked by athletes, 27 percent believed perseverance was most crucial, and 22 percent of coaches agreed. As a result of combined frequency, perseverance was ranked highest between coaches and athletes (25%) on the list of mental toughness characteristics (Fourie & Potgieter, 2001).

In order to understand mental toughness within a specific sport, Bull, Shambrook, James, and Brooks (2005) interviewed 12 of the 15 most mentally tough cricketers of the 1980s and 1990s, as voted by 101 English cricket coaches. Each elite cricketer was interviewed by the researchers; transcripts were recorded verbatim, and independently analyzed by two members of the research team for raw data and emerging themes. A focus group, consisting of the research team and an independent but internationally-recognized qualitative expert and former cricketer, then determined the final ten categories and emerging themes that would represent the data (Bull et al., 2005).

General dimensions of mental toughness in the elite English cricketers included developmental factors, personal responsibility, dedication and commitment, belief, and coping with pressure (Bull et al., 2005). Global themes provided support for the general

dimensions. For example, all athletes believed that one or more of their parents were influential in their mental toughness; therefore, the global theme of parental influence supported developmental factors as a general dimension. Finally, the researchers developed structural categories which constructed a visual pyramid of mental toughness for better understanding and educational purposes (Bull et al., 2005).

The cricketers highlighted several key components of mental toughness. Among themes related to their dedication and commitment, athletes valued the many unsuccessful performances they had in the formative years as they learned from these character-building experiences and looked to learn from the failures rather than dwell on them (Bull et al., 2005). The athletes had a strong desire to be the best, and approached their sport with resilient confidence by valuing quality preparation and believing they could be the difference-maker in pressure-filled competition.

Thelwell, Weston, and Greenless (2005) explored mental toughness as defined by elite male soccer players, and found strong support of the aforementioned attributes. The first part of their study relied on six professional soccer players who generated a definition of mental toughness that resembled that from the work of Jones et al. (2002). After the athletes created their definition of mental toughness, the definition generated by Jones et al. was introduced to them and they were given the opportunity to revise their definition if they so desired. They agreed on the final definition, which was already highly similar to Jones et al. as:

Mental toughness is having the natural or developed psychological edge that enables you to: always cope better than your opponents with the many demands (competition, training, lifestyle) that soccer places on the performer. Specifically, be more

consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure (Thelwell et al., 2005, p. 328).

Furthermore, the semi-structured interviews obtained by Thelwell et al. (2005) revealed that the soccer players generated ten mental toughness attributes that were deemed important to their specific sport. Those attributes included: having total self-belief at all times that one will achieve success; wanting the ball/wanting to be involved at all times; having the ability to react to situations positively; having the ability to hang on and be calm under pressure; knowing what it takes to grind oneself out of trouble; having the ability to ignore distractions and remain focused; controlling emotions throughout performance; having a presence that affects opponents; having everything outside of the game in control, and enjoying the pressure associated with performance (Thelwell et al., 2005).

Many similarities in the mental attributes, deemed critical in soccer, specifically leaned support to the attributes generated from several sports (Jones et al., 2002; Thelwell et al., 2005). Aware that their results needed further support from a larger population, Thelwell et al. (2005) extended the research to a population of 43 additional professional soccer players. The purpose of the second phase of their research was to confirm the definition generated in the first phase, and provide a rank order of the ten mental attributes of the mentally tough soccer player.

The larger population of 43 professional athletes supported the above definition of mental toughness generated by the six professional soccer players (Thelwell et al., 2005). Thelwell and colleagues (2005) presented a scale to the 43 athletes in which 1 represented total agreement and 10 represented total disagreement with the definition. The collective mean for the group was 2.2, thus indicating strong agreement (Thelwell et al., 2005).

Athletes also agreed with the generated list of mental toughness attributes, and supported the number one ranked attribute: having total self-belief at all times that you will achieve success.

### **Characteristics of Mental Toughness**

**Confidence.** As Jones et al. (2002) identified through mental toughness exploration with elite athletes, an unshakeable self-belief is essential to peak performance (Jones et al., 2007). Both self-belief in ability to achieve established goals, and belief that those abilities are unique and better than the opponents, emerged as components of confidence. Athletes stated that they had their own method of training, believed they were better than everyone else at that activity, and attributed earned success to those beliefs (Jones et al., 2002).

For over twenty years, prior to developing the wheel of excellence, Terry Orlick (1996) had spent countless hours consulting with and interviewing elite athletes in a variety of pursuits, during all stages of their careers. From his extensive collection of data and experience working with elite performers, Orlick designed the wheel of excellence, a carefully balanced description of the mental make-up of top performers. Residing at the very center of this construct were belief and commitment.

Orlick (1996) further explained belief as the heart of excellence; belief in potential and goals, and belief in the capacity to create opportunities and push through performance barriers were seen as fundamental. Through plentiful observations and consultation, Orlick has recognized that athletes become confident when they have invested time and effort in quality preparation, experienced success in performances and simulation training, focused on the positive elements from performances, and consistently sought to learn from the mistakes with intention to improve.

Specifically, Orlick (1996) has discovered that athletes who have refined mental skills also have higher quality of preparation for performances. That preparation led to consistent peak performance in competitions. The mental skills that created the remainder of the wheel of excellence were: full focus, positive images, mental readiness, distraction control, and constructive evaluation. All of these skills can be thought of as the characteristics and developed methods which fostered belief and commitment in elite athletes. Belief itself was viewed as a two-way phenomenon in that it possessed the potential to catapult athletes to higher levels of excellence, and higher levels of excellence promoted self-belief (Orlick, 1996).

Prior to developing the wheel of excellence, Orlick partnered with Partington (1988) in a large scale study of 235 Canadian Olympians from the 1984 Olympic Games. The first part of the study was qualitative in nature and consisted of 75 individual interviews; part two was a quantitative measurement of the remaining 160 Olympians and included a questionnaire derived from the results of the interviews in part one (Orlick & Partington, 1988). The purpose of the entire study was to understand mental readiness and mental control.

The results represented by Orlick and Partington (1988) for the qualitative section included responses from 12 of the 75 interviews, as decided upon independently by the researchers. These twelve interviews were deemed to be the highest quality transcripts after verbatim analysis was conducted, and made up a population of gold and silver medalists and/or world champions. Certain elements of mental readiness and control were consistently found in the descriptions provided by the athletes who represented several different sports (Orlick & Partington, 1988).

In general, all the athletes were incredibly committed to their sport and had clear goals established for how they would reach success (Orlick & Partington, 1988). They would mentally prepare through quality training and visualized regularly what they wanted to have happen; they fully focused on their daily goals. Specifically they treated practices as though it was the actual competition by simulating performance training. The Olympians had pre-competition routines, procedures followed for evaluating performance, and established plans for controlling distractions and focus.

Orlick and Partington (1988) noted that the elite athletes had to learn and develop all of these elements of success. Athletes themselves felt they could have reached success earlier in their careers if they had spent time developing the mental skills sooner, and recognized the vital role their coaches played in helping them figure out problems and devise strategies for approaching competition. From the rich descriptions of mental readiness described by Canadian champions, Orlick and Partington composed a questionnaire assessing the elements of success and received complete data from 160 Canadian Olympians other than the 12 interviewed originally.

All correlations were based on the mental readiness techniques used and 1984 Olympic Games performance outcomes (Orlick & Partington, 1988). For males only, mental readiness partially depended on help they received from others. Specifically, comments said to the athlete by their coach that revealed the belief they had in their athlete significantly predicted Olympic outcome. An extremely high percentage (99%) of athletes surveyed used mental imagery as a preparation strategy and on average at least one time per day, although several athletes reported using imagery for the last few hours leading up to competition (Orlick & Partington, 1988).

Only male athletes had correlations of imagery quality and control with performance outcomes, yet both male and female Olympians had significant correlations between focus and Olympic outcome (Orlick & Partington, 1988). For male athletes the only predictor of focus and outcome was their focus assessed just prior to competition, whereas for females it mattered how they focused during performance. Both male and female Olympians had their most effective focus when they: focused on the immediate task, performed with high intensity and appropriate levels of arousal, and competed with clear and present awareness of adhering to the plan while avoiding distraction. They further revealed their best focus to be when also feeling confident, determined, in control, and with positive self-talk. Athletes expanded on this by relating that they had no doubts in their abilities and believed they were undefeatable; no one could stop them (Orlick & Partington, 1988).

Successful athletes have approached competitions confidently, trusted in their method of preparation, and believed ahead of time they would be successful (Orlick & Partington, 1988). In a large study of nationally ranked elite athletes, pre-elite junior national competitors, and non-elite major university athletes, researchers employed use of the newly developed Psychological Skills Inventory for Sports (PSIS) (Mahoney, Gabriel, & Perkins, 1987). Mahoney and his colleagues were interested in determining the fundamental psychological skills that differentiated elite from non-elite athletes. After running omnibus, individual item, discriminant, regression, factor, and cluster analyses on the PSIS data collected from 713 athletes in 23 sports, six themes of anxiety management, mental preparation, team orientation, concentration, confidence, and motivation were suggested to be the difference between the three groups of athletes (Mahoney et al., 1987).



Specifically, elite athletes reported less anxiety, were better able to concentrate, had more confidence, relied more on mental preparation, were more focused on their own performance than the team's performance, and had higher motivation to do well in their sport (Mahoney et al., 1987). Overall, gender differences were also significantly different between the athletes. Female athletes reported significantly lower levels of self-confidence than their male counterparts. Females also reported using more self-talk during performances and had higher anxiety and tension than the male athletes. Interestingly though, when Mahoney et al. (1987) ran a separate analysis to compare the elite male and female athletes only, the gender differences were not apparent.

Confident athletes have made a choice to invest in quality training, believed they can and will succeed, and committed to doing so (Bull et al., 2005). The most successful athletes prepared extensively for training and competition, and that preparation gave them confidence in their ability. This was evident in the preparation strategies of the entire Italian modern pentathlon national team studied by Bertollo et al. (2009).

Bertollo et al. (2009) interviewed all 14 men and women of the Italian team as they were preparing for the 2004 Olympic Games, and determined the following results from hierarchical content analysis. Twelve members of the team emphasized the importance of perseverance, consistency, and commitment in their training attitude, and elaborated on this by stating that quality simulation training would pay off in competition performance. Many of the pentathletes trained mentally through visualization, recalling past successful performances, and self-talk. Emotional anticipation and rehearsal was also deemed critical for some. Commonly reported purposes of using these skills in preparation of competition were for the enhancement of motivation, confidence, and assertiveness (Bertollo et al., 2009).

**Achievement motivation.** Having an insatiable desire and internalized motives to succeed was how successful athletes described their achievement motivation as it related to mental toughness (Jones et al., 2002). As baseball's great Hank Aaron explained (Hanson, 1992), his initial motivation to excel in the sport was derived from a pure love for the game of baseball. This love for his sport enabled him to maintain his intrinsic motivation over a 23 year career (Hanson, 1992).

The athletes in the 2002 Jones et al. study ranked their desire for success as highly critical in their mental toughness. Specifically to have bounced back from a performance-related set-back as a result of increased determination to succeed was deemed crucial, and ranked second only to self-belief in that population of elite athletes. Olympic and world champions expanded on this notion by revealing that they often reminded themselves of their goals and aspirations and the reasons why they were putting themselves through tough training, and furthermore, used failures to drive them to be more successful (Jones et al., 2007).

***Passion for sport.*** For an athlete, passion comes from a strong desire to be involved in the sport they have loved; to continually find joy and meaning in an activity they have devoted countless time and energy toward (Orlick, 1996; Vallerand et al., 2006; Vernacchia et al., 2000). This passion became an intrinsic component of the athlete when he or she fell in love with the sport; passion became a part of their identity (Gould & Dieffenbach, 2002; Orlick, 1996; Vallerand et al., 2006).

Vallerand and colleagues (2006) wondered about passion and the athlete. Specifically, they were curious which psychological factors kept athletes dedicated to and passionate for their sport, even after years or decades of participation. Vallerand et al.

discovered the determinants of passion for sport by integrating several psychometric measurements that would ultimately reveal a significant correlation between sport valuation, personality orientation, and type of passion in 107 elite athletes. Using the Passion Scale to measure the type of passion for sport – harmonious or obsessive, the Global Motivation Scale for a measure of personality – autonomous or controlled orientation, and one statement of “my sport is important for me” to measure valuation, rated on a 7-point Likert scale (1 = do not agree at all, and 7 = very strong agreement).

Conclusively, Vallerand et al. (2006) discovered that the value an athlete gave to his or her sport facilitated the internalization process, and the orientation of the athlete’s personality determined the type of internalization that occurred. Even more specifically, a strong correlation was found with an autonomous personality orientation leading to harmonious passion, and conversely a controlled personality orientation revealed an obsessive passion. Vallerand et al. further concluded from their study of passion in sport that activity valuation and personality orientation may have been crucial determinants for the type of passion an athlete adopted.

*Harmonious and obsessive passion.* There are two types of passion for an activity or sport. The first type is harmonious, and means quite literally what it appears to mean. That is, harmonious passion is developed for sport when an athlete has autonomously internalized the meaningfulness of their sport with their identity (Vallerand et al., 2006). The two have become integrated, and the passion is in harmony with all aspects of the athlete’s life; there are no contingencies riding on whether or not the athlete participates (Vallerand et al., 2006). The athlete participates for the sheer joy or love of sport, and is free to choose whether or not he or she partakes and has little difficulty letting go of participation if need be.

On the other hand, obsessive passion has developed in some athletes as a result of internalizing their sport with their identity in a controlled orientation (Vallerand et al., 2006). The athlete has literally become obsessed with participation in his or her sport, and feels anxious or guilty if he or she does not participate. These feelings are the result of intra and interpersonal pressures the athlete has internalized; pressure to fit in socially and possibly issues with self-esteem (Vallerand et al., 2006). Unlike harmonious passion where the athlete has control over participation in the sport, obsessive passion has control over the athlete (Vallerand et al., 2006).

Interestingly, Vallerand et al. (2006) found a correlation between the occurrence of flow and harmonious passion, in that when they controlled for obsessive passion, harmonious passion was positively associated with positive affect and experiences such as flow. As a consequence of autonomously internalizing his or her sport and identity, the athlete freed themselves from worry and was able to concentrate completely on the task at hand and, thus, was more susceptible to flow occurring (Jackson et al., 2001; Vallerand et al., 2006). As mentioned previously, at least nine characteristics are needed for flow to occur, and several are accommodated through harmonious passion – complete immersion into the activity, focused fully on the task at hand, feeling in-control, and enjoyment of the activity (Csikszentmihalyi, 1990; Jackson, 1992; Vallerand et al., 2006).

Vallerand et al. (2008) further explored passion and the athlete in their hypothesis that passion represented a major motivational source which in turn led to deliberate practice and was linked to performance. The Passion Scale was administered to 184 high school basketball players to determine the type of passion they had adopted in their sport. Deliberate practice was assessed through the use of an instrument developed to gauge the amount of time

spent away from practice that these basketball players engaged in practicing offensive skills. Finally, coaches of these athletes were asked to assess the athlete's performance on offense during the first game of a tournament (Vallerand et al., 2008).

As suspected, the hypothesized relationships existed at a significant level ( $P < .05$ ). Both harmonious and obsessive passion positively predicted deliberate practice, and deliberate practice positively predicted performance ratings by the coach (Vallerand et al., 2008). Despite the differences between harmonious and obsessive passion, it appeared that passion in general was a strong motivator for these athletes, and resulted in more effective performances as rated by their coach.

**Coping with adversity.** Adversity has a broad and diverse meaning, and reflects the scope of hardships athletes must overcome during training and competition. Some examples of adversity include: personal relationship conflict, illness and injury, legal issues, performing after a fall or mistake, training and performance plateaus, losing, financial difficulty, racism, and/or death of a loved one (Bertollo et al., 2009; Hanson, 1992; Vernacchia et al., 2000; Waples, 2003). It is safe to assume that every athlete, at some point has faced adversity. The distinguishing factor was in how the adversity was handled. In other words, the athlete who responded to or coped with adversity best was likely most successful (Gould & Dieffenbach, 2002; Vernacchia et al., 2000; Waples, 2003).

More often than not, athletes had little or no control over the circumstances that presented adverse effects. What athletes have had control over however, were their actions and reactions during the adverse situations (Connaughton et al., 2008b; Gould & Dieffenbach, 2002). The female gymnasts at the 2000 Olympic Games in Sydney, Australia

proved this point when a natural experiment took place on the vault apparatus during the all-around final event (Grandjean, Taylor, & Weiner, 2002).

The vault was set five centimeters lower than regulation height, and the error was not discovered or corrected until after half of the 36 gymnasts had already vaulted. The first 18 elite gymnasts became the experimental group and the remaining 18 athletes the control in the Grandjean et al. (2002) study. Despite hypothesizing that the experimental group might have suffered from self-doubt after their first attempt at the vault, no such effect was statistically apparent when the scores of the five gymnasts who opted to re-vault were compared to their pre-treatment scores. In fact, the five gymnasts, who chose to re-vault after the height was adjusted to regulation standards, scored an average of seven percent higher than their pre-treatment score (Grandjean et al., 2002).

What conclusion can be made from the natural manipulation of confidence, concentration, and competitive performance of these elite female gymnasts? Grandjean et al. (2002) concluded that the results showed no substantial evidence that the error on the vault negatively impacted subsequent performance, and thus did not have a carryover effect as expected. Grandjean et al. speculated two reasons for this conclusion; the first of which was that elite gymnasts were of world-class caliber and were, therefore, experienced in blocking out distractions, self-doubt and set-backs (Gould & Dieffenbach, 2002). The second explanation Grandjean et al. proposed was related to the type of sport in which the closed-skill athletes were competing. Due to the nature of closed-skill sports, athletes are encouraged to have mental routines specifically for the purpose of maintaining concentration (Vernacchia et al., 2000). A combination of these explanations seems most likely.

Hank Aaron faced several forms of adversity on a regular basis throughout his career (Hanson, 1992). During an interview, Aaron spoke of two critical skills he developed in order to overcome adversity. Rather than blocking out distractions, Aaron focused his attention completely on task-relevant cues (e.g. the ball that was about to be pitched to him), and in order to prepare himself for the competition conditions he would simulate a variety of game situations for when he was at bat (Hanson, 1992).

**Performing effectively under pressure.** Pentathletes interviewed by Bertollo et al. (2009) identified several mental preparation strategies. The competitors used simulation training to adequately prepare for the pressure of competition, and during performance, focused on task-and-technique-relevant cues. Specifically, the Italian national team believed in emotion control and handled the competition-related stress by regulating their emotions and remaining focused on the task. Simply stated by one member of the team, the strategy was to be relaxed and focused under pressure (Bertollo et al., 2009). All 14 members of the team had well-developed pre-competition routines; they recognized the importance of consistency and not changing the routine they had practiced numerous times. When mistakes did happen, the majority of athletes were able to detach from mistakes by diverting attention away from a performance error by focusing on the next action required of them (Bertollo et al., 2009).

In critical performance situations, successful athletes handled the pressure by maintaining their focus and composure (Bertollo et al., 2009; Gould & Dieffenbach, 2002). Gould and Dieffenbach (2002), as well as Orlick (1996), discovered successful athletes blocked out distractions and prevented doubt-filled thoughts from entering their conscious mind by keeping the mind in the here and now, focused on this moment. Gould and

Dieffenbach also learned, the more successful the athlete, the significantly lower the anxiety and worry level.

A lower level of anxiety means the athlete has less chance of becoming distracted (Gould & Dieffenbach, 2002). By default of being focused on the task at hand, and bringing that focus back into check whenever it wandered, elite athletes further protected him or herself from losing control and remained composed (Hanson, 1992; Orlick, 1996). Specifically, the Olympic champions (Gould & Dieffenbach, 2002) had some of the highest scores for the emotional control scale when evaluated on 16 subscales via the TOPS.

Higher skilled soccer players have also demonstrated lower levels of performance anxiety and significantly greater ability to perform effectively under pressure (Junge et al., 2000). Psychological characteristics of 588 soccer players from Germany, France, and the Czech Republic were evaluated via the ACSI – 28, State Competitive Anxiety Test (SCAT), and State-Trait-Anger-Expression-Inventory (STAXI) after the population had been divided into groups based on age and skill level. Eight groups in total comprised the population of soccer players; four adult groups based on skill level (determined by team selection), and two youth groups (14 - 16 and 16 - 18 years of age) separated into high and low skill levels (Junge et al., 2000).

Among all groups of soccer players that were studied, both youth groups (14 – 18 years of age) regardless of skill level had significantly lower levels of worry about performance, and players within the high-skill group (14 – 16 years of age only) scored higher on the peaking under pressure and concentration subscales of the ACSI – 28. Junge et al. (2000) averaged the entire populations number of previous injuries and found that players with fewer previous injuries than the average had less worry about performance, lower



competitive anxiety, lower scores for peaking under pressure, lower anger trait, and less outward anger expression.

Gould and Dieffenbach (2002) also used the ACSI - 28 to measure Olympic medalists' peaking under pressure subscale score, and found the average score of the medalists on the subscale was not one of their strongest areas. However, Gould and Dieffenbach speculated that the athletes were still considered to have the ability to peak under pressure in a relatively high manner as the average score was an 8 (1 = low and 12 = high), on a 12-point Likert scale.

Unfortunately, Waples (2003) was not able to detect a significant difference between elite and non-elite gymnasts' ability to peak under pressure, although he did find a trend in the direction of elite athletes having higher scores on the related ACSI - 28 subscale. This trend would seem probable in consideration of Grandjean et al. (2002); Olympic gymnasts displayed substantial composure in a high pressure situation. Not only did the athletes re-vault effectively, the gymnasts re-vaulted and improved by an average of seven percent (Grandjean et al., 2002). The ability to peak under pressure may indeed be a mental attribute of successful athletes (Hanson, 1992).

In an exploratory study of elite male gymnasts, Mahoney and Avenier (1977) compared mental skills use of 12 gymnasts just 48 hours prior to the Montreal Olympic trials competition. Athletes were given a questionnaire which inquired about various aspects of their personality, self-concept, and psychological strategies they used in training and competition. Correlational analyses using the final competitive grouping (Olympic qualifier vs. non-qualifier) as the dependent variable revealed differences between the two groups (Mahoney & Avenier, 1977). Olympic qualifiers tended to be more confident, think more

about their sport in everyday situations, and used self-talk more frequently than non-qualifiers.

The anxiety patterns reported by the elite male gymnasts were particularly interesting in that the qualifiers tended to be more anxious prior to competition than non-qualifiers (Mahoney & Avener, 1977). However, during performance, the opposite was true. Through verbal interviews obtained by the researcher throughout the actual competition, it was discovered that the eventual qualifiers had used their pre-competition anxiety to enhance performance, whereas the non-qualifiers were overly aroused by their anxiety. Mahoney and Avener (1977) found it important to note that neither group was free from anxiety. Rather, the Olympic qualifiers were simply able to channel their energy into more successful performances.

Athletes who reached an elite level were serious in their physical and mental training, and naturally had a competitive edge that maintained their perseverance through the difficult practices into performances (Bertollo et al., 2009; Gould & Dieffenbach, 2002; Vernacchia et al., 2000; Waples, 2003). In fact, many elite athletes thrived on the pressure associated with competition, and embraced the pressure with a competitive attitude (Gould & Dieffenbach, 2002). Furthermore, they had the ability to cope with that pressure and used it to succeed, rather than handling pressure with an anxious, debilitating response or viewing it as an adverse obstacle (Gucciardi et al., 2009a; Jones et al., 2002, 2007).

From the framework of mental toughness developed by Jones et al. (2007), athletes clarified the idea of embracing the pressure related to performance. Within the dimension of competition, athletes described the necessity of four attributes which maintained their mental toughness. First, athletes embraced the pressure associated with competition and wanted to

be in that position. Next, athletes had realized that it was necessary to adapt and cope with all types of difficult circumstances if they wanted to become the best in their sport. The third attribute was the ability to make sound decisions in the midst of extreme pressure, even when the situation was ambiguous. Finally, mentally tough athletes channeled related performance anxiety into a useful energy (Jones et al., 2007).

### **Psychometric Measurement and Mental Toughness Characteristics**

There has yet to be developed a sound psychometric instrument specifically for measuring mental toughness in sport (Connaughton et al., 2008a). However, there has been developed a sound quantitative inventory for assessing athletic coping skills (Crocker, Kowalski, & Graham, 1998; Smith et al., 1995). Through careful matching of mental toughness definitions and descriptions and sound subscale constructs, it was determined that the ACSI – 28 may serve a purpose in mental toughness research.

**Athletic Coping Skills Inventory.** Developed by Smith and his colleagues (1995), the ACSI- 28 is a multidimensional sport-specific psychometric inventory which contains the 7 subscales of coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence and achievement motivation, and coachability. Although each of the scales are deemed acceptable to be used individually, the 28-item inventory yields a personal coping resources score within the range of 0 to 84, with higher scores indicative of higher psychological skills used. Each of the subscales has a maximum score of 12 and is rated on a likert scale (Smith et al., 1995).

Initially, the ACSI - 28 was designed for use in the exploration of the relationship between the total personal coping resources score and life stress-athletic injury (Smith et al., 1995). However, after further confirmatory factor analysis, an 87-item Survey of Athletic

Experiences (originally named) turned into a 42-item scale, then a 33-item scale, and finally after removing all questions found to have problematic validity, the ACSI became the 28-item, 7-factor version used currently.

Test-retest reliability coefficients for the total personal coping resources score were based on a sample of 97 male and female intercollegiate athletes over a one week time period and was found to be .87 (Smith et al., 1995). A sample of 594 male and 433 female high school athletes was tested for internal consistency reliability, yielding a total score of .86. Validity of the ACSI – 28 was assessed by administering a battery of other relevant scales to populations ranging in number from 295 to 771 male and female high school varsity athletes. Highest correlations were found with the ACSI – 28 total score and the: Self-Control Schedule (.44) which measures cognitive-behavioral skills, Sport Anxiety Scale (-.43), Self-Efficacy Scale (.58), and the Marlowe-Crowne Social Desirability Scale (.43).

Socially desirable responding has been a concern with self-report psychological inventories such as the ACSI – 28; the Marlowe-Crowne Social Desirability Scale has commonly been used as a measure of socially desirable responding (Bourgeois, Loss, Meyers, & LeUnes, 2003). Different forms of socially desirable responding have occurred with self-report assessments as was seen in the positive correlation (.43) with the ACSI – 28. Bourgeois and colleagues (2003) were the first to examine the ACSI – 28 by assessing the effects of impression management (deliberate) and self-deception (unintentional).

Bourgeois et al. (2003) administered the ACSI – 28 and the Balanced Inventory of Desirable Responding (BIDR) to 468 undergraduate psychology and kinesiology students at two major southwestern universities. The psychometrically sound BIDR specifically measures impression management and self-deception; the total BIDR score has been reported

as highly correlated with the Marlowe-Crowne Scale (Bourgeois et al., 2003). Of the seven ACSI – 28 subscales, only peaking under pressure and coachability were significantly related to impression management. However, regression analyses resulted in all seven subscales being significantly influenced by self-deception. The authors speculated that self-deception may be essential to the development of optimal mental skills, and that moderate degrees of self-deception might prove in future research to be an integral athletic coping skill (Bourgeois et al., 2003).

In a review of the various measurements of coping strategies in sport, Crocker et al. (1998) supported many of the above statistical conclusions regarding the ACSI – 28. Crocker and colleagues concluded that the inventory had evidence of preliminary convergent validity as well as construct validity, remarking that the ACSI – 28 had strength in this area as it was designed specifically for sport research (Crocker et al., 1998). The authors agreed with Smith et al. (1995) by acknowledging a potential weakness of the inventory. The inventory was designed to measure coping skills yet was not based on any particular theory of coping (Crocker et al., 1998; Smith et al., 1995). Therefore, Crocker and colleagues concluded that the ACSI – 28 may be too general to assess the dynamic nature of coping. Rather, it has been suggested that the ACSI – 28 serves to provide an adequate measure of sport-specific psychological skills and specific coping resources for athletes (Crocker et al., 1998).

Sport psychology researchers have developed a preliminary version of the ACSI – 28 in Greece for use in identifying the mental skills used by amateur to professional basketball players (Goudas, Theodorakis, & Karamousalidis, 1998). Goudas and colleagues (1998) used confirmatory factor analysis to demonstrate comparable internal consistency to that of Smith et al. (1995). Validity of the preliminary Greek version was also found to be acceptable,

especially with regard to discriminant validity, as significant differences were found between the less and more experienced basketball players (Goudas et al., 1998).

Goudas et al. (1998) compared 92 male and 34 female basketball players from a variety of 11 teams in Greece. National level athletes were categorized as high in competition (elite) and players from teams that competed locally were labeled low in competition (non-elite). From these two groups, they were further separated into three groups based on years of experience and the data was analyzed for variance. Significant differences were detected between the groups. Specifically, the elite basketball players scored higher on the coping, goal setting/mental preparation, and confidence subscales of the Greek-version ACSI – 28. Also identified were differences in scores related to years of experience. The athletes with ten or more years of experience ( $n = 44$ ) scored significantly higher on the coping, peaking under pressure, confidence, and concentration subscales than the two groups of players with less than ten years of experience (Goudas et al., 1998).

### **Content Analysis**

It has been recognized by some professionals in the field of sport psychology that there is a need for research which investigates the psychological characteristics of the elite athlete's underlying athletic behaviors (Gould & Dieffenbach, 2002; Vernacchia, 1977; Vernacchia et al., 2000). Vernacchia (1977) provided evidence for the importance of obtaining a holistic case profile of athletes, including in-depth qualitative exploration. Suggested by Vernacchia, the personal interview should hold great importance when investigating athletes as it has the potential to provide a first-hand view of the experiences and behaviors. Proved to be true in the Case of Bill, the researcher conducted a rich and detailed profile by insightfully collecting demographic data, scores on the California

Psychological Inventory, the Adjective Check List, physiological data from a treadmill test, and a thorough interview of the elite intercollegiate track and cross country athlete (Vernacchia, 1977).

Rather than simply assessing an athlete's personality with a battery of psychometric measures, which is acceptable for establishing a personality profile, qualitative content analysis research with a case interview approach, along with a sound psychometric inventory, should provide even more depth into the questions at hand (Vernacchia, 1977). Noteworthy scientific advances have been made through careful investigations of athletes and their social systems (Smith, 1988).

Qualitative analyses are highly valuable as several have provided an opportunity to examine rare or remarkable occurrences which did not present themselves often enough to warrant an experimental design (Smith, 1988). Furthermore, case interviews such as the ones highlighted in this current research, may serve as inspiration for experimental researchers by providing a rich source of ideas (Smith, 1988). The case interviews approach, therefore, was the most appropriate design for this present study as the investigator was seeking to add to the body of research literature in terms of theory development. In addition to this, appropriate measures were taken in an attempt to raise the external validity of this study by expanding the number of athletes from a single case to ten (Smith, 1988).

Gould and Dieffenbach (2002) highlighted ten U.S. Olympic champions from nine different sports using primarily in-depth qualitative interviews in order to discover the common trends and learn of the individual differences in the elite athletic population. As this study has attempted to replicate, athletes who had consistently performed at their optimal level, rather than a one-time peak performance, were selected as participants. Careful

consideration, in both studies, was paid to the developmental aspects of becoming an elite athlete, as Gould and Dieffenbach have pointed out that more research in this area is needed.

Also similar to the present research study, Gould and Dieffenbach (2002) maintained consistency in the interview procedures by having one interviewer conduct all athlete interviews following an interview guide of pre-determined questions. Although an interview guide established consistency in questions asked of each participant, the interviewer was free to move in the direction an athlete responded, and therefore followed the natural flow of conversation. Preliminary interviews were conducted, audio recorded, transcribed verbatim, and analyzed for content prior to the formal study of elite athletes in both the current study and the interviews of Gould and Dieffenbach.

Vernacchia et al. (2000) expanded the qualitative body of literature with content analysis methodology in a study that included 15 Olympic track and field athletes. Nine male and six female athletes who had participated in Olympic Games from 1984 – 1996 were the group interviewed with content questions related to dreams, development, obstacles, mental preparation, mental and physical qualities, and advice to young athletes. A combination of deductive and inductive analysis was carried out with raw data responses in order to establish general themes within each content category, and the following emergent themes: mental skills and attitudes, developmental concerns, socio-economic factors, and spiritual/religious factors (Vernacchia et al., 2000).

Orlick and Partington (1988) conducted a large-scale study of Canadian Olympians who competed in the 1984 Los Angeles Olympics and were able to obtain 75 individual, qualitative interviews. From the 75 interviews, 12 were selected by the interviewers as the most highly descriptive profiles of quality anticipation and preparation, including ten from



Olympic gold and silver medalists. Orlick and Partington then used typed verbatim transcripts of the interviews to qualitatively analyze the mental and situational factors associated with success.

Psychological exploration of an individual cannot possibly be accounted for completely through quantitative methods alone (Patton, 2002). However, the qualitative approach has allowed for a thorough investigation into mental toughness and related content categories. The above described studies all provided the current researcher with prior quality examples of qualitative content analysis to emulate.

### **Summary**

Successful athletes utilized a plethora of psychological skills in order to maintain their elite edge in sport and deliver peak performances (Gould & Dieffenbach, 2002; Mahoney & Avener, 1977; Mahoney et al., 1987; Vernacchia et al., 2000). These athletes possess the psychological advantage of mental toughness which included self-confidence and belief in their method, as well as the willpower to remain fully focused on the task at hand (Bull et al., 2005; Jones et al., 2002, 2007). Being able to rebound from a performance setback was likely a common occurrence, or at least an experience that successful athletes encountered on several occasions prior to their greatest success (Grandjean et al., 2002; Jones et al., 2002, 2007). By regaining psychological control after unexpected events, these athletes were able to reach a peak or flow state of mind and were prepared for complete immersion in the activity (Connaughton et al., 2008b; Gould & Dieffenbach, 2002; Jackson & Roberts, 1992; Jackson et al., 2001).

Fueled by desire and internalized motives to succeed, pushing back the boundaries of physical and emotional pain, elite athletes thrived on the demands of competition by

accepting the accompanying pressure (Bertollo et al. 2009; Gould & Dieffenbach, 2002; Gucciardi et al., 2009a; Hanson, 1992; Mahoney & Avenier, 1977; Orlick, 1996; Vallerand et al., 2006). Believing in their coping mechanisms, and not being adversely affected by others' performance, helped these successful athletes to remain fully focused in the face of personal distractions, and switch a sport focus on and off as necessary (Jones et al., 2002, 2007; Mahoney et al., 1987). This description of mental toughness is communicated by the athletes' confidence, achievement motivation, passion for their sport, ability to overcome adversity, and likelihood to perform effectively in pressure situations.

## Chapter III

### Methods and Procedures

#### **Introduction**

The purpose of this study was to investigate the influence of mental toughness on the performance of elite intercollegiate athletes. This study thoroughly investigated and measured the responses of participants to open-ended questions using a case interviews design. Using the case interviews design provided an in-depth investigation of each athlete (Jackson, 1992; Vernacchia, 1998). In addition to interviews, the mental skills of each athlete were investigated through use of the Athletic Coping Skills Inventory - 28 (ACSI – 28) (Smith, Schultz, Smoll, & Ptacek, 1995) in order to provide multiple sources of evidence and therefore increase construct validity (Jackson, 1992; Smith, 1988). This study has carefully gathered information regarding specific thoughts, feelings, and perceptions of success in collegiate athletics, and delivered the evidence of such findings in an unbiased, fair report (Smith, 1988).

#### **Description of Study Population**

Participants included four male and six female former and/or current, varsity men and women's athletes who had received athletic All-American status during their athletic careers while at Western Washington University. Each athlete had received the honor of All-American within the five years prior to this study, and during participation in one of the following sports: indoor/outdoor track and field, cross country, basketball, golf, or crew. Two athletes from each sport were selected. One male and one female who competed in each of the five sports were selected based on the criteria. However, due to the fact that Western

Washington University does not have a men's varsity crew team, both athletes from this sport were female.

The participants made up a purposeful sample to investigate as they were not randomly selected due to the nature of this qualitative investigation. Although the type of sport varied among the athletes, there was consistent measurement obtained by all athletes which facilitated an appropriate population for a qualitative interview investigation of successful intercollegiate athletes. Interviewing ten successful athletes supported an in-depth exploration into each individual's mental attributes and psychological skills development (Gould & Dieffenbach, 2002).

**Recruitment of participants.** Athletes were selected with the assistance and knowledge of the Director of Sports Information within the athletic department of the university. He guided the primary researcher in collecting a list of athletic All-Americans, and from this list all athletes who had received the honor within the previous five years were highlighted. From the highlighted list, it was determined which sports could be included in the study, based on an adequate number of possible athletes. Consideration was also paid to whether or not an athlete had multiple years of All-American status, and additional accomplishments such as National Championships. The primary researcher and an independent sport psychology researcher then selected the ten athletes who would be contacted.

Due to the primary researcher having a professional relationship established with several athletes and the athletic department, athletes were contacted either in-person or over the phone and asked if they would be interested in participating. At initial contact, the researcher briefly outlined what would be involved in participation, and the expectations of

the athlete. This included signing informed consent, completing a demographic questionnaire, digitally recording an interview, and administering the ACSI – 28. Once the athlete agreed to participate, an interview session was scheduled for the soonest possible date, at the convenience of the athlete. Interview sessions were conducted in a private location in order to ensure the privacy needed for the procedures. If an athlete decided not to participate in the study, the list of possible candidates was revisited.

### **Design of the Study**

This study primarily utilized a content analysis using case interviews design, in conjunction with the administration of a psychometric instrument (ACSI – 28), to examine the influence of mental toughness on performances of successful intercollegiate athletes. Similarly designed studies have used this method in order to obtain rich descriptions from each individual athlete, and draw conclusions regarding the athletes as a group (Gould & Dieffenbach, 2002).

Athletes who agreed to participate: signed informed consent (Appendix A); answered a demographic questionnaire (Appendix B); provided detailed responses to questions on the interview guide (Appendix C), and completed the ACSI – 28 (Appendix D). An interview guide was used to ensure the consistent wording and sequencing of interview questions (Smith, 1988). All interviews were digitally recorded and transcribed verbatim. Content analysis was employed for analysis of the interview transcripts (Bull, Shambrook, James, & Brooks, 2005; Gould & Dieffenbach, 2002; Orlick & Partington, 1988; Vernacchia, McGuire, Reardon, & Templin, 2000). Correlational analyses were employed to detect significant differences between the athletes with regard to the ACSI – 28 measurement.

## **Data Collection Procedures**

**Training procedures.** Qualitative data analysis quality is highly dependent upon the methodological sensitivity and skill of the researcher (Jackson, 1992; Vernacchia et al., 2000). Therefore, training procedures were conducted to ensure the proper technique, attention, and processes were used during collection and analysis of the qualitative data. Preliminary case interviews and administration of the ACSI – 28 were conducted in order for the researcher to be practiced and prepared for the 10 case interviews presented in this thesis.

Three elite intercollegiate athletes from three different sports (basketball, crew, and golf) were the population employed for the preliminary case interviews; two males and one female were interviewed and administered the ACSI – 28. The three athletes agreed to participate, and were provided a copy of the interview guide ahead of time in order to familiarize themselves with the questions that would be asked. Informed consent was signed, and a copy given to the athlete. Completion of the demographic questionnaire followed informed consent, and it was at this point forward that the interview session was audio recorded, with permission from the athlete. The interviewer proceeded with the interview guide and asked the athlete to kindly respond with as much detail as they could possibly recall. The primary researcher conducted all interview sessions.

At the completion of the each interview, which ranged from 65 to 94 minutes, the athletes were asked to respond to the questions contained on the ACSI – 28, which lasted approximately five minutes. Upon completing this final portion of the interview session, the athlete was thanked for his or her time. After all three pilot interviews were finished, content analysis was conducted. Each interview was transcribed verbatim, and two independent researchers extracted and agreed on all raw data responses, thus providing one hundred

percent intercoder agreement. General themes within each content category were then detected by the primary researcher based on raw data responses across all questions within a category. Since the sample number was limited to three, no emergent themes were able to be concluded as this portion of content analysis relies on the number of participants.

**Instrumentation.** All interview sessions were conducted in a private meeting room in order to maintain confidentiality of each athlete; each athlete was interviewed during one session. Prior to the interview, each athlete signed informed consent (Appendix A), and answered the demographic questionnaire (Appendix B). The demographic questionnaire included background information to provide the researcher with detailed information (Smith, 1988; Vernacchia, 1998). The primary researcher then proceeded to the interview guide (Appendix C).

Open-ended interview questions were developed in order to obtain the qualitative data used in this study. The questions for each content category were generated by focusing on investigating each category from a developmental perspective. The interview script was derived after a review of the existing literature, and collaboration with three independent researchers who have extensive experience in this type of analytical methodology. The purpose of the interview guide was to minimize any effects of the interviewer by asking each participant the same questions, in unbiased phrasing, in a similar sequence (Smith, 1988).

Each interview question also contained specific probe questions to use if the athlete needed additional explanation or clarification, to maintain the systematic delivery of interview questions, and also to facilitate a full understanding by the athlete of the question at hand and secure as complete an answer as possible (Vernacchia, 1998; Vernacchia et al., 2000). However, the interviewer was free to proceed in the direction dictated by the natural

flow of the discussion, as determined by the athlete's responses (Gould & Dieffenbach, 2002).

The interview content categories and questions included were the following:

1. Developmental Aspects
  - a. Were you involved in other sports as a child?
  - b. What was your family's involvement in your sport?
  - c. Is there anything in particular about your childhood or growing up that you feel led directly to your success in college athletics?
2. Peak Performance and Flow
  - a. I would like for you to take as much time as you need and recall one of your best performances in your sport. Please describe this event for me in as much detail as possible.
  - b. How frequently did you have performances like the one you just described?
3. General Performance Characteristics
  - a. What mental skills have you used to reach success in your sport?
  - b. Are there any mental attributes you feel have hindered your performance?
  - c. Can you recall any performances which resulted in the outcome you were seeking, but might not have been your best day or ideal circumstances? How did you handle those days or times?
4. Mental Toughness
  - a. What is your definition of mental toughness? How would you describe it?
  - b. Mental toughness has been described as a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by



consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience. How does this relate to you?

3. Confidence

- a. Who first believed in you?
- b. Who believed in you during your college athletic career?
- c. Have you experienced times of doubt in your abilities?
- d. How many hours per week did you spend on *physical skill development* and deliberate practice related to your sport?
- e. How many hours per week did you spend developing *mental skills* and engage in deliberate practice of that aspect of training?
- f. How did you prepare for competitions in your sport?

4. Achievement Motivation and Passion for Sport

- a. How did you first get involved in your sport?
- b. What were the reasons you committed to your sport?

5. Coping with Adversity

- a. What obstacles have you faced while training and competing in your sport?  
Were you able to cope with those challenges? How?
- b. I would like you to recall a tough loss during your college athletic career.  
How did you handle the loss?

## 6. Performing Effectively Under Pressure

- a. I would like you to recall a high pressure situation in your sport, a time when you felt as though a lot was riding on the line. Describe this to me in as much detail as possible. How did you handle that pressure?

*Athletic Coping Skills Inventory – 28.* The ACSI - 28 (Appendix D) was also used in this study in order to obtain a more holistic set of data to accompany the case interviews (Smith, 1988). The ACSI - 28 was developed and validated by Smith and colleagues (1995), and includes the following seven subscales: coping with adversity, peaking under pressure, goal setting/mental preparation, concentration, freedom from worry, confidence and achievement motivation, and coachability. The ACSI – 28 yields a total personal coping resources score, with higher scores representing higher use of mental resources (Smith et al., 1995). The ACSI – 28 was administered to each athlete directly after the interview was completed.

**Measurement techniques and procedures.** After determining eligible athletes based on All-American status and sport equity, athletes were individually contacted either in-person or via telephone and asked to participate in the study. When asked to participate, the athlete was given a verbal description of the study and outline of expectations for the interview session. A mutually agreed upon date and time were established by the primary researcher and athlete. The interview session was conducted in a private meeting room.

At the beginning of the interview session, informed consent was obtained (Appendix A). Next, the athlete verbally responded to questions on the demographic questionnaire (Appendix B). Following this, the athlete was interviewed by the primary researcher who followed an interview guide with specific questions and topics to standardize the process

(Smith, 1988). All interviews were conducted orally, questions and responses recorded for digital audio, and later transcribed verbatim. The ten interviews ranged from 27 to 97 minutes. Once the interview was completed, the ACSI – 28 was administered to the athlete. After completing the interview session, the researcher verbally thanked the athlete for his or her time. The interview was then transcribed verbatim by the primary researcher.

**Data processing.** Based upon previous research, data analysis procedures for the interviews were employed and analyzed following specific steps (Vernacchia et al., 2000). The recorded interviews were first transcribed verbatim. Transcripts were then qualitatively analyzed to determine frequencies of raw data responses to interview questions and probes, identifying key phrases which honored the meaning of athletes' responses. Two independent researchers read each transcript, determined raw data responses, and reached 100 percent intercoder agreement. The same two independent researchers then extracted general and emergent themes from the interview transcripts through inductive analysis of the raw data responses; 100 percent intercoder agreement was again reached regarding the development of general and emergent themes.

*Data collection/decision log.* The primary researcher kept a data collection/decision log for each of the ten case interviews in the study. The purpose of the log was to keep all procedures and decisions documented and organized. The log included the following information: date and means of initial contact with the athlete, date and location of interview session, member-checking accuracy, and intercoder agreement reached for raw data responses.

## **Data Analysis for Content**

**Raw data responses.** The raw data responses were compiled by two independent researchers identifying key phrases in the interview transcripts which reflected the athletes' meaning of the whole response to each question. One hundred percent intercoder agreement was reached after two researchers independently read the transcripts and identified the raw data responses, lending to the validity of the study (Smith, 1988). These phrases or words were then recorded as raw data responses, and listed for each question in each content category (Appendix F). The frequency of the raw data responses was recorded according to the number of times each response was cited throughout all transcripts (Appendix G). The raw data responses represent or paraphrase all responses to each content category question. However, since each athlete could have emphasized a particular raw data response more than one time throughout an interview transcript, the number of athletes who contributed to the response frequency was also accounted for (Appendix G).

**General themes.** The general themes were identified, by the primary researcher, by grouping similar raw data responses within each content category (Appendix F). Accuracy of general themes was verified by the secondary researcher for 100 percent interobserver agreement. The general themes consisted of all raw data responses within each content category, but were not restricted by question. For example, the mental toughness content category consisted of two questions; responses for both of these questions were considered and used to identify general themes for the content category of mental toughness. The same procedure was used for all content categories which resulted in general themes within each content category. The number of total responses is identified within parentheses immediately after each general theme; the number following total number of responses (separated by a

back slash) is representative of the number of different athletes who contributed to that particular general theme (Appendix F).

**Emergent themes.** The emergent themes were created by identifying all raw data responses together. Any raw data response with three or more citations, across all content categories, was considered when grouping emergent themes. The number of total responses is identified within parentheses immediately after each emergent theme; the number following total number of responses (separated by a back slash) is representative of the number of different athletes who contributed to that particular emergent theme (Appendix F). The frequency distribution of raw data responses identified those responses which would be used in grouping emergent themes and those which would not (Appendix G). The secondary researcher again collaborated with the primary researcher in order to validate the emergent themes and provide 100 percent interobserver agreement.

### **Data Analysis for ACSI - 28**

Initial analysis of the ACSI – 28 scores included summing each subscale score, followed by the participant's total personal coping resources score. Correlational analyses using SPSS were run on the scores obtained from the ACSI – 28 and used for descriptive purposes (Appendix K). Overall, scores obtained from the ACSI – 28 were used in combination with the interview responses to provide more detailed descriptions of the athletes individually and as a group.

## Chapter IV

### Results and Discussion

#### **Introduction**

Athlete interviews were typed verbatim, qualitatively analyzed and reported based on the following content categories: developmental aspects, peak performance and flow, general performance characteristics, mental toughness, confidence, achievement motivation and passion for sport, coping with adversity, and performing effectively under pressure. Athlete responses from each content category question were placed in a frequency distribution (Appendix G) which resulted in the identification of 68 general themes. Twenty-eight emergent themes were then created from raw data responses with a minimum frequency of three citations.

#### **Analysis of Raw Data and General Themes**

The analysis of raw data resulted in the identification of descriptors related to the content categories of: developmental aspects, peak performance and flow, general performance characteristics, mental toughness, confidence, achievement motivation and passion for sport, coping with adversity, and performing effectively under pressure. Analysis identified 418 raw data responses. Raw data responses varied in number and were associated with a specific content category and question. Raw data responses were used to develop general themes within each content category (Appendix F).

Two researchers independently identified all raw data responses throughout the ten interview transcripts. Interobserver agreement of 100 percent was reached for all raw data responses prior to developing general themes. Once agreement was reached on raw data responses, the two researchers collaborated on the development of general themes until 100

percent interobserver agreement was reached. Demographic information regarding all ten athletes can be found in Appendix E.

**Developmental aspects.** Three questions relating to the developmental aspects of the athlete and the associated frequency distribution were as follows:

Question 1 – Were you involved in other sports as a child?

- a. Played baseball/softball (8)
- b. Played basketball (7)
- c. Played soccer (7)
- d. Participated in track and field/cross country (6)
- e. Played volleyball (2)
- f. Participated in wrestling (2)
- g. Played tennis (2)
- h. Participated in swimming (2)
- i. Played golf (2)
- j. Participated in skiing/snowboarding (2)
- k. Active family (2)
- l. Played informal games with family (2)
- m. Participated in gymnastics (1)
- n. Participated in Irish dance (1)
- o. Not involved in organized sports as a kid (1)
- p. Active group of friends (1)
- q. High school captain of two sports simultaneously (1)
- r. Did back-to-back practices for two sports (1)

Question 2 – What was your family's involvement in your sport?

- a. Sibling was athlete (9)
- b. Supportive/Involved/Encouraging family (8)
- c. Parents and family were physically active (7)
- d. Dad got me into sport (5)
- e. Parents traveled to a lot of my competitions (3)
- f. Family was minimally involved in sports (2)
- g. Family is really busy but also very close (2)
- h. Family's culture does not emphasize sport (1)
- i. A friend got me involved in organized sport (1)
- j. Didn't want parents at my games (1)
- k. Dad required one year participation then our choice to continue (1)
- l. Dad never put pressure on us kids to run (1)
- m. Dad and I talk every night after my workout (1)
- n. Has always been some family rivalry (1)
- o. Some resentment from sister who wanted success (1)

- p. Some reactions from my dad bother me (1)
- q. Mom is not athletic (1)

Question 3 – Is there anything in particular about your childhood or growing up that you feel led directly to your success in college athletics?

- a. Father was very influential (7)
- b. Siblings influenced me for the better (6)
- c. Parents athletic background influenced me (6)
- d. I understood working hard was important (5)
- e. Excelled in sport early on (3)
- f. I loved to explore and run around (2)
- g. Parents pushed me to try new things (2)
- h. Parents were always very supportive (2)
- i. Family was athletic and provided example (2)
- j. Grandparent had the most effect on me (1)
- k. Parents never allowed “I can’t” (1)
- l. Tennis helped mental toughness (1)
- m. Combination of team and individual helped mental game (1)
- n. High school coach instilled drive for sport in us (1)
- o. Competing with high school teammates pushed me to get better (1)
- p. Never winning high school meet made me strive to be successful (1)
- q. Everything got me to where I am today (1)
- r. I was an extreme tomboy (1)
- s. Playing musical instrument increased lung capacity (1)
- t. Riding unicycle and walking on stilts increased balance (1)
- u. A lot of pent up energy/drive going into college (1)
- v. My size or build (1)
- w. I’m a very competitive person (1)
- x. I didn’t have a fear of failure (1)

Six general themes were derived from the raw data themes within the content category of developmental aspects. The number of total responses is identified within parentheses immediately after each general theme; the number following total number of responses (separated by a back slash) is representative of the number of different athletes who contributed to that particular general theme. Under each of the following general themes, Q(x) represents the question number, and the item letters (a, b, c...) correspond to the raw data responses provided by each athlete within that question.



1. Played multiple sports in youth (48/10)  
(Q1 – Items a, b, c, d, e, f, g, h, i, j, m, n, q, r; Q2 – Items e, m)
2. Family's athleticism was influential (25/10)  
(Q1 – Items k, l; Q2 – Item c; Q3 – Items c, d, i, j)
3. Family was supportive and involved (18/9)  
(Q2 – Items b, e, g; Q3 – Items, g, h, k)
4. Father was especially influential (15/7)  
(Q2 – Items d, k, l, m; Q3 – Item a)
5. Sibling athlete was influential (15/9)  
(Q2 – Item a; Q3 – Item b)
6. Drive to compete (9/5)  
(Q2 – Item n; Q3 – Items f, n, o, p, u, w, x)

All of the athletes who were interviewed played at least one other sport during their youth. Furthermore, the majority of athletes were involved in multiple sports and physical activities prior to making the commitment to focus on excelling in one sport. Eighty percent of the athletes played baseball or softball; 70 percent played basketball and/or soccer, and 60 percent participated in track and field.

Many of the athletes were influenced in their youth by parents and family members who were also athletic. Athleticism was modeled and encouraged, as 90 percent of athletes reported coming from supportive and involved families. The father of these athletes was especially influential, as was the influence of siblings who were athletic.

Several of the athletes made comments about their drive to compete developing at an early age and through early influences.

I tried soccer that kind of bored me...and then I tried softball as a young kid but most of the kids couldn't hit the ball or pitch the ball so I just got really bored...I struggled with my skill level as far as being ahead of my age group. I hate saying stuff like that

because I feel like I'm talking good about myself...So some of those sports that I tried early on I kind of ended up not liking too much. I think just because I wasn't playing with other child athletes that were at my same level. (Athlete 2)

...one thing my parents never let me do was say the word can't, I can never say that word. They pushed me to do everything and so they were probably even more aggressive in getting me involved and into things and trying different things, but early on...[my sport] was the sport I excelled at most right away. (Athlete 1)

**Peak performance and flow.** Two questions relating to peak performance and flow were asked and the associated frequency distribution was as follows:

Question 1 – I would like for you to take as much time as you need and recall one of your best performances in your sport. Please describe this event for me in as much detail as possible.

- a. This is the time to do it/Nothing to lose/Went for it (5)
- b. In the moment and not thinking/Just reacting (5)
- c. Vague memory of best performance (4)
- d. National competition (4)
- e. Focused and driven in competitive environment (4)
- f. Was a really close finish (4)
- g. Once I competed I let the emotions go (3)
- h. Weather didn't affect me (3)
- i. Set a new personal record (2)
- j. Focused on technique (2)
- k. National qualifying event (2)
- l. So nervous (2)
- m. Told myself I can do this (2)
- n. Fun and exciting atmosphere (2)
- o. Had no idea what was going on (2)
- p. Let it happen in high pressure situation (2)
- q. Best I've ever played (2)
- r. Mind was spinning (2)
- s. Most comfortable/Best I've ever felt in competition (2)
- t. Push the competition to the next level (2)
- u. Enjoyed the pressure/Mental challenge (2)

- v. Gave me a high like nothing else (2)
- w. My coach was relaxed (1)
- x. Trusted my coach (1)
- y. Forced to act as own coach and that added stress (1)
- z. Made conscious effort to shut off perception of pain in brain (1)
- aa. Had no expectations (1)
- bb. Composed yet aggressive (1)
- cc. Remembers clearly (1)
- dd. I was prepared (1)
- ee. Day of competition it was all business (1)
- ff. I never let them beat me (1)
- gg. Gave my best effort (1)
- hh. Find way to reign in mind when it's going many directions (1)
- ii. Good camaraderie with my opponent (1)
- jj. I enjoyed the large group of spectators (1)
- kk. Just started getting confident (1)
- ll. Saw what I was going to do before it happened (1)
- mm. Didn't make too many mistakes (1)

Question 2 – How frequently did you have performances like the one you just described?

- a. Rare to have a performance like that (7)
- b. I was a consistent player (4)
- c. Often/Always performed at a high level (3)
- d. Had a few other performances that were close (2)
- e. I thrive on the elevated pressure of good competition (2)

From this raw data, five general themes were extracted from the content category of peak performance and flow:

1. Focus and flow (34/10)  
(Q1 – Items b, c, e, g, h, j, p, q, s, z, bb, dd, ee, hh, kk, ll)
2. Thrived in pressure situation (32/8)  
(Q1 – Items a, d, f, i, k, m, n, t, u, v, ff, ii, jj; Q2 – Item e)
3. Rarely had a peak performance (9/7)  
(Q2 – Items a, d)
4. Consistently performed at high level (8/6)  
(Q1 – Item mm; Q2 – Items b, c)

5. Coach influenced performance (3/3)  
(Q1 – Items w, x, y)

Athletes were asked to give a detailed description of one of their best ever performances in their sport. Most of the expressed elements in their best performance were those of focus and flow. Half of the athletes who were interviewed described being in the moment during the performance, and 40 percent only had a vague memory or remembered brief moments of the performance. The athletes recalled being focused and driven in a competitive environment, and made a conscious effort to block out distractions including the weather and pain.

...when I'm playing my best, I'm not really thinking about anything...you let the unconscious take over and you just, all you're doing is seeing the shot, hitting the shot, feeling the shot...you can almost already see what you're going to do before you do it...that's fun, that's when you want to just soak up those moments and you wish you could perform like that all the time. (Athlete 9)

I guess in running, the races I do the worst in I can remember thinking about every single moment of that race and thinking you know, tell yourself to relax, tell your stomach to stop turning up and down. I think the races when I have the best success is when I can turn my brain off and not even have to think about that...but pretty much I had no idea what was going on and I looked up and I had three laps left and I was like, oh, cool!...it just seems like your brain turns off and you don't have to process everything that's coming in...me and my friends have this thing like we black out to where I couldn't really tell you much about the race other than about the last

[kilometer] where I was dying...I finished and the coaches came up and were like, 'you're an All-American', and I'm like 'What? Sweet!' (Athlete 5)

...it was the most comfortable I have ever been in the competition...[coach] describes it as being like a business man, just one height after the other. I was just like boom, boom, boom. I just knocked it out, wasn't any problem... 'let's go' kind of thing, so I guess I was just really comfortable. (Athlete 3)

I really don't recall, I had no memory of that whole first half...my memory of the actual playing was blank...and then after the [performance] obviously I knew how I did...as far as details go...I think I was in that unconscious state...I can't give you details about it... I just remember all of a sudden the first half was over. I played, but I couldn't tell you what I did...it was just all instinct I think. That's really the best I think I can explain it is, everything I did was just instinct, just reacting. (Athlete 2)

...sometimes you don't quite remember your best performances because I don't think I remember more than two or three minutes of it...I wasn't really aware of the time or how long I had left. (Athlete 6)

I wasn't letting the rain bother me and I was prepared and it was probably the best I've played. (Athlete 10)

...you have to not only override that but you also have to somehow find the desire to make [the pain] worse, because it just is an exponential increase in pain and...I remember for some reason the thought just hit me where I feel this pain and like everywhere I'm feeling it, that's not where I'm processing it, and I remember just

thinking in my head, just shut off, just trying to shut off... consciously making an effort just to shut down the perceptions in my brain. (Athlete 6)

Another common element of the recalled peak performances was that the athletes thrived in a pressure situation. Thirty percent of the athletes who were interviewed described their performance as a time when they recognized a distinct moment to go after it and did so. Forty percent of the athletes described a national competition level performance, and 20 percent described a national qualifying performance. Twenty percent of the athletes set a new personal record during the peak performance they had recalled.

I remember thinking, 'ok, now is the time, you've got to do something that you haven't done before, you gotta make [the competitor] do something that they haven't done, you gotta push 'em to that next level.' (Athlete 8)

I felt like in every race there is a point where you either, you know, settle and you can be comfortable in the place that you're at or you can risk absolutely dying and go for it and I feel like maybe ten percent of my races I absolutely risk everything and that was, that was one of them for sure...yeah that was a good memory. (Athlete 6)

...they were doing a story, a feature on me and so [broadcasting company] came to the game...before the game, in my opponents gym, I just had this whole camera crew that's following me around and all the other guys on the team are just you know what's going on here...so they're interviewing me during the game, during warm-ups they're following me around wherever I go, and I just happened to hit the most three pointers in a game than I ever had before. I think I hit eight three pointers out of ten, had 35 points and you know, we won the game...just to do it in a stage like that

where you know you're being watched and you have a film crew there who was filming you...that to me was probably the most important personal game. (Athlete 1)

Two of the athletes recalled the pressure environment as a fun and exciting atmosphere, and two athletes reported enjoying the pressure and associated mental challenge. I just played really solid...if you ask coach he'd say the best asset of my game is my consistency...and that's where the mental side gets in...if your competitor knows you're not going to make mistakes they start pressing a little more and that's what I love... (Athlete 9)

...something gets me going when you're in a hostile environment. I'd rather have someone telling me you suck or you can't. That drives me more than someone kind of cheering for me. (Athlete 1)

Seventy percent of the athletes who were interviewed mentioned it was a rare occurrence to perform as well as they had during the recalled peak performance, and many wished they could have repeated that caliber of performance more often. However, 60 percent of athletes reported that they typically performed at a high level, and 40 percent of the athletes specifically mentioned being a consistent player.

Not as many as I wish...but I feel like people that have success in a sport have to know that they don't come as frequently as you want them to...but I'm that type of runner that if I have a bad race I don't have like a really overtly bad race...I don't go from being a leader to dying completely. So I think it's more in my head, you know like...I've had quite a few. I've had a lot of races that I felt happy about later, and you definitely have to be reflective about it. You will be happier about it later than right

after because you know you always want to jump to the next level but you can't...

(Athlete 5)

...never, that was the only time I've ever had it that perfect before, but other competitions that are close...a couple that I can't really remember now but where I feel like, 'ok I'm ready to PR today'...I'm ready to, you know, give people a run for their money... (Athlete 3)

I mean I had big games...I think a lot of people maybe classify me more as stable rather than streaky you know, pretty, hopefully consistent and not having large fluctuations in stats and production but being stable and consistent. (Athlete 1)

Three athletes mentioned the coach as being instrumental during their peak performance. Two of these athletes felt the coach was helpful, and one of the athletes was stressed due to the lack of her coach being physically present.

**General performance characteristics.** The three questions within the content category of general performance characteristics and frequency distribution of the data responses were as follows:

Question 1 – What mental skills have you used to reach success in your sport?

- a. Relaxation/Use techniques to relax (8)
- b. Composure/Numb emotions (6)
- c. Use positive self-talk/Maintain great attitude (6)
- d. Visualize performance (5)
- e. Focusing and blocking out distractions (5)
- f. Don't give up/Press on (4)
- g. Shut mind off and trust my body to do it (2)
- h. Mental toughness from competition experience (2)
- i. Really competitive/Want to be the best (2)
- j. Not afraid to lose/Free from doubt (2)
- k. Sport isn't who I am, just what I do (2)
- l. Stick to the plan/Use routines (2)



- m. Use disappointment/loss/pain to motivate (2)
- n. Organized/Detailed/Scheduled (1)
- o. Compete against myself (1)
- p. Prepare for competition (1)
- q. Take my time (1)
- r. Rely on past success (1)
- s. Can't think about the outcome (1)
- t. Commit to what you're confident in (1)
- u. Just go with the flow (1)
- v. Laugh it off (1)

Question 2 – Are there any mental attributes you feel have hindered your performances?

- a. Thinking too much/Over analyze (7)
- b. Emotions/Nerves get in the way (4)
- c. Putting pressure on self (3)
- d. Intimidated by the competition (2)
- e. People pleaser (1)
- f. Perfectionist (1)
- g. Working myself too hard (1)
- h. Struggled with the things I had to say to motivate teammates (1)
- i. Lack of focus (1)
- j. Lack of commitment (1)

Question 3 – Can you recall any performances which resulted in the outcome you were seeking, but might not have been your best day or the ideal circumstances? How did you handle those days or times?

- a. Accept it/Learn from it/Move on (5)
- b. Under performed but still won (5)
- c. Relied on teammates (4)
- d. Just make it work/happen (4)
- e. Focused on what was working (3)
- f. Not considered a win if I don't reach my goal (2)
- g. Review and improve (2)
- h. Refused to be beaten/Went for it (2)
- i. Weather conditions affected my performance (2)
- j. Relied on past success/training for that situation (2)
- k. Took my time (1)
- l. Go with instincts/Don't think too much (1)
- m. Focus only on self during competition (1)
- n. Good at taking things as they are (1)

- o. The expectations on me helped me through (1)
- p. Adapted technique to the conditions (1)
- q. I built the team up for it (1)
- r. I have had a lot of luck (1)

From this raw data, twelve general themes were extracted from the content category of general performance characteristics:

1. Focus on task (16/5)  
(Q1 – Items e, g, l, n, p, s; Q3 – Items e, m)
2. Competitive and determined (13/8)  
(Q1 – Items f, i, j, o; Q2 – Items f, g; Q3 – Item h)
3. Use loss for improvement (11/8)  
(Q1 – Item m; Q3 – Items a, f, g)
4. Adapt to situation (11/6)  
(Q3 – Items b, d, l, p)
5. Relaxation (10/6)  
(Q1 – Items a, q; Q3 – Item k)
6. Composure and emotion management (9/7)  
(Q1 – Items b, u, v; Q3 – Item n)
7. Lack of focus and emotional control (9/6)  
(Q2 – Items b, d, l; Q3 – Item i)
8. Over thinking (7/3)  
(Q2 – Item a)
9. Relied on past success (6/5)  
(Q1 – Items h, r, t; Q3 – Item j)
10. Maintain positive attitude (6/5)  
(Q1 – Item c)
11. Visualize (5/5)  
(Q1 – Item d)
12. Pressure on self (3/3)  
(Q2 – Item c)

The first general performance characteristic the athletes felt they had used to reach success in their sport was the ability to focus on task. Half of the athletes used the mental skills of focus and blocking out distractions. Two athletes described this as shutting the mind off and trusting the body. Two athletes who were interviewed emphasized their focus as utilizing a routine and staying with the plan. Specifically, a couple of the athletes would focus on what was working and only on themselves during their performance.

...really took my time and drank a lot of water and really just focused on the little things, not on the fact that it's a national meet or that it's too hot, or that my ankle's twisted... (Athlete 4)

Being mentally focused was always on my agenda. (Athlete 1)

...I'm not distracted by weather, or by...I realize there [are] things I can't control and those things I can let go of really easily... (Athlete 4)

...you can't let anyone get in your head. You can't be shaken by anything that happens. (Athlete 8)

I shut my mind off and tell myself I need to trust my body because a lot of it is muscle memorization...and it's all feel. So when I start thinking, I don't [perform] right, so I guess shutting my mind off would be another mental aspect I have.

(Athlete 3)

On the contrary, lack of focus and control was an attribute which hindered 60 percent of the athletes during a performance. Two athletes reported being intimidated by the competition, and another two athletes allowed the weather to affect their performance.

Athletes also recalled allowing their emotions and nerves to hinder their performance. Over thinking and over analyzing was also a hindrance to the athletes who were interviewed.

...over analyzing...sometimes you would get so deep in worry that sometimes you would realize, I need to snap out of this...I think they probably are inevitable; it's just how you bounce back from them. (Athlete 7)

I'm a pretty emotional person so I mean I think sometimes that would get in my way...just taking things maybe a little too personally sometimes. (Athlete 10)

Eighty percent of athletes believed their competitive spirit and determination was a characteristic which helped them achieve success in their sport. Wanting to be the best and refusing to be beaten during competition were often cited. Also, the ability to persevere and not give up when they wanted to was a critical characteristic for many of the athletes.

I love competition so it really fueled me a lot. (Athlete 10)

...it's learning that nobody really wins a race, you just survive it better than other people. I think that's probably the biggest overcoming tool [I] use to challenge myself...I was like, 'there is no way I'm going to let this chick beat me'...I had to pretty much die to do it but it was, I mean it was worth it, and I did what I had to do.

(Athlete 6)

However, 30 percent of the athletes felt they placed too much pressure on themselves and found that to be a hindrance to achieving success. Being a perfectionist and working harder than necessary were cited as negative characteristics.

...there's a lot more pressure on you and that may be pressure you put on by yourself, maybe it's not actual outside pressure, people may not want you to do more but you

just feel like you have to do more and putting that self-imposed pressure on yourself can sometimes lead to what I think is weaker performance...by the time I was a senior I was that way. I had so much anxiety I was throwing up just because of the pressure you put on yourself. So I would probably say that would be the thing that led to weaker performance...putting too much pressure on myself. (Athlete 1)

Perfectionism...I'm definitely a perfectionist. I want to be the best. (Athlete 2)

I tend to put other people up on a pedestal for sure. I feel like unless I have beaten someone, I tend to believe that I can't. (Athlete 6)

Using the disappointment of a loss for improvement was an attribute 80 percent of the athletes relied on for reaching success. Thirty percent used the strategy of accepting the loss, learning from the loss, and moving on. Twenty percent of athletes described this process as reviewing and improving.

I just kind of write it off...I'll just do better next time...I guess I just keep moving because I'm striving to be more mentally tough so I'm putting myself in situations where I lose...just so that I can kind of battle it out with myself and so with those it's not really a loss, but in a sense it is, so I just kind of battle it out with myself like, 'ok what could I have done better?'...which also gives me motivation...I kind of recap what I did wrong and how I can fix it and usually it's a dumb mistake that I do so I already know how to fix it, so I don't really think about it a lot...so I'm just like 'ok, I'm ready for the next competition'...I would be a little bit disappointed in myself but I would just use that to further my training. (Athlete 3)

Another mental attribute which assisted the athletes in achieving success was adapting their technique to the demands of the performance situation. Half of the athletes spoke of underperforming yet still earning the victory, and 40 percent told of how they just make it work and happen.

...if my shot wasn't on there were other things I could do. I worked hard to get people open, I worked harder on defense. (Athlete 2)

...we really take the opportunity when we're out at practice to reinforce the fact like this is crap and you're gonna row through it anyway...this is practice for later and you know you need to learn to deal with circumstances and we need to learn to train on it cause we live in the Pacific North West. (Athlete 8)

Relaxation and techniques for relaxing were used by 60 percent of the athletes who were interviewed. Relaxation included taking their time during a performance. Staying composed and controlling emotions was also a critical mental skill for many of the athletes. Seventy percent relied on their composure and ability to numb emotions during a competition. A couple of the athletes described this as going with the flow, and one athlete emphasized her ability to laugh it off when necessary.

I'm pretty mentally tough in the sense of not letting situations get to me. I try to be happy whether I am winning an event or you know not winning an event. (Athlete 9)

...definitely my biggest strength is that I don't get too frustrated, I don't have a temper on the golf course. I can laugh it off, and I mean, I don't take it too lightly, but I don't get too stressed out about not performing at my best. (Athlete 10)

...the ability to numb your emotions almost became very important because even when you're at Nationals, you can't think about the outcome of the race... You have to be numb and you have to run it like you would any [race], at least that was always my experience, you stick to the plan...it's all business. (Athlete 8)

For a half of the athletes, it was important to rely on past success and training for certain performance situations. In fact, two athletes believed they had developed mental toughness as a result of competition experience.

I would say that a lot of my mental toughness comes from my experience from competition...experience is getting rid of those kind of scenarios...I think with the experience I'm able to keep control. (Athlete 3)

The mental skill of using positive self-talk in order to maintain a positive attitude was cited by 50 percent of the athletes who were interviewed.

...self-talk. Just getting yourself to commit to what you're confident in. You know when you see the shot, when you step up to it, it's not having those doubts in your mind going through the shot...just not giving up on yourself. You know, I would have a bad hole and then say, 'you know what, I'm gonna birdie this hole' and if I didn't, just keep on moving on with that same attitude. (Athlete 10)

Finally, half of the athletes reported visualization as a mental skill which they used to achieve success in their sport.

I would go through a race in my head the night before and I would try to do it a few nights before and going into a season I would sometimes really try to visualize the different races as we went on. (Athlete 7)

I can kinda just in a snap shot know what I want to do. (Athlete 9)

I visualize it and cut everything out of my mind and just do it...visualizing is really beneficial for me...definitely visualized my runs... (Athlete 3)

I take my time...I actually just close my eyes and I visualize myself from a side perspective of what I want my stance to look like right before the release...and I picture that for a good half a minute and visualize myself getting into it, but then once I'm ready it's nothing...I can't focus on details because that's when you are going to mess up. (Athlete 4)

**Mental toughness.** Two questions relating to mental toughness were asked and the associated frequency distribution was as follows:

Question 1 – What is your definition of mental toughness? How would you describe it?

- a. Let negative go/Move on/Mistake recovery (6)
- b. Look only at positives in adverse situations (4)
- c. Overcome/Conquer/Don't give up when wan to (4)
- d. Focus/Block out distractions (3)
- e. Mental toughness has many attributes/Different each sport (2)
- f. Go after it/Never back down (2)
- g. Confidence (2)
- h. Believe/Trust in the preparation (2)
- i. Sync body and mind in training, competition and life (1)
- j. Consistency (1)
- k. Take time to recover rather than work harder (1)
- l. Praising own performance (1)
- m. Sharing the glory of the win (1)
- n. Not being too emotional over something petty (1)
- o. There are more important days to come in life (1)
- p. Always evolving into a better person (1)
- q. Not arrogant (1)
- r. Patience (1)
- s. Learned mental toughness (1)
- t. Relying on past success (1)
- u. Strength has already happened so you can't lose the toughness (1)
- v. Being ok with second if you gave it your all (1)
- w. Concentrate on self (1)



- x. Help teammate focus and share the toughness (1)
- y. Want to compete (1)

Question 2 – Mental Toughness has been described as a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience. How does this relate to you?

- a. Stay composed/Control emotions (8)
- b. Confident in method/technique (8)
- c. Resilient/Adapt/Handle anything (8)
- d. Embrace the lifestyle and training required (5)
- e. Confidence from the preparation/training (4)
- f. Takes a lot of experience and time to learn mental toughness (4)
- g. Persistence/Don't give up/Press on (4)
- h. Stay focused (3)
- i. Difficult to generalize definition/Varies with person and situation (3)
- j. Perseverance (2)
- k. Be respectful to others (2)
- l. Find a way to get it done/No excuses (2)
- m. Wanted and thrived on challenge of competition (2)
- n. Train like you're going to compete/Simulation training (2)
- o. That definition sums up the team/my life (1)
- p. Motivated by a hostile environment (1)
- q. Character shines through (1)
- r. Passionate about the sport (1)
- s. No such thing as an optimal day (1)
- t. Not letting the competition intimidate you (1)
- u. Find balance (1)
- v. Sport transfers to life and vice versa (1)
- w. Sport has taught me hard work pays off (1)
- x. Mental toughness is developed physically (1)
- y. Working as hard with or without an audience (1)
- z. Separate self from others because sport is priority (1)
- aa. Knowing your race plan is important (1)
- bb. Take what I am and train to that (1)
- cc. Wanting team to succeed (1)

From this raw data, nine general themes were extracted from the content category of mental toughness:

1. Resilient to adversity (22/8)  
(Q1 – Items a, b; Q2 – Items c, m, p, s)
2. Confidence (22/9)  
(Q1 – Items g, h, l, q, t; Q2 – Items b, e, n, bb)
3. Persist and persevere (17/7)  
(Q1 – Items c, f, r; Q2 – Items g, j, l, w, y)
4. Concentration (10/6)  
(Q1 – Items d, w, x; Q2 – Items h, t, aa)
5. Composure and emotion management (10/8)  
(Q1 – Items n, v; Q2 – Item a)
6. Embrace required lifestyle (9/5)  
(Q1 – Item I; Q2 – Items d, u, v, z)
7. Mental toughness is a learned attribute (6/6)  
(Q1 – Item s; Q2 – Items f, x)
8. Different for each person/sport (5/3)  
(Q1 – Item e; Q2 – Item i)
9. Integrity (3/3)  
(Q1 – Item m; Q2 – Items k, q)

Resiliency in the face of adversity was the most often cited element of mental toughness. When the athletes were asked for their definition of mental toughness, 40 percent included a description of recovering from mistakes and letting the negative go. Another 40 percent of athletes included the ability to only look at the positives in adverse situations as also being critical to the definition of mental toughness.

To be in a situation that's not favorable... and to be able to think positively and through that alter the outcome...But it's being in a mental state where you're being beaten down and to change that. To say 'no, ok fine, if I'm going to get second I'm

gonna make it a close second, I'm gonna go out after them,' and even if you do get second I would still call that race a success because you stayed in the mindset, you were able to alter what would have happened. (Athlete 8)

...things are going to affect you and you're gonna have adversity, you're gonna have bad travel plans, something is going to happen when you go on your road trips and just staying stable. (Athlete 1)

...being able to recover after a mental disaster or a bad performance. (Athlete 3)

I would describe mental toughness as being able to let things go...move on to the next one. You're only as good as your next golf shot...just not letting circumstances rubbing me the wrong way or get me down... I am able to let things go, let negative things go and try and only look at the positive. Move to the next shot. (Athlete 9)

When provided a definition of mental toughness (a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience), and asked how the definition related to them personally, 50 percent of athletes related to and emphasized resiliency and the ability to adapt and handle anything. Furthermore, 20 percent wanted and thrived on the challenge posed by competition.

...adaption would be a good thing [for] mental toughness...it's always going to be adapting because you can't predict what your performance is going to be. (Athlete 3)

I wanted a challenge. I kind of thrived on that, and that's when I think I did my best...I just, I lived for it. (Athlete 2)

Confidence was reported by two of the athletes as an element of defining mental toughness. Specifically, belief and trust in the preparation and training, and relying on past success were cited. One athlete described confidence as a lack of arrogance.

...for all sports confidence is a big part of mental toughness...but not arrogance, I think arrogance kind of hinders people from time to time. So confidence is a big one... (Athlete 5)

Although only two of the athletes listed confidence as an element of mental toughness when asked to provide their own definition, 80 percent related to having confidence when provided a definition which included the attribute. Forty percent of athletes specified having confidence from the preparation and training, and 20 percent believed in simulation training.

...definitely the word confidence comes out in that...I mean I think confidence and your mental toughness go hand in hand... (Athlete 7)

...to have faith in the time and the devotion that you've put towards your event...It's knowing I've spent twenty hours a week and this is going to work because I don't know what my competitors do, but I know that whatever I've done is to my greatest ability. And so I can only trust myself...mental toughness is having trust in yourself, knowing that you did all you could do in preparation and then the competition, that's just the easy part. It's just going out there and getting it. (Athlete 4)

I'm not always confident but I feel like if my confidence is at 51 and my unconfidence is at 49 then eventually [confidence] will always win out. (Athlete 6)

Persistence and perseverance was also a critical element in the definition of mental toughness. When generating their own definition, 40 percent of the athletes mentioned overcoming, conquering, and persisting when the desire to quit was apparent. Never backing down was added by two of the athletes, and one athlete spoke of having patience.

...what I would define as mental toughness, almost as having little breakdowns with yourself and then being able to conquer them...you know like those moments where you want to give up obviously and then you just conquer them...if I ever had those moments of you know 'screw this', I would just be like, 'no, no you've been here before, you've gotten past way more than this.' But I think it's about hitting these thresholds and then really realizing you can conquer them and you can't really go down from that because you've already conquered that mental toughness. (Athlete 7)

...being mentally tough is just, whatever challenges you face you know you face it head on. Whatever it is you have in front of you knowing some way or another that you're gonna accomplish it, and you're going to do everything you possibly can and as cliché as it sounds, leave it all out on the court...if somebody tells you to suck it up, you suck it up. You just get it done...that's kinda what mental toughness is to me. (Athlete 2)

...some problems may take a longer time to work through but as long as you're still working through it and you just don't give up...I guess that's the persistent part. (Athlete 3)

...in the moment if you can acknowledge that the outcome of whatever you are doing is more important than that pain then...I mean that's what it is, that's mental

toughness. It's the ability to overcome and override everything externally and internally when your body is begging you to stop...you have to override that with your mind and I think that is mental toughness for sure. (Athlete 6)

...my approach is there aren't any excuses. Because if you rely on an excuse then you're just kind of letting yourself be the underdog...perseverance...no day is an optimal day. (Athlete 4)

After being provided with a definition of mental toughness (a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience), 40 percent agreed with the term persistence being included, and 20 percent related to perseverance. Finding a way to get it done with no excuses was also mentioned by two of the athletes. Finally, one athlete believed that sport had taught him the principle that hard work would pay off.

...whatever comes my way I can handle it and I'll find a way to get it done. Whatever it is. I don't care what it is. I know that I have the ability to get it done, because of you know, the preparation I've done, the hard work I've put in and yeah, bring it on. (Athlete 2)

The ability to concentrate and block out distractions was deemed important to 30 percent of the athletes when asked for their definition of mental toughness. One athlete emphasized focusing on themselves, and another athlete specified helping teammates focus as well.

I would say being able to just concentrate on what you're doing yourself and not worrying about any obstacles that might come your way. I would probably say focus

is the biggest thing, I mean, it's really easy to lose focus and you've got to really be into what you're doing and want to compete to make that happen I think. (Athlete 10)

After being provided a definition of mental toughness (a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience), again 30 percent related to the importance of concentration as an attribute. One athlete mentioned the ability to not let the competition intimidate her as being critical in blocking out distractions. Another athlete emphasized knowing the importance of the race plan as critical in guiding concentration.

Not letting your emotions be affected by things you can't control. So things outside of your circle of control, not letting those affect you whether that's fans, friends, peers, refs, other coaches. (Athlete 1)

Only two citations were given regarding composure and emotion management when asked for a self-generated definition of mental toughness. One athlete stated that mental toughness included not being too emotional over something trivial, and another athlete referred to accepting second place so long as it was an all-out effort performance. Yet when provided a definition of mental toughness which included composure, 60 percent of the athletes who were interviewed felt composure and control of emotions was critical in performance situations and relevant to mental toughness.

Composure is huge. That's the one thing I would like to highlight...to be able to hold yourself within your physical limitations, not to put down anyone else. (Athlete 4)

...composure I definitely would say is a big one too because I mean if something goes wrong like I said you have to be able to put it in perspective...you just have to, I

mean there's nothing you can do about the previous shot, absolutely nothing you can do. (Athlete 10)

Coach always gave this good analogy of a thermometer and a thermostat. We never wanted to be a thermometer; we always wanted to be a thermostat. A thermometer measures the temperature and goes up and down, a thermostat you set the temperature and stay at that level...that's how I define mental toughness. (Athlete 1)

Embracing the lifestyle and training which is required of successful athletes was only mentioned by one athlete when asked for a definition of mental toughness. However, 50 percent of the athletes agreed with this aspect of the definition provided by the researcher. Finding balance was critical for one athlete, and for another athlete it was crucial to separate herself from others at times as sport was the priority.

I like the part about in all of your lifestyle not just on the playing field...especially in a collegiate athlete, it's really different, you have to be able to focus on school and not just think about your sport all the time...you have to feel that balance out really well...everything I do in my sport makes me better at the rest of my life too. (Athlete 5)

...being in control of your mind through competition and through practice in basically all aspects of life...be able to bring your body and mind together in all aspects of life...because if your body and mind is together then your physical, whatever physical product your trying to produce, is gonna happen and it's going to be miraculous...mental toughness in the combination of mixing your mind and body together so that they're in sync... (Athlete 3)



...that is a huge part of the training...being able to live the lifestyle and go through the training that you have to complete and a big part of that is staying focused.

(Athlete 8)

...they persevere through... like when all of your friends want to go out and I really know mentally and physically I have got to do this and I have to separate myself from you guys, but I am going to go do this right now and I'll meet up with you later, or I might even miss out on this experience because people don't understand, but you just have to have the confidence...in yourself that you know what's right for you...be persistent with it. (Athlete 7)

One athlete spoke of mental toughness being a learned attribute when asked for a definition. When provided a definition of mental toughness (a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience), 40 percent talked about all of the experiences and time it takes in order to learn mental toughness. One athlete felt that mental toughness is developed specifically through physical work.

...it just takes a long time to learn mental toughness...it's not like you can have one or two tough situations and then all of the sudden you're mentally tough...it takes a lot of experiences in your memory bank, or your mind to start to really feel confident in and tough and I think that goes along with confidence. (Athlete 7)

I would argue that it's a psychological component, but I would argue that it is developed physically. (Athlete 6)

Two of the athletes who were interviewed made comments about mental toughness having many attributes and that the definition would vary depending on the sport. After being provided a definition of mental toughness, 30 percent of the athletes felt it was difficult to generalize and that it would vary depending on the person and situation.

...to me it's different depending on the sport that you do... (Athlete 5)

...mental toughness can be so broad I mean it's hard to narrow it down because there's so much we don't understand...it's so particular to each person...each person is going to have different mental toughness and it's not the same as anybody else just because of their background, you know, their coaching, their influence now, their sport demand, whether it's team or individual, there's so many attributes to it...I think there's more to it and I think there's less to it depending on the athlete and everything so I think it's hard to generalize a mental toughness definition. (Athlete 3)

The final theme generated from mental toughness was that of integrity. In a self-generated description of the term mental toughness, one athlete emphasized sharing the glory of the win with all the people who surround him. The same athlete further emphasized integrity after being provided a definition of mental toughness by saying that it included exhibiting character. Two athletes spoke of the importance of showing respect to officials and fellow competitors.

Because I was always the captain a lot of the times so I was always talking to the ref and complaining, but it was about going about them the right way and saying the right things. And I felt like I had a lot of respect for a lot of the refs... (Athlete 1)

...knowing that your character is gonna shine through... (Athlete 3)

**Confidence.** The six questions within the content category of confidence and the frequency distribution of raw data were as follows:

Question 1 – Who first believed in you?

- a. Coach believed in me first (4)
- b. Father first believed in me (3)
- c. Coach's confidence gave me confidence (3)
- d. Believed in myself (2)
- e. Parents believed in me (2)
- f. Mother/Sister was supportive (2)
- g. Belief grew with success/hard work (2)
- h. Playing with better competition gave me confidence (1)
- i. My sister believed in me (1)

Question 2 – Who believed in you during your college athletic career?

- a. Coach believed in me (8)
- b. My best friend/teammate (2)
- c. Parents believed in me (1)
- d. Everyone who is part of my support group (1)
- e. My dad (1)
- f. Comments from other coaches/sport psychology professionals (1)
- g. Coach believing gave me confidence (1)
- h. My family (1)
- i. Believed in myself (1)

Question 3 – Have you experienced times of doubt in your abilities?

- a. Doubted when I wasn't improving/winning (5)
- b. Comparing myself to other's ability made me doubt (3)
- c. Definitely had doubts (3)
- d. There's always going to be doubts (3)
- e. Doubted when injured/hurt (3)
- f. Expectations made me doubt (2)
- g. Was mentally weak when younger (1)
- h. Too much thinking made me doubt (1)
- i. Dedication to the team got me through doubts (1)
- j. Considered quitting (1)
- k. Doubted until coach gave me opportunity (1)
- l. All the hard work it takes made me doubt (1)
- m. Many times I didn't feel I belonged in a competition (1)
- n. Don't experience doubts in training/practice (1)
- o. Confidence grew from challenge by teammate's ability (1)
- p. Perseverance and staying at it helped me doubt less (1)

Question 4 – How many hours per week did you spend on *physical skill development* and deliberate practice related to your sport?

- a. 18 hours (2)
- b. 17 hours (2)
- c. Location limited practice (2)
- d. 10 hours (1)
- e. 15 hours (1)
- f. 19 hours (1)
- g. 25 hours (1)
- h. 30 hours (1)
- i. 40 hours (1)
- j. Feels like I'm constantly training (1)

Question 5 – How many hours per week did you spend developing *mental skills* and engage in deliberate practice of that aspect of training?

- a. Visualization (6)
- b. Mental training is constant/Constant thought (6)
- c. Happens at same time as the physical (4)
- d. Didn't do much mental stuff (4)
- e. Took sport psychology class (3)
- f. Watch video/Listen to audio (3)
- g. Mentally prepare all day of competition (2)
- h. Worked with sport psychologist couple of times (2)
- i. Have exact routine/developed race plan (2)
- j. Practice was focused and dedicated time for working hard (1)
- k. Prepared game day by thinking more (1)
- l. Verbal debrief with teammates constantly (1)
- m. Mentally prepare more in days leading up to competition (1)
- n. Sometimes used them in certain situations (1)
- o. Listen to a lot of music (1)
- p. Use last race to visualize next one (1)
- q. Sport is kept separate from rest of life (1)

Question 6 – How did you prepare for competitions in your sport?

- a. Visualize what it would look like (7)
- b. Be flexible/Don't expect it to go according to plan (6)
- c. Meet and talk with team/coach prior to competition (4)
- d. Listen to music (4)
- e. Familiarize myself with the competition/scouting reports (4)
- f. Had a routine/Always same thing (4)
- g. Focus in/Get focused (4)

- h. Paid attention to what and when I ate (3)
- i. Shake it all out/Get loose (3)
- j. Have fun/Laugh (3)
- k. Always showered before a game (2)
- l. Have an open mind/Respond to whatever happens (2)
- m. No specific or structured routine (2)
- n. Get a good night of sleep/Early to bed (2)
- o. Relax as much as possible (2)
- p. Keep head clear/Don't over think (2)
- q. Get there early to prepare (2)
- r. Practice round day before competition (2)
- s. Knowing I can power through any situation (1)
- t. Prepare to trust my body (1)
- u. Only let positives in and keep negative out (1)
- v. Psych myself up (1)
- w. Keep it simple (1)
- x. Just go out there and do it (1)
- y. Keep body in work mode all day of game (1)
- z. Intimidate the competition (1)
- aa. Planned extensively for focus points (1)
- bb. Prepare on the way to competition (1)
- cc. More physical than mental (1)
- dd. Wrote confidence building notes to self (1)

From this raw data, fourteen general themes were extracted from the content category of confidence:

1. Prepared prior to competition (25/10)  
(Q5 – Items g, k, m; Q6 – Items c, e, h, n, q, r, t, v, y, z)
2. Experienced self-doubt (24/10)  
(Q3 – Items a, b, c, d, e, f, g, h, j, l, m)
3. Visualization (17/7)  
(Q5 – Items a, f, p; Q6 – Item a)
4. Coach believed in me (15/9)  
(Q1 – Item a; Q2 – Items a, f, g; Q3 – Item k)
5. Believed in self (13/7)  
(Q1 – Items c, d, g, h; Q2 – Item I; Q3 – Items n, o, p; Q6 – Item s)
6. Relax and have fun (13/6)  
(Q5 – Item o; Q6 – Items d, I, j, o)

7. Constantly prepared for my sport (12/6)  
(Q4 – Item j; Q5 – Items b, c, l)
8. No structured routine or mental skills used (9/6)  
(Q5 – Items d, n; Q6 – Items m, x, cc)
9. Focus (8/5)  
(Q6 – Items g, p, aa, bb)
10. Followed routine (8/5)  
(Q5 – Item I; Q6 – Items f, k)
11. Be flexible (8/5)  
(Q6 – Items b, l)
12. Family believed in me (7/6)  
(Q1 – Items e, f, I; Q2 – Items c, h)
13. Formal sport psychology training (5/3)  
(Q5 – Items e, h)
14. Father believed in me (4/3)  
(Q1 – Item b; Q2 – Item e)

When the athletes were asked who first believed in them, 40 percent named one of their coaches. When asked who believed in them during their collegiate athletic career, 80 percent named one of their coaches. Thirty percent of the athletes who were interviewed recalled that their father was the first to believe in them, while another 20 percent attributed early belief to both parents. One athlete named her sister as the first person who believed in her. Two athletes recalled that they were the first to believe in themselves and one athlete stated that they believed in themselves the most during college.

Thirty percent of the athletes reported that their confidence grew from their coach's confidence in them, and acknowledged that their confidence grew as a result of hard work and success. Playing with better competition and being challenged by a teammate's ability were also reported as contributing factors for building confidence.

...[Coaches] just showed from the beginning a lot of confidence in me, and respect and interest in me being on the team, so you know they were a big motivator for me.

(Athlete 7)

I'd like to say myself, but I think [the coaches] believed more in me. In the beginning they knew, you know, you can always see on the outside, what somebody's capable of. (Athlete 2)

...when [my high school coach] believed in me that kind of gave me the faith to believe in myself. (Athlete 1)

I worked hard...it built confidence... (Athlete 5)

I had serious doubts going into college and knowing how good these guys were but the best thing for me was to be able to compete against these guys every single day. I felt like I was a good high school player, but I didn't know how good I was going to be on the next level, but the biggest thing that helped me the most was going against those eight seniors every single day in practice and I learned how to do things I didn't even know I could do because I was going against a higher level of competition and it pushed me to do things differently, do things quicker, because people were more mentally prepared and anticipating things quicker, you know picking up the pace. That year alone I think I improved more ever than in any other year playing and it was just I think, because I was finally on a team with better players than me, I wanted to get out there. (Athlete 1)

Every athlete who was interviewed reported experiencing doubt at some point during their athletic careers, and some athletes acknowledged that having doubt was inevitable. The most commonly cited time of doubt was when the athlete was not improving or winning; half of the athletes experienced this type of doubt.

Oh, definitely. All the time...it's a matter of realizing that there's that doubt and that it's always gonna be there cause realistically you're not going to have the exact same situation very many times. So it's always, 'I've never done this before', or 'can I do it?'...you just have to be confident and just say, 'you know I'm gonna give it a try and give it my best, we're gonna see what happens' and go from there. (Athlete 10)

...every time I lose a race, every time I don't reach a PR, I experience doubt...there's so many times, I can't even count, like during races where I feel like you know, maybe I shouldn't be in this race, or maybe I shouldn't be up in the front, you know what am I doing and you know it's the fact that doubt is like pain. It's something that's always going to be there, but like negative self-talk, you counter it with positive self-talk. It's not escapable; it's something that's manageable. (Athlete 6)

Other forms of doubt were present for the athletes when they: would compare their ability to that of someone else (30%); were injured (30%), or had expectations placed on their performance (20%). The other two athletes reported experiencing doubt when they were thinking too much and from the amount of difficult training which was required of them.

Definitely. I had some technique issues...I could always fall back on being fit, but definitely there were just times where...there were always people who had a perfect [technique], so it was like, 'god, why can't I be like them?' (Athlete 7)



So that was definitely the question, 'are we going to be good enough?' ... 'I know we're good, but is it good enough? I know we're fast, but is it enough?' (Athlete 8)

...there's mornings like where you wake up at seven and you're like 'ah I have to do a morning run?' and it's rainy and windy and like 'how bad do I actually want to work?' ...so you have to find things, like I learned to love the rain...if you look back on any successful moment and you're like 'ok, I love this' or once you're running clothes are on and you've taken three steps out the door you're like 'yep, I love this, this is why I'm here'. You just have to get over it sometimes. (Athlete 5)

The athletes were asked for an estimate of the weekly hours they invested in the physical training related to their sport. All ten athletes provided a specific number of hours when answering that question. However, when asked how many hours per week they invested in mental skills training, not one of the athletes was able to quantify the time spent, yet several of the athletes explained the various skills they engaged in at certain times.

When asked how many hours the athletes engaged in mental skills training, 60 percent of the athletes reported they did not deliberately practice mental skills on a regular basis. Two athletes specified that they had no specific or structured routine, and one athlete felt their training and performance was more physical than mental. Thirty percent of the athletes had formal mental skills training (sport psychology class) and two mentioned working with a sport psychology consultant on several occasions.

I would say the most I ever thought about the mental skills was during [a sport psychology] class...I want to say [the instructor] came out twice, maybe three times [to] work with us... (Athlete 9)

Well my senior year I think I took some sports psychology classes, so, I mean I tried to implement it, but...probably usually just the day of the game. I would prep during the day and just start thinking about it, do some mental stuff sometimes...sporadically throughout the week if you know my shot wasn't on, or my shot wasn't going well in practice I would try and do mental imagery. Not a whole lot...not a huge amount.

(Athlete 2)

Several of the athletes verified that they did engage in deliberate mental skills training. In fact, for half of the athletes, mental training and preparation was a constant thought process, and for 40 percent of the athletes who were interviewed, the mental aspect happened simultaneously with the physical training.

Almost every hour I was awake...every hour I was awake I would think about it...I was addicted to it and it just became this like obsession...if you're not talking about [my sport], if you're not thinking about [my sport], if you're not surfing on-line about [my sport], I don't know what I was doing, studying probably. (Athlete 8)

Especially on non-game days, doing a lot of it, where on game days I would actually set aside time and say, 'ok, this is my hour to get mentally prepared'. If it wasn't a game day things were always still running through my mind, when I was driving in the car, wherever I was... (Athlete 1)

...every time that you are running you are working on the mental aspect of your sport.

(Athlete 5)

...I'm always thinking about something...it all happens at the same time. (Athlete 6)

Twenty-four seven, because for me I would consider everything that I do mental with physical aspects...I try to be conscious of what I'm thinking about all the time and so I feel like my mental toughness training is incorporated with all areas of my life...I feel like it's a huge part of my life. (Athlete 3)

The same 50 percent of athletes who constantly prepared for their sport also reported visualization of their performance as a regular skill they engaged. Thirty percent of the athletes who were interviewed would also watch videos or listen to audio recordings related to their sport. One athlete specifically used her last performance in order to visualize the next one.

I've always, even to this day, I just love thinking about things, about the game, and coach always had a quote or a saying...create a highlight film in your mind...even growing up my dad always preached that you gotta prepare for a game, and a lot of that was just preparation and setting aside time, sitting there, thinking about it, visualizing plays and it's amazing how many times where I would visualize something happening and then go play the game, and that situation comes up and you're doing what you're visualizing. (Athlete 1)

I try to watch more video of professionals just to make sure my mechanisms are right in my head before I get out on the field. (Athlete 3)

I will definitely visualize racing and stuff, especially if I just had a race, that's what I draw from if I have a race coming up. That's what I go to. (Athlete 6)

When asked how they typically prepared for a competition in their sport, the athletes recalled a variety of strategies. Two athletes mentally prepared the entire day leading up to a

performance, and one athlete increased mental preparation for a few days leading up to the competition. Thirty percent of the athletes paid close attention to what and when they ate, and two athletes mentioned getting adequate sleep the night or two prior to competition.

Work mode was to be busy, and then getting closer to game time, getting mentally prepared. That to me is still...I don't see how some people can do it as just being kind of lazy all day and nonchalant and sitting around. I think that lazy attitude would just translate into a game...I would typically set aside an hour before the game and a lot of times what I would do is I would find like a highlight film or something and watch that... just watching some of the highlights, just getting my adrenaline going, and also just using that time and mentally preparing myself. (Athlete 1)

I had like a whole routine...I would start thinking about the race, like this is the race plan, if I had paper and pen I would write it out...fill out each block of time with what your focus is going to be on...I'd start brainstorming key phrases, key everything, the times we were looking for. I know I'd start looking through the booklet and figuring out who was going to be on my left, who was going to be on my right, you know start visualizing that was what it was going to look like... (Athlete 8)

...if it's a race week, then there's probably some more, especially like the couple days leading up to it. (Athlete 5)

I would eat kind of the same thing, especially for in the morning. I'd try and have [something] like a black bean and rice burrito, or a sandwich for lunch...I really paid attention to what I ate and when I ate. (Athlete 2)

...eating is a big thing for me...I have certain meals that I can and can't eat. That definitely depends on what time our race is and it depends if I have one race that day or three races that day. (Athlete 5)

Forty percent of the athletes who were interviewed would meet with the coach and teammates prior to competition, and 40 percent would familiarize themselves with the competition or scouting reports. Getting to the competition site early and practicing ahead of time was also a method used by a couple of the athletes in order to be prepared and become familiar with the environment.

Forty percent of the athletes who were interviewed had an exact routine that was followed for every competition. Several athletes also spoke of getting focused prior to competing as a regular method of preparation. Keeping the mind clear and avoiding thinking too much were cited by two athletes; one athlete described competition preparation as preparing to trust the body.

I would usually set aside that hour before [competition]. That was my time of getting mentally prepared. I've gone through all my play sets in my mind, I've gone through the scouting report again in my mind, I've watched the highlight film, and kind of created my own highlight film in my mind. (Athlete 1)

I really don't over think it. Which is probably to my advantage, because over thinking and getting nervous about things you know, you use a lot of energy...you're focusing, but you're focusing on the wrong thing usually, so it's very simplistic of me, just go out there and simply do it. (Athlete 4)

Despite having structured routines to follow, many of the athletes emphasized that relaxation and having fun were also important, and 30 percent of athletes spoke of using

humor and laughter, such as reading or watching something funny. One athlete emphasized the importance of being with light-hearted teammates prior to competition in order to relax. Forty percent of the athletes who were interviewed listened to music in order to relax. Thirty percent of athletes tried to relax by shaking the body out and getting loose.

Finally, 30 percent of the athletes expressed the need to remain flexible and have an open mind in order to respond to whatever might happen. The athletes also emphasized that they would expect the performance to go any direction than that which was planned.

...no matter what happens during this race, it's not going to happen how you thought it was...just respond to whatever happens. (Athlete 5)

I mean nothing super structured...sometimes when you do that you get so attached to that routine that if anything gets thrown off it's gonna maybe throw off how you play during the round. So you just have to be a little bit flexible I think. (Athlete 10)

...try to open up my mind and try to be ready to compete in any kind of situation...but not for one specific one. You know like 'oh, it's going to be perfectly sunny, I'm going to have a tail wind, I'm going to be in the right mindset'...that's not going to happen, that's a perfect scenario, of course that's not going to happen...I feel like if I keep my mind in it and when I start to compete I just go after it, then whatever stone is thrown at me I can, I can power through...my main preparation is just opening up my mind for any situation, or any situation that arises during [competition]. (Athlete 3)

**Achievement motivation and passion for sport.** Two questions relating to achievement motivation and passion for sport were asked and the associated frequency distribution was as follows:

Question 1 – How did you first get involved in your sport?

- a. Parents influence (5)
- b. Siblings influence as athlete (3)
- c. My body type/size (3)
- d. It was fun/liked it/good at it (3)
- e. Coach assigned me to sport because of ability (2)
- f. I threw further than the boys (1)
- g. Been playing since I can remember (1)
- h. To treat depression (1)
- i. To be around my crush (1)
- j. To make myself known (1)
- k. A friend's influence (1)
- l. Grandpa's influence (1)
- m. Forced to choose one sport to pursue (1)

Question 2 – What were the reasons you committed to your sport?

- a. Loved playing the sport/It was fun (7)
- b. Was good at it/Had natural ability (6)
- c. The network of people/Friendships/Connection to others (4)
- d. Way of life/Passion/Addicted (3)
- e. Enjoy pushing myself/See what I'm capable of (3)
- f. Realized someone is investing in me/Don't let them down (2)
- g. Wanted to be like brother (1)
- h. Dad wanted me to (1)
- i. I liked being outside (1)
- j. Connection between body and mind (1)
- k. Opportunity to be part of something bigger than by myself (1)
- l. Every situation is different (1)
- m. Convenient (1)
- n. Like the solitude and peace (1)

From this raw data, four general themes were extracted from the content category of achievement motivation and passion for sport:

1. Enjoyment (19/10)  
(Q1 – Item d; Q2 – Items a, d, e, i, j, n)
2. Family's influence (13/8)  
(Q1 – Items a, b, g, l, m; Q2 – Items g, h)
3. Natural fit (12/7)  
(Q1 – Items c, e, f; Q2 – Item b)
4. Connection to others (8/7)  
(Q1 – Items i, j, k; Q2 – Items c, k)

All athletes reported an element of fun and enjoyment when asked about the reasons they became involved in their sport. Many athletes described liking their sport because they excelled in it. Specifically, 70 percent of athletes believed they enjoyed their sport due to a natural ability or due to the fact that their body type and size was a natural fit. The family was again an influence in the motivation to participate in sport, as most of the athletes interviewed had seen parents and siblings stay active and enjoy sport participation.

When athletes were asked for the reasons why they eventually committed to their sport, many of the same themes were found. All athletes spoke of the element of enjoyment being a reason they made a commitment. Some athletes even described their enjoyment of their sport as a passion or addiction. Family was influential in the commitment process for two athletes, whereas for others the commitment was influenced by the connection to others within the network of people involved in their sport. Several athletes emphasized that their talent and ability in the sport played a role in establishing a commitment.

Committed? I loved it. I loved the game. It was fun. I wouldn't say I committed for anybody in particular besides myself. (Athlete 9)



I love winning, I love losing, I love training, I love you know the blisters, good days, bad days, the snow, the sun, everything about it. (Athlete 6)

I think because I felt like it was an opportunity to do something big, to do something bigger than I could do by myself. I felt like I had finally found a sport that I could actually succeed in, as being a small, petite woman I just never found anything that I was just naturally good at...I think that's why I committed, just because I knew there was something about it that I just knew, I knew I could do it and that's all it took, it was that easy. (Athlete 8)

The hard work...the first day we went on a run together and I almost threw-up and I was like, 'This is awesome,' I was just like, 'This is so what I want.' I wanted to work hard and I wanted to feel, you know for me it's all mental and the physical, like pushing myself physically just connects directly to my mental health...which is exactly why I can never do a performance where it's just like ho-hum...also that there were women out in the world who wanted to do that with me so it was like ok, this is like a network of people and they like to do this stuff. (Athlete 7)

...it's an addicting sport. I would say the addiction got me, I mean I would say I'm still addicted to it...you just get addicted to it, and I think it's just the addiction that like, had me finalized in it...I do see [my sport] as a way of life. (Athlete 3)

...having the athlete mentality is 'ooh like that was fun, how good can I get? Let's see what I can do'. So I run for a lot of reasons, but I compete because I enjoy that. I like to see what I can do, I mean I don't care about anybody else...it's fun to win but I

like pushing myself. I think I did it just because I liked the feel of it. And I mean I like running for running, I like being outside, I feel connection to everyone...

(Athlete 5)

**Coping with adversity.** Two questions relating to coping with adversity were asked; the first question was analyzed in two parts. The associated frequency distribution was as follows:

Question 1 (Part 1) – What obstacles have you faced while training and competing in your sport?

- a. Injuries prior to college kept me out (5)
- b. Expectations/Pressure I put on self (4)
- c. Felt more pressure as leader/captain of team (3)
- d. Mentally weak as freshman/Transition to college (3)
- e. Community pressure once winning national title (1)
- f. Challenging to find a place to work on my technique/drills (1)
- g. Challenging to be divided between my culture and my sport (1)
- h. Challenging doing it on my own (1)
- i. Separation from family in college (1)
- j. I was anemic for a year in college (1)
- k. Challenged by the limitation of own body (1)
- l. Slight eating disorder (1)
- m. Stressed about school (1)
- n. Comparing myself to others (1)
- o. Afraid of declines in performance (1)
- p. Conflict with teammates over lifestyle choices (1)
- q. Sleep deprivation (1)
- r. Learning to communicate with teammates (1)
- s. Family was not wealthy/Missed opportunities (1)
- t. Had less experience than most college players (1)

Question 1 (Part 2) – How were you able to cope with those challenges?

- a. Work harder/Practice more to improve (4)
- b. Patience/Took time/Slow progression to success (3)
- c. Friends (1)
- d. Family (1)
- e. Used the disability to share my faith (1)
- f. Community accepted my disability (1)
- g. Coach worked with me (1)

- h. Knowing I was still part of the team (1)
- i. Knowing I was still talented (1)
- j. Remembered I like doing this for a reason (1)
- k. I have a positive outlook on life (1)
- l. Set aside now for the bigger picture (1)
- m. Realizing I am healthy the way I am (1)
- n. Still working through it (1)

Question 2 – I would like you to recall a tough loss during your college athletic career. How did you handle the loss?

- a. Disappointed/Very upset/Frustrated (8)
- b. Walked away/Collapsed and cried or let emotions go (6)
- c. Family/Coach/Teammate helped me put it in perspective (6)
- d. Pushed me to get better/Chose to build off it (5)
- e. Look forward/Can't change the past/Don't dwell (5)
- f. Shut myself away from everyone/Stayed home for days (3)
- g. Realized that does not define me/Better than that/Turning point (3)
- h. Difficult and still not over it (3)
- i. Tough for a long time about how I'd screwed up (2)
- j. Learning from it got me through/Good learning experience (2)
- k. Took week or few days off then back to work (2)
- l. Questioned what more I could have done (2)
- m. Decided not to fear losing anymore (1)
- n. No closure since it was last competition of year and career (1)
- o. Was meant to be/Part of the bigger plan (1)
- p. Wrote in my journal (1)
- q. Especially didn't want to talk to family about it (1)
- r. Took expectations off myself (1)
- s. Time heals all wounds (1)
- t. Took months to comprehend and analyze what had happened (1)
- u. Felt I let teammates down (1)
- v. What doesn't kill you makes you stronger (1)

From this raw data, twelve general themes were extracted from the content category of coping with adversity:

1. Disappointed and upset (15/10)  
(Q2 – Items a, b, u)
2. Dwelling on the loss (14/8)  
(Q1b – Item n; Q2 – Items f, h, i, l, n, q, t)

3. Used adversity to improve (13/6)  
(Q1b – Item a; Q2 – Items d, j, m, v)
4. Pressure and expectations (11/5)  
(Q1a – Items b, c, e, g, n, o)
5. Relied on support network (11/8)  
(Q1b – Items c, d, f, g, h; Q2 – Item c)
6. Look forward positively (10/6)  
(Q1b – Items k, l; Q2 – Items e, k, o)
7. Transition to college (8/5)  
(Q1a – Items d, h, i, m, q, t)
8. Acceptance of self (7/3)  
(Q1b – Items i, j, m; Q2 – Items g, r)
9. Injury and illness (7/7)  
(Q1a – Items a, j, l)
10. Patience (4/3)  
(Q1b – Item b; Q2 – Item s)
11. Missed opportunities to train (2/2)  
(Q1a – Items f, s)
12. Team dynamics (2/2)  
(Q1a – Items p, r)

The athletes who were interviewed had a variety of obstacles they overcame while training for and competing in their sport. Prior to competing at the collegiate level, 50 percent of the athletes had an injury which prevented them from training and competing temporarily. A few athletes commented on the transition into college being an obstacle they had to overcome in order to become effective in their sport.

I was in awesome shape and I hurt my IT band and I had to sit for three months and it was in the middle of winter so I was depressed anyways and couldn't run for three months...that was really hard, but I think just me being a part of the team atmosphere

still I was like ‘I want to be good and I know I’m good’ ...when you’re having a bad day you have to remember ‘I like it for a reason’. (Athlete 5)

...in high school, it was just having to have surgery on my knee and then I rehabilitated my knee. You know, being out of shape that was a challenge I would say I had to overcome...separating from your family, finding out who you are, going through those experiences, those new experiences, you know, being on your own. I would say those were the big challenges. (Athlete 2)

...sleep deprivation was probably a huge issue. I mean I think any student-athlete goes through a large amount of sleep deprivation...I mean you’re up late studying. (Athlete 8)

The pressure and expectations of competing at the collegiate level were challenging for many of the athletes who were interviewed. Thirty percent of athletes reported that the pressure and expectations were self-inflicted, and two athletes reported that they felt more pressure as they assumed a leadership role within the team. One athlete commented on the pressure increasing as a result of winning a national title and feeling the need to repeat that caliber of performance again the following year.

Just the challenge of being a leader and just making sure you’re walking the walk and not just talking it...when you are in that leadership role, and you are that elite athlete you don’t really realize how many other people look to you...even outside of athletics, just community wise too...there’s a little bit of a challenge sometimes to just always be positive. So I think that is sometimes challenging to not get down, and just be positive. You just never know whose watching, who’s listening... (Athlete 2)

...sometimes as I got more mature on the team you know and I was the team captain and so I felt that, that little bit more weight...I guess it would just be the expectations I put on myself...you hit a certain level or you make a goal for yourself and you hit it and you have the risk of that's a point you hit and going backwards from there is scary, because what if you can't perform that way twice?...I put the pressure on myself. There wasn't anyone putting it on me, but there would just be the pressures like that, along with winning Nationals. (Athlete 7)

Missing opportunities for training and preparation in their sport was mentioned by two athletes. The first athlete spoke of the fact that her family was not wealthy and therefore she did not have as much competition experience prior to college when compared to competitors entering the collegiate level. The second athlete recognized that during college he would have benefited from having access to the proper facilities for improving technique.

Finally, team dynamics posed a challenge for two of the athletes interviewed. The first athlete faced the obstacle of learning how and when to communicate with her teammates. She was in a position in which communication was one of her primary roles, and she had to learn how to deliver the communication in an effective manner. The second athlete reported having conflict with teammates over lifestyle choices which could impact the team's success. Both of these athletes faced the obstacle of communicating effectively with teammates, and learning how to approach issues related to team dynamics.

In order to overcome the variety of obstacles these athletes faced while training and competing in their sport, 30 percent used the adversity to improve by working harder. In addition to this, 30 percent had patience and recognized that it was a slow progression to become successful in their sport.

...it definitely took some experience and making some mistakes to really learn 'ok, I need to be a little more focused, I should practice a little more'. It's, you know, slowly progressing more towards being more successful. (Athlete 10)

...that the biggest challenge coping with is the limitations of my own body and like having to face the fact that there are times when I get beat by people who don't work as hard as I do, who don't work half as hard as I do. That is such a hard thing to square with, to realize that there's sometimes where you're just not good enough. And it's fine because running is a very progressive thing but I think having to come to terms with my own ability and where I'm at, it's not something that develops overnight and having to put aside the present moment in order to see the bigger picture is one of the biggest obstacles I've had to deal with. (Athlete 6)

Most athletes reported relying on established support networks at some point in order to overcome an adversity they faced. Sixty percent of the athletes received guidance from their support networks in order to handle a tough loss. Family, coaches, and teammates assisted the athlete in handling the feelings of defeat, and helped put the loss into perspective. Thirty percent of athletes overcame the challenges of training and competition by accepting themselves for the way they were at that time.

...definitely talking through it...we talked with each other...a lot of crying and a lot of you know talking about it... talking through it was again what got us through. Verbal. (Athlete 7)

The realization that there were more important things to come than the trials of the present was also a method used by two of the athletes. Overcoming obstacles meant looking forward and having a positive outlook for the future. While the feelings of disappointment

and frustration were apparent at the time of the loss, 60 percent of the athletes handled the loss by realizing they could not change the past and instead needed to look forward. Furthermore, 30 percent of the athletes realized that the loss in competition did not define them and they accepted the defeat as part of the bigger picture.

For me it's just work, get back to work. Don't sit there and dwell on it too much, just get going, next step. Just looking forward, you can't change the past, you can always learn from it. (Athlete 1)

I won my race because I put no expectations on myself. I was like 'I'm going to have fun' and I won. (Athlete 6)

...you take third in the Olympic trials and you're going to the Olympics, so you didn't win but you're still an Olympian right? That's kind of how I look at it. (Athlete 5)

When asked for a detailed description of a tough loss during their collegiate career, 80 percent of the athletes interviewed reported feeling upset, frustrated, and disappointed with the loss. Half of the athletes ended up walking away, collapsing, or crying in reaction to the loss, and let their emotions go.

...that was the time where I just like melted down in the van and was just so frustrated with myself...that was tough... I had a lot of time to think about how I'd screwed up. (Athlete 10)

...all of a sudden in two holes your college career is done...it was a really weird situation to be in. (Athlete 9)



I remember just walking out to these tennis courts...and I just cried my eyes out. I just sobbed and sobbed...I mean they sucked but better races followed so I've realized that. (Athlete 6)

Dwelling on the loss was a common reaction for many of the athletes who were interviewed. For some it meant staying home and shutting themselves away from the people they normally interacted with. Athletes reported thinking about their responsibility for the loss, and questioned if they had given all their effort during the performance. Thirty percent of the athletes reported that thinking about that loss is still difficult and they are not over the loss yet.

...that was a really, really bad experience and I remember I completely shut myself away from everyone...I especially didn't want to talk to my family about it for a long time...and I really had to come to terms with the fact that that one race does not define a season and that season does not define a career. (Athlete 6)

Yeah, that game still haunts me. I have bad dreams about it still. I didn't handle it well...I don't think I left my apartment for two days or three days...it was brutal and it was right during finals week...I just got super depressed and I just didn't want to do anything...just trying to figure out if you could have done more, or what else could you have done. Like how did that happen? So yeah, I hate that game. I don't think I'll ever watch the game film. Yeah, I'm still not ready to do that. (Athlete 2)

...it was hard because it was the last game. You really don't get that closure.  
(Athlete 1)

It took me like the whole summer to even to just realize what had happened.

(Athlete 7)

However, 60 percent of athletes who were interviewed used the feelings of defeat in order to improve their performance, and chose to build from the experience. Two athletes mentioned that the loss was a good learning experience and the learning process helped them navigate through the feelings of defeat.

...you can look at it as building opportunity, or you can look at it as 'I'm a failure' and going the opposite way, but fortunately I choose to try and build off of that emotion or feeling of never wanting that to happen again...you always want to be prepared going into an event...anytime you lose, you always feel like you could have done something different in preparation or being more ready or mentally tough or physically ready... (Athlete 9)

**Performing effectively under pressure.** One question relating to performing effectively under pressure was asked; the question was analyzed in two parts. The associated frequency distribution was as follows:

Question 1 (Part 1) – I would like you to recall a high pressure situation in your sport, a time when you felt as though a lot was riding on the line. Describe this to me in as much detail as possible.

- a. Pressure from everyone thinking I/We could win (4)
- b. Put pressure on self (3)
- c. Felt the pressure of teammates (2)
- d. Pressure of being team leader/captain (2)
- e. Felt the pressure to make it happen (1)
- f. Pressure from rankings (1)
- g. Pressure from defending the national title (1)
- h. Pressure of hosting the event (1)
- i. Pressure of a lot of people watching (1)
- j. Felt pressure when was behind (1)

- k. Many new circumstances for me (1)

Question 1 (Part 2) – How did you handle that pressure?

- a. Talked myself through it/Put it in perspective (6)
- b. Focus on own performance/Keep the distractions out (5)
- c. Stay focused on what I need to do/Forget the outcome (4)
- d. Tried to stay composed and calm (4)
- e. Knew I needed to step up (3)
- f. Focused on the wrong thing/Outcome oriented (3)
- g. Relied on past success in similar situations (3)
- h. Trusted that my preparation and hard work were enough (3)
- i. Handled it poorly (1)
- j. Just wanted everyone to accept me if I lost (1)
- k. Gave myself the out to lose (1)
- l. Took deep breaths (1)
- m. Realized it wasn't meant to be (1)
- n. Have to have mental toughness (1)
- o. Such a relief once it was over (1)
- p. I cried (1)
- q. I talked through it with a teammate (1)
- r. Thought about commitment (1)
- s. Not much was on my mind (1)
- t. I was nervous (1)
- u. Tense but in a good way (1)
- v. Buckled under the pressure (1)
- w. Didn't put pressure on self (1)
- x. Got angry with the external feedback from everyone (1)

From this raw data, six general themes were extracted from the content category of performing effectively under pressure:

1. Pressure situations (17/10)  
(Q1a – Items a, b, c, d, e, f, g, h, i, j)
2. Focused on own performance (13/6)  
(Q1b – Items b, c, e, s)
3. Talked myself through it (8/5)  
(Q1b – Items a, m, r)
4. Maintained composure (7/4)  
(Q1b – Items d, l, o, u)

5. Relied on preparation and success (6/4)  
(Q1b – Items g, h)
6. Outcome oriented (4/3)  
(Q1b – Items f, j)

There were several different situations described by the athletes when asked to describe a performance which was filled with pressure. In their descriptions, 40 percent of the athletes described the pressure being from other people thinking they were going to win, and 30 percent recalled putting pressure on themselves.

...it was one of those things where I felt like I had won two National Championships, I wanted to win a third; I wanted to win my last one. I think I was putting a lot of pressure on myself...I think all the articles that were coming out were putting a lot of pressure on us...but everything that was coming out of the media...it was either putting pressure on you or questioning your abilities and those combinations, that's kind of a deadly combination, really. So I was feeling a lot of pressure. (Athlete 8)

Just that pressure of people, your teammates are looking to you for the answers and to make it happen. (Athlete 2)

I would say the pressure kind of got to me like mentally I started thinking more about...I need to get this height, I need to get this height...instead of just letting it go and letting my body do the mechanics that it needs to, because if I let my body do the mechanics that it needs to, I'm going to make the height...my body knows what to do to make the height. But when I start focusing on the height, then I start focusing on where the bar's at instead of above the bar. (Athlete 3)

I've been a captain for three years and I think that was pressure just in itself just because I was a sophomore and they elected me as a captain and you know that's kind of a big deal, and I knew I was the leader of the team...you just feel more as a team sport than you do on an individual level...there's a lot less pressure from your teammates. (Athlete 5)

So I knew at that point I need to step up and kind of take over the scoring load and keep us afloat. (Athlete 1)

Forty percent of athletes handled the pressure of performing by maintaining focus on their own performance and prevented distractions from entering their focus. Furthermore, 40 percent of the athletes reported staying focused on the things they could control rather than thinking about the outcome.

There's no reason I should be stressed and I think I just focused myself and said 'I did all the work and stick my nose in this race and see what happens'. And then that's what happens you know? You can't control it sometimes. (Athlete 5)

I just dealt with it by kind of not dealing with it, like kind of just pushing it to the background and kind of just being like 'I'm here, this is my boat, these are my girls, whatever's gonna happen is gonna happen, and the only thing I can do is now focus on the rowing'. It was kind of like I just really want to go out there and race and get it done...and then after it was over it was just such a release I was just like 'oh, thank god!' (Athlete 8)

...when you're playing your best is when you don't know what you're thinking about...you know what you're gonna do before you do it. (Athlete 9)

Using positive self-talk in order to handle the pressure associated with performance was another strategy cited by 50 percent of the athletes who were interviewed. These athletes were able to keep the performance in perspective and guide their thought processes in a facilitative manner.

[What] I was thinking about during that shot I would say was just commitment, knowing that I put a lot of good swings on the clubs the previous day...don't doubt...have confidence in what you're doing and commit, and see it and hit it and you know I pulled it off... (Athlete 9)

I always would fight with myself, like don't ever think this is it, we just gotta do this. (Athlete 7)

Maintaining composure was also facilitative for some of the athletes during pressure situations. Thirty percent of athletes recalled that staying composed and calm during the performance was beneficial.

But I'm just laying on the floor and just taking deep breaths and just knowing I need to keep my composure because I think a lot of people in that situation, getting cold cocked like that, are just going to jump up and go at the guy and I just laid on the floor and could hear everything kind of going on around me and just started getting focused thinking 'hey I need to go up there, my two guys are out, I need to stay focused, can't do anything stupid, just hit these free throws'...I could still hear everything going on and just telling myself to stay composed, relax, get up there and knock these free throws down. And I did. (Athlete 1)

Other beneficial strategies, which 30 percent of the athletes used in order to handle the pressure of performance, were relying on past success in a similar situation and trusting in the preparation of training.

I felt a lot of pressure the couple days leading up to it and I just kind of had to take myself out of having that pressure, and realizing that obviously this isn't the end of the world...I did all of the work that I could do, nothing I do in these next couple of days is going to change really how I race...I did all the work, worked as hard as I could, I feel good and every single person in my life is going to love me no matter what. (Athlete 5)

### **Analysis of Emergent Themes**

Emergent themes were identified through analysis of the raw data responses and included only those which were cited a minimum of three times throughout the transcripts. The frequency distribution of the raw data (Appendix G) allowed for identification of 28 emergent themes. Those emergent themes were further grouped into the following five umbrella categories: experiences, motivation, cognitive processes, success related mental skills, and mental toughness attributes. The number of total responses is identified within parentheses immediately after each emergent theme; the number following total number of responses (separated by a back slash) is representative of the number of different athletes who contributed to that particular emergent theme. The final five emergent theme categories and supporting 28 sub-themes are represented in Appendix H and outlined below:

1. Experiences
  - a. Multi-sport athlete (28/10)
  - b. Experienced strong emotions (24/10)
  - c. Pressure situations (21/10)
  - d. Consistently performed well (7/6)

e. Peak performances are rare (7/7)

## 2. Motivation

a. Influenced and supported by family's athleticism (47/10)

b. Excelled early in sport due to natural attributes (15/10)

c. Father was great influence (15/7)

d. Coach believed in me (15/9)

e. Love for sport (10/10)

f. Connection to others (4/4)

## 3. Cognitive Processes

a. Maintained positive attitude (27/10)

b. Experienced doubt (17/10)

c. Misdirected attention (10/7)

## 4. Success Related Mental Skills

a. Focus (43/10)

b. Perseverance (41/10)

c. Specific competition routines (19/8)

d. Visualization (18/8)

e. Mental aspect is always present (10/5)

f. Relaxation (8/5)

g. Formal mental skills training (6/6)

h. Relied on teammate (4/3)

i. Minimal mental skills training (4/4)

## 5. Mental Toughness Attributes

a. Resiliency (39/10)

b. Composure and emotion management (21/8)

c. Confidence (21/9)

d. Sacrifice (14/5)

e. Individual and situation specific (3/3)

## **Discussion of Emergent Themes**

Results from content analysis of the interview transcripts revealed the following findings within each of the five emergent theme umbrella categories.



**Experiences.** This umbrella category included the following five emergent themes: multi-sport athlete, experienced strong emotions, pressure situations, consistently performed well, and peak performances are rare.

*Multi-sport athlete.* The All-American athletes interviewed in this study all gave a description of playing and trying several sports in their youth, and prior to pursuing the sport in which they excelled during college. Eight of the ten athletes played baseball or softball, seven played basketball and/or soccer, and six participated in cross country and/or track and field. Similarly, most of the All-Americans recalled their childhood as a time when they often played recreationally in the backyard and ran around the neighborhood. Several athletes had fond memories of the entire family being active together and playing games with parents and siblings.

*Experienced strong emotions.* The All-American athletes reported several sport situations in which they felt strong emotions. Many of the strong emotions were experienced during or after a memorable loss they were asked to recall. Feelings of frustration and disappointment were described by eight of the athletes when recalling a significant loss. Five of the All-Americans explained that they walked away or collapsed and cried after a disappointing performance; they discussed letting their emotions go once the performance was finished.

Three All-American athletes further emphasized the affect their emotions had on them in the days following the disappointing loss. Staying home for days and shutting themselves off to the rest of the world was how these athletes coped with the loss at first. The same athletes explained they were still not over that loss and it remains difficult to understand.

Three athletes listed uncontrolled emotions and nerves as being a hindrance during their performance at some point during college. Gould and Dieffenbach (2002) also found that experiencing strong emotions was a characteristic of elite athletes. In their study of Olympic champions, Gould and Dieffenbach discovered that emotions represented a significant component for the athletes.

*Pressure situations.* Experiencing pressure situations was an emergent theme for these All-American athletes. While recalling a peak performance in their sport, four athletes chose to recall a National Championship performance. Those four athletes became National Champions as a result of that performance, and therefore were able to effectively perform under pressure. The internationally successful athletes interviewed by Jones, Hanton, and Connaughton (2002) stated that they thrived on the pressure of competition, and believed that attribute to be one of the descriptors of mental toughness.

Several of the All-Americans spoke of pressure as being something they put on themselves, and provided those descriptions when asked to recall any challenges or adversity they faced during their collegiate career. When asked to describe a performance in which they felt the most pressure, four athletes recalled feeling the pressure associated with expectations of winning. Two athletes felt the pressure increased as they assumed leadership roles within their sport, and three believed putting pressure on themselves was a hindrance to their performance during college.

*Consistently performed well.* Many of the All-American athletes remembered their collegiate careers as a steady stream of consistent performances. Six of the athletes who were interviewed recalled often or always performing at a high level. One athlete commented that

his strength on the team was his consistency in performances, and another athlete remembered that he rarely made mistakes during his performances.

*Peak performances are rare.* Seven of the All-American athletes felt that peak performances, such as the ones described in these interviews, were a rare occurrence. Several of the athletes emphasized this belief by saying they wish they could have performed at that level all the time, and that peak performances do not happen as often as an athlete would like. A peak performance has been recognized by athletes as well as sport psychology researchers and professionals as the ultimate experience for an athlete (Jackson & Roberts, 1992). Jackson and Roberts (1992) discovered strong support for the psychological process of flow underlying peak performance in elite athletes. Four of the All-Americans had a difficult time recalling the details of their peak performance which is a common occurrence when the performance was a flow experience.

One All-American spoke of the importance to reflect back on performances, and that he was usually happier with his performances after spending time in reflection. Additionally, he discussed the importance of realizing that patience was involved in achieving peak performances, and recalled several performances that he placed second yet considered it a flow experience and peak performance.

**Motivation.** This umbrella category included the following six emergent themes: influenced and supported by family's athleticism, excelled early in sport due to natural attributes, father was great influence, coach believed in me, love for sport, and connection to others.

*Influenced and supported by family's athleticism.* Parental influence was the reason given for half of the All-American athletes when asked how they first became involved in

their sport. Three of the athletes recalled their sibling being an athlete and that also influenced how they first became involved; six athletes stated that, in general, having siblings influenced them for the better. Regarding the involvement of the family, nine of the All-Americans had a sibling who was an athlete, and seven spoke of their family being physically active while growing up. Six athletes were specifically influenced by their parent's athletic background. Nine of the athletes who were interviewed came from a supportive, encouraging family, and three mentioned their parents traveled to most of their competitions.

Vernacchia, McGuire, Reardon, and Templin (2000) interviewed Olympic athletes and found that parents were one of the most often cited sources of influence in the athlete's development. When Gould and Dieffenbach (2002) asked Olympic champions how they developed mental skills, 100 percent of the athletes reported the family as influential.

Connaughton, Wadey, Hanton, and Jones (2008b) learned through interviews with international competitors that during the middle years of development, athletes attributed competing with challenging opponents and sibling rivalries as crucial for further development of the desire to succeed. The international competitors felt these added elements specifically cultivated the development of an ability to bounce back from performance setbacks (Connaughton et al., 2008b).

Several of the All-American athletes in this current study supported this notion, and spoke often of the influence an athletic parent or sibling had on their motivation to participate and succeed in sport. Furthermore, a couple of the athletes spoke of desiring to improve as a result of increased and challenging competition.

*Excelled early in sport due to natural abilities.* Having natural ability and being good at their sport was cited by seven of the ten All-Americans when asked for the reason they

eventually committed. In fact, for three of the athletes, having the right body type or build was a reason they first became involved in their sport. A few of the athletes first became involved in their sport due to the enjoyment and fun they were rewarded with through participation.

Connaughton et al. (2008b) re-interviewed seven of the ten internationally competitive athletes from the study conducted in 2002 by Jones et al. with the purpose of learning how the athletes acquired their mental toughness attributes. The semi-structured interviews were analyzed based on early, middle, and later years of development along with the maintenance of mental toughness (Connaughton et al., 2008b). Results from the early years included the foundations of developing three mental toughness attributes: having an unshakeable self-belief in one's ability to achieve competition goals; having an unshakeable self-belief that one possesses unique qualities and abilities that make one better than opponents; and having an insatiable desire and internalized motives to succeed (Connaughton et al., 2008b; Jones et al., 2002).

Several of the All-American athletes in this current study confirmed that an early desire and recognized ability of excelling in sport were fundamental to later success in sport. Similarly, the athletes interviewed by Connaughton et al. (2008b) were aware of an element of mastery when related to their peers, which led them to believe in their unique talent and ability in sport. The early success they had, along with enjoyment and intrinsic motivation to work and train harder for subsequent success was thought to be foundational in the elementary years of development, just as many of the All-Americans in this current study were cited with mentioning.

*Father was great influence.* Half of the All-American athletes recalled that their father was the one who influenced them to participate in sports. In fact, the father being influential was the most often cited response (70 percent) when asked if there was anything in particular about their childhood which they felt led directly to the success they had in college sports. For three athletes, the father was the first person they recalled believing in them. One of the All-Americans recalled calling his father every night after his workout during college, and mentioned that he thought of his father as one of his coaches.

*Coach believed in me.* The coach's influence was also critical for the All-American athletes' motivation to excel in sport. Four of the All-Americans recalled a coach first believing in their ability, and three recalled their confidence growing from their coach's confidence in them. Eighty percent of the All-Americans attributed their coach as being the one who believed in them the most during their collegiate athletic careers. One hundred percent of the athletes Gould and Dieffenbach (2002) interviewed cited the sport environment personnel as crucial in the development of mental skills. Vernacchia et al. (2000) also found that the coach's influence was vital to the athlete's development. Specifically, the Olympians interviewed by Vernacchia et al. knew the importance of the coach-athlete relationship and valued the guidance they received.

The athletes interviewed by Connaughton et al. (2008b) attributed much of their early development of mental toughness to observing and learning from superior athletes who radiated confidence, and to exposure of coaches who nurtured the performance-related goals of these athletes. The coaches also provided an appropriate amount of encouragement, which was also emphasized at home by family members and was not interpreted by the athletes to have been debilitating pressure (Connaughton et al., 2008b).

*Love for sport.* Enjoyment and passion for the sport was deemed important for the athletes' motivation levels. Seven of the All-Americans gave the reason of loving and enjoying their sport as the reason they committed. For two of the athletes who were interviewed, the passion was described as a way of life or addiction. This concept was illustrated by Jackson (1996) and referred to as the autotelic experience of flow. Jackson's interviews of 28 international-level competitors, from seven different sports, revealed that 96 percent of athletes reported performing for the sake of loving their sport.

*Connection to others.* Four All-Americans talked about the importance and influence of friendships and connection to a network as a reason they committed to their sport. One athlete believed a reason she committed to her team in college was out of the excitement that other women were involved in the sport and desired to be part of a group dedicated to the same ambition and goals. Another athlete highlighted the importance of connecting to friends through the physical activity of his sport.

**Cognitive processes.** This umbrella category included the following three emergent themes: maintained positive attitude, experienced doubt, and misdirected attention.

*Maintained positive attitude.* Using positive self-talk and being able to maintain a great attitude was discussed by half of the All-Americans when asked to list mental skills which assisted in achieving success in their sport. Looking only at the positives in the midst of adversity was cited by four of the athletes when asked to provide a definition of mental toughness. Furthermore, three of the All-Americans emphasized having fun and laughing as an important element of performing effectively.

While recollecting a high pressure performance, five of the athletes recalled talking themselves through the competition and putting the performance in perspective. As a method

for handling the loss of a competition, three of the All-American athletes realized the past cannot be changed and chose to move forward and avoid dwelling on the defeat. Other realizations mentioned in response to how they handled a defeat included knowing they were better than that performance and understanding that performance did not define them.

*Experienced doubt.* One hundred percent of the All-American athletes who were interviewed experienced doubt at some point during their athletic career. A few of the athletes felt there would always be some doubt, whereas others experienced situation-specific doubt. For three of the athletes, doubt accompanied an injury. Comparing themselves to another athlete's ability made three other All-Americans experience doubt. Half of the All-American athletes described experiencing doubt at times when they were not winning or when not improving as much as they had in the past.

*Misdirected attention.* Abundant thoughts and over analyzing were listed by three of the All-American athletes as a hindrance to their performance. Thoughts would either get in the way of their ability to focus, or as two of the athletes emphasized, the thoughts were focused on the wrong thing such as being outcome-oriented. Common distractions were: the weather, being intimidated by the competition, and the pressure they felt to win. On the contrary, half of the All-Americans discussed the importance of being able to block out distractions, and focus only on the variables of performance which were controllable.

**Success related mental skills.** This umbrella category included the following nine emergent themes: focus, perseverance, visualization, specific competition routines, mental aspect is always present, relaxation, formal mental skills training, relied on teammate, and minimal mental skills training.



*Focus.* The most often cited mental skill, throughout these interviews, used by the athletes for reaching success was that of focus. Focus-related attributes included focusing on what one can control, and not easily distracted. Gould and Dieffenbach (2002) discovered similar results when they interviewed Olympic champions and their coaches and family members. Ability to focus and mental toughness – both were cited by 73.3 percent of the participants in the study by Gould and Dieffenbach.

When the All-American athletes in this study were recalling a peak performance, half described being in the moment, not thinking, and just reacting; four of the athletes only had a vague memory of their best performance, and were unable to remember details. Being focused and driven in their competitive environment were described, and three athletes recalled the bad weather yet were not distracted by that.

Four of the All-Americans described making a conscious effort to get focused while preparing for competition. When three of the athletes felt they were having a subpar performance, they would focus on the elements which were working for them that day. Finally, in order to handle the pressure associated with competition, four of the athletes spoke of focusing on their own performance and keeping distractions out. Remaining focused on what they needed to accomplish and forgetting about the outcome were emphasized in how to handle the pressure.

Jones, Hanton, and Connaughton (2007) developed a framework for mental toughness which included four dimensions, and was validated by world and Olympic champions. The first dimension was attitude/mindset, and at the core of this dimension were focus and confidence. Staying focused and blocking out distractions were mental toughness attributes that three of the All-American athletes provided in their description of the term.

*Perseverance.* Many of the responses provided by the All-American athletes illustrated their perseverance. Prior to college, half of the athletes had to overcome injuries, and find the desire to continue training. Having patience and realizing that it was a slow progression to become successful was one method used by three of the athletes in order to overcome the challenges they faced. When Connaughton et al. (2008b) asked internationally competitive athletes how they maintained their mental toughness, the athletes emphasized that time, patience and effort were essential. Working harder and increasing practice time was the solution for coping with adversity for three of the All-Americans.

Pressing on and ignoring the desire to quit were listed as facilitative mental skills, and when asked what mental toughness meant to them, four athletes described the ability to conquer and overcome the desire of wanting to give up. In addition to this, four athletes related to the description of persistence when provided a definition of mental toughness. In fact, three of the All-Americans spoke of enjoying pushing the limits and seeing what they are capable of when asked why they committed to their sport.

When Fourie and Potgieter (2001) asked 231 elite athletes to list the characteristics of a mentally tough performer, 27 percent of the athletes believed perseverance was the most crucial element; 22 percent of the 131 expert coaches surveyed also agreed with this attribute being the most important. When athlete and coach responses were combined, perseverance was ranked as the most often cited characteristic of mental toughness (Fourie & Potgieter, 2001).

When the All-American athletes described their peak performance, three recognized there was a moment they felt compelled to go for it, that this moment was their time. When

describing a day in which they underperformed yet still won, four athletes attributed their success to the ability to simply make it happen.

*Specific competition routines.* Five of the All-Americans had a specific routine they followed for competition. Elements included in these routines were: paying close attention to meals, meeting and talking with teammates and the coach prior to performing, listening to music, and becoming familiar with the competition and scouting reports. Many successful athletes, such as the Olympians interviewed by Orlick and Partington (1988), have relied on specific competition routines in order to reach success in sport.

*Visualization.* Half of the All-Americans listed visualization of their performance as a beneficial mental skill during their collegiate career. When asked about their use of mental skills, and how they would prepare for competitions, the majority of athletes recalled visualizing their performance and picturing what it would look like. One athlete recalled using visualization in order to ease her anxiety leading up to a performance. Another athlete spoke of visualizing several situations rather than a specific one in order to remain open to all possibilities. Visualization was the most often cited mental skill within the content category of confidence.

The Olympic athletes interviewed by Vernacchia et al. (2000) reported using visualization and mental imagery most often for mental preparation. Orlick and Partington (1988) also found strong support for visualization as a mental preparation strategy among 160 Olympians, as 99 percent of the athletes reported using mental imagery at least one time per day.

*Mental aspect is always present.* Many of the All-American athletes found themselves constantly thinking about their sport, and felt that preparation was also constant.

One athlete believed everything he did in between workouts and the official preparation contributed to his performances in sport. Four of the athletes mentioned that their mental training was incorporated into the physical and that it all happened at the same time. Several of the athletes spoke of their mental skills and sport preparation as one and the same. In fact, one athlete emphasized that everything he does and thinks about is related to his sport, and he continually related circumstances in his life to possibilities in his sport performance.

*Relaxation.* Six of the All-Americans cited relaxation and related techniques (i.e. deep breathing, slow drinks of water, regulating heart rate, etc.) as a crucial mental skill during their college athletic experience. The ability to relax during a performance was the most often cited characteristic in response to being asked to list the mental skills in which they used for reaching success in their sport. This question was asked prior to any mental skills being discussed. Two All-Americans emphasized relaxing as much as possible during the day leading up to a performance. Several of the athletes used music, humorous materials, and laughter with teammates as a means to relax prior to and during a performance.

*Formal mental skills training.* Three of the All-American athletes took a sport psychology class as part of their academic curriculum while competing in their sport at the collegiate level. These athletes found the class to be beneficial in learning mental skills and one athlete attributed the class as the reason she became interested in using mental skills.

Watching videos of professionals or listening to audio material in order to improve technique was also cited by three of the athletes. One of these athletes increased his viewing of professional videos in the days leading up to competition in order to compare his technique to those who were successful. Another All-American believed one of the reasons

she was successful was due to the amount of audio material she listened to and learned from throughout her entire collegiate career.

*Relied on teammate.* During a competition in which the athlete felt they were underperforming, three All-Americans relied on teammates in order to have a successful performance. One athlete spoke of creating opportunities for teammates when her own performance was off. Another All-American recalled being motivated by a teammate during a performance and that increased his determination to excel in competition.

*Minimal mental skills training.* Out of the ten All-Americans interviewed in this study, six reported minimal mental skills training or use of mental skills. Frey, Laguna, and Ravizza (2003) studied mental skill use and its correlation to whether or not the athlete had received mental skills training. More athletes used mental skills in competition than in training environments, yet an ANOVA revealed no significant differences between the athletes who reported having had mental skills training in the past and those who had not.

**Mental toughness attributes.** As Jones et al. (2002) observed, no single definition for mental toughness has been decided on thus far. Although, through the in-depth explanations provided by the ten elite athletes interviewed by Jones and colleagues, a robust definition was developed, and later confirmed by another focus group of world and Olympic champions (Jones et al., 2007).

Some of the mental toughness attributes within the Jones et al. (2002, 2007) studies have been found in this current study of All-American athletes, such as confidence, composure, and resiliency. The All-American athletes in this current study tended to believe that mental toughness was a learned attribute rather than natural, whereas the world and Olympic champions in Jones et al. (2007) study stated it could be either natural or developed.

Through in-depth exploration of highly successful male and female All-American athletes and their descriptions of mental toughness, this current study lends insight into the construction of a mental toughness definition.

*Resiliency.* The ability to bounce back from performance-related adversity and mistakes was the most often cited response related to mental toughness. Four of the All-Americans spoke of letting the negative go and moving on as critical to defining mental toughness. The ability to recover from mistakes was crucial to the athletes when defining mental toughness. When asked how they related to the definition provided (a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience), half of the All-Americans believed resiliency was important.

Adapting and the ability to handle anything during a performance were emphasized by the All-Americans. Preparation for competition also included being resilient for these athletes. Three athletes explained the need to be flexible and expect the unexpected to happen during a performance. When the All-Americans were asked how they handled a time when they underperformed, three of the athletes followed the process of accepting it, learn from the experience, and move on. In Gould and Dieffenbach's (2002) study of Olympic champions, the ability to handle adversity and pressure was cited by a majority of participants and included the psychological capacity to respond effectively to setbacks and competition-related anxiety.

The All-Americans faced adversity during their college athletic careers, yet found a way to cope with the adversity and continue on in their training and competition. Three of the

athletes mentioned being mentally weak as a freshman and that the transition into college was challenging. When they were asked to recall a disappointing loss and explain how they handled it, half of the All-Americans felt the loss pushed them to improve for future performances; the athletes chose to build from the loss.

Jones et al. (2002) also found that resiliency was a crucial element to an elite athlete's perception of what mental toughness encompasses. Bouncing back from performance setbacks as a result of increased determination to succeed was ranked second out of twelve attributes by the athletes interviewed by Jones and colleagues. Regaining psychological control following unexpected uncontrollable events was also on the list of mental toughness attributes which were generated and ranked by the competitors (Jones et al., 2002)

*Composure and emotion management.* Staying composed and controlling ones emotions, as an emergent theme, was derived from six of the ten All-American athletes being able to relate to its importance once provided with a definition of mental toughness (a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience). Composure and emotion management was only mentioned infrequently when the athletes were first asked to generate their own definition.

However, five of the All-Americans listed composure or the ability to numb emotions when asked to list the mental skills they used for achieving success in their sport. Three of the athletes spoke of trying to stay composed and calm as a strategy for handling a pressure situation. When interviewed while preparing for the Olympic Games, the Italian pentathlon

team emphasized emotion control and handled the pressure of competition by regulating their emotions and remaining focused on the task at hand (Bertollo, Saltarelli, & Robazza, 2009).

*Confidence.* Confidence as an emergent theme of mental toughness was also developed based on how the All-American athletes related to the definition provided (a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience). Only two of the athletes provided the attribute when asked to generate their own definition. However, once presented with a definition of mental toughness, eight of the ten All-Americans related to confidence being descriptive of mental toughness. Four of these athletes specified that the training and preparation they had invested were what gave them confidence. Specifically, three athletes mentioned that trusting in that preparation and hard work were mechanisms for coping with pressure performances. Two All-Americans spoke of relying on past success in a similar situation or in simulation training when performing in a high pressure situation.

The Olympic athletes interviewed by Vernacchia et al. (2000) emphasized that confidence was essential for peaking in competition, and mental preparation was the means to gain confidence. The mental toughness framework developed by Jones et al. (2007), revealed that confidence and focus were at the core of the attitude/mindset dimension; the dimension of competition was also supported by belief in self.

*Sacrifice.* When presented with a definition of mental toughness (a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance



settings and situations that require perseverance, persistence, and resilience), four of the athletes who were interviewed in this study could relate to embracing the lifestyle and training required in achieving success in their sport. Jones and his colleagues (2002) pointed out that the athletes stressed the importance of mental toughness attributes in all aspects of their lives, not just in athletics.

Four of the All-Americans in this study specified that it took many experiences and time in order to learn mental toughness. In support of this, three of the All-American athletes recalled that they understood working hard in their sport was critical at a young age when asked if there was anything particular about growing up which led directly to their success in sport.

*Individual and situation specific.* Three of the All-American athletes expressed difficulty in generalizing a mental toughness definition. Furthermore, they believed mental toughness varied depending on the individual and situation. Bertollo et al. (2009) emphasized that not every elite athlete fit an exact profile of the ideal sport personality, as every athlete is unique and should be treated individually.

### **Analysis of Athletic Coping Skills Inventory – 28**

The Athletic Coping Skills Inventory (ACSI - 28) (Smith, Schultz, Smoll, & Ptacek, 1995) yields a total personal coping resources score as well as seven individual subscale scores for the following categories: coping with adversity, coachability, concentration, confidence and achievement motivation, goal setting and mental preparation, peaking under pressure, and freedom from worry. Each subscale has a maximum score of 12, with higher scores representing more coping skills. The highest possible score for total personal coping resources is 84.

Initial analyses of the ACSI - 28 provided descriptive results for the subscales and total personal coping resources scores (Appendix K). Reliability and correlations were computed using SPSS. Cronbach's Alpha, as a measure of reliability of the ACSI - 28, was determined to be .548. Two positive correlations between subscales were found to be significant. Coping with adversity and freedom from worry revealed a positive correlation ( $r = .69$ ) at the .05 level ( $p = .028$ , two-tailed); coachability and peaking under pressure were also found to be positively correlated ( $r = .89$ ) at the .01 level ( $p = .001$ , two-tailed). The two subscales of concentration ( $r = .76$ ,  $p = .01$ , two-tailed) and peaking under pressure ( $r = .69$ ,  $p = .026$ , two-tailed) were both significant at the .05 level and positively correlated with total personal coping resources. Finally, coachability was found to be significantly and positively correlated with the total personal coping resources score at the .01 level ( $r = .80$ ,  $p = .005$ , two-tailed).

### **Discussion of Athletic Coping Skills Inventory – 28**

**Descriptive results.** There was much variability in ACSI - 28 results when comparing the All-American athletes subscale and total personal coping resources scores. The subscale means, as well as individual and total scores for the ACSI - 28 is represented in Appendix K and in Table 1 below.

Table 1.

All-American scores on the Athletic Coping Skills Inventory - 28

Athlete	Gender	Coping with Adversity	Coachability	Concentration	Confidence & Achievement Motivation	Goal Setting & Mental Preparation	Peaking under Pressure	Freedom from Worry	Total Personal Coping Resources
1	M	8	11	8	10	8	11	0	56
2	F	7	12	10	11	10	12	6	68
3	M	9	12	11	12	9	10	11	74
4	F	12	12	10	12	4	12	11	73
5	M	9	9	7	10	7	5	9	56
6	F	6.5	5.5	8.5	10	12	4.5	4.5	51.5
7	F	7	8	8	12	6	7	3	51
8	F	10	8	11	8	11	4	8	60
9	M	10	10	8	8	4	7	9	56
10	F	10	12	11	10	5	12	7	67
Mean		<b>8.85</b>	<b>9.95</b>	<b>9.25</b>	<b>10.30</b>	<b>7.60</b>	<b>8.45</b>	<b>6.85</b>	<b>61.25</b>

Freedom from worry represents the subscale with the lowest average score among the All-Americans. Out of a possible score of 12, the average was 6.85. One of the athletes scored zero on this subscale, and the highest score obtained was 11. Goal setting and mental preparation represented the next lowest average of the seven subscales, with scores ranging from a low of 4 to a high of 12; the average among all ten athletes was 7.60. Next lowest was the subscale for peaking under pressure, with an average of 8.45; individual scores ranged from 4.5 to 12. With an average of 8.85, coping with adversity subscale scores ranged from 6.5 to 12.

The three highest subscale averages were for those of confidence and achievement motivation ( $m = 10.30$ ), coachability ( $m = 9.95$ ), and concentration ( $m = 9.25$ ). Scores for confidence and achievement motivation ranged from a low of 8 to a high of 12. With consideration to the questions on the ACSI - 28 which pertained to the subscale for confidence and achievement motivation, the athletes tended to agree that they: get the most out of their talent and skill; felt confident they would perform well; gave 100 percent and did not need to be pushed while training and competing, and tried harder when they failed to reach goals.

The coachability subscale scores obtained from the All-Americans ranged from a low of 5.5 to a high of 12, with a mean score of 9.95. Questions related to this subscale included: not getting upset over a coach's criticism, feeling helped rather than upset over a coach's criticism; correcting a mistake without getting upset after a coach criticizes or yells, and improving skills by listening carefully to advice and instruction from a coach. All but one of the All-Americans scored as high on the coachability subscale as that of confidence and achievement motivation when considering the mean of the subscale.

Concentration represented the third highest subscale average (9.25) among the All-Americans. A low score of 7 and a high score of 11 were obtained by the athletes in this study. The questions related to concentration included: able to focus and block out distractions while performing; ease of keeping distracting thoughts from interfering with something watched or listened to; handling unexpected situations in sport very well, and ease of directing attention and focus on a single person or object.

Total personal coping resources scores for the ACSI – 28 ranged from a low of 51 to a high of 74, out of a possible score of 84 (Appendix K). Four of the ten All-American athletes who participated in this study were also National Champions (Appendix E). The two highest ACSI – 28 total scores obtained (total score = 74 and 73) were by two of the National Champions, and both of these athletes competed in individual sports as opposed to a team sport. Interestingly, the lowest total score obtained on the ACSI – 28 among the ten All-Americans (total score = 51) was that of another National Champion who competed in a team sport. The fourth National Champion, who also competed in a team sport, obtained one of the lowest total scores as well (total score = 60).

**Reliability and correlations of the ACSI - 28.** Cronbach's Alpha for the ACSI – 28 was .548. Therefore, the reliability of the instrument is questionable. Coping with adversity and freedom from worry revealed a positive correlation ( $r = .69$ ) at the .05 level ( $p = .028$ , two-tailed); coachability and peaking under pressure were also found to be positively correlated ( $r = .89$ ) at the .01 level ( $p = .001$ , two-tailed). The two subscales of concentration ( $r = .76$ ,  $p = .01$ , two-tailed) and peaking under pressure ( $r = .69$ ,  $p = .026$ , two-tailed) were both significant at the .05 level and positively correlated with total personal coping resources. Finally, coachability was found to be significantly and positively correlated with the total

personal coping resources score at the .01 level ( $r = .80$ ,  $p = .005$ , two-tailed). The small number of correlations found was not surprising with consideration to Cronbach's Alpha (.548).

## Chapter V

### Summary, Conclusions, and Recommendations

#### **Summary**

The purpose of this study was to investigate the influence of mental toughness on the performance of elite intercollegiate athletes. In this study, the following research questions were investigated: Do elite intercollegiate athletes possess the characteristics of mental toughness? In what ways did these athletes develop mental toughness?

The body of research on mental toughness has grown considerably in the past decade, yet an agreed upon definition for mental toughness has remained inconclusive and open for debate (Jones, Hanton, & Connaughton, 2002). Furthermore, several researchers have encouraged future investigators to explore mental toughness from a developmental perspective, and gain an understanding of how elite athletes have learned the attributes of mental toughness (Bull, Shambrook, James, & Brooks, 2005; Gould & Dieffenbach, 2002; Jones et al., 2002; Spieler et al., 2007). The focus of this study was to examine the influence of mental toughness, and related mental skills, on the performance of elite intercollegiate athletes. Attention was also paid to how these All-American athletes developed their motivation and passion for sport, and explored their general developmental experiences.

To address these questions, qualitative research methods utilizing case interviews and content analysis were used in order to provide insight and understanding of the performance characteristics of All-American athletes (Gould & Dieffenbach, 2002; Vernacchia, 1977; Vernacchia, McGuire, Reardon, & Templin, 2000). Related mental skills and coping strategies were explored through in-depth interviews, and also with the administration of the Athletic Coping Skills Inventory - 28 (ACSI – 28) (Smith, Schultz, Smoll, & Ptacek, 1995).

Ten All-American athletes at the NCAA Division II level participated in this study. Of the 10 All-American athletes, four were National Champions in their sport; three of the National Champions had won multiple titles while competing at the collegiate level (Appendix E). The participants were recruited from a variety of sports including basketball, cross country, track and field, crew, and golf. Informed consent (Appendix A) and demographic information (Appendix B) was collected for all participants. All athletes were verbally interviewed by the same investigator in a one-on-one, face-to-face manner. Participants were asked a series of pre-determined questions and asked to verbally respond in as much detail as possible. Audio from all interviews was digitally recorded and transcribed verbatim.

Analysis of raw data resulted in the identification of 418 raw data responses that were related to the content categories of developmental aspects, peak performance and flow, general performance characteristics, mental toughness, confidence, achievement motivation and passion for sport, coping with adversity, and performing effectively under pressure. The most frequently identified descriptors (three or more responses) can be seen in Appendix H.

The response frequency of the raw data themes (Appendix G) resulted in the identification of 28 emergent themes. The 28 emergent themes were further grouped into five umbrella categories (Appendix I) and are presented below, in rank order (Appendix J). Along with the total number of responses cited, the number of athletes who contributed to that particular emergent theme is also displayed within parentheses for further clarification.

1. Experiences
  - a. Multi-sport athlete (28/10)
  - b. Experienced strong emotions (24/10)
  - c. Pressure situations (21/10)
  - d. Consistently performed well (7/6)



e. Peak performances are rare (7/7)

2. Motivation

- a. Influenced and supported by family's athleticism (47/10)
- b. Excelled early in sport due to natural attributes (15/10)
- c. Father was great influence (15/7)
- d. Coach believed in me (15/9)
- e. Love for sport (10/10)
- f. Connection to others (4/4)

3. Cognitive Processes

- a. Maintained positive attitude (27/10)
- b. Experienced doubt (17/10)
- c. Misdirected attention (10/7)

4. Success Related Mental Skills

- a. Focus (43/10)
- b. Perseverance (41/10)
- c. Specific competition routines (19/8)
- d. Visualization (18/8)
- e. Mental aspect is always present (10/5)
- f. Relaxation (8/5)
- g. Formal mental skills training (6/6)
- h. Relied on teammate (4/3)
- i. Minimal mental skills training (4/4)

5. Mental Toughness Attributes

- a. Resiliency (39/10)
- b. Composure and emotion management (21/8)
- c. Confidence (21/9)
- d. Sacrifice (14/5)
- e. Individual and situation specific (3/3)

The scores obtained from the ten All-Americans on the ACSI – 28 can be seen in Appendix K. There was great variability in the range of scores between athletes with regard to both the individual subscales and the total personal coping resources score. Each subscale was scored on a 12-point likert scale, with a higher score being representative of more coping resources. The subscales of confidence and achievement motivation, coachability, and

concentration received the highest ratings when all athlete scores were averaged. The highest possible score for the total personal coping resources was 84, and the All-Americans ranged from a low of 51 to a high of 74.

## **Conclusions**

This study contributes to the growing body of research on mental toughness and general performance characteristics used by elite athletes in order to reach success in sport. Some general conclusions can be drawn from this current research regarding elite intercollegiate athletes, their mental toughness characteristics, and the developmental aspects which they experienced. These general conclusions are based on the high frequency of responses and number of All-American athletes who reported contributing factors to several emergent themes.

**Developmental experiences and cognitive processes.** All ten of the All-Americans reported participating in multiple sports and activities during the developmental years. It would therefore appear that the drive to participate and compete in sport was present from a young age. Most of the All-Americans emphasized that their development in sport was greatly influenced by parents and siblings who were also athletic and competitive in sports. These athletes recalled that the family environment was highly supportive and encouraging regarding sport participation, and most of the athlete's families were involved in their athletic development and collegiate careers.

Furthermore, 70 percent of the All-Americans felt their fathers were especially influential during their development as an athlete. The athletes told stories that included their fathers more than any other family member when asked about their childhood and sport participation. During their collegiate athletic careers, 80 percent of All-Americans specified

their coach had the most confidence in them. As other research on elite athletes has pointed out, the importance of the coach-athlete relationship is evident (Vernacchia et al., 2000). It also appears that the father-athlete relationship is important in the development of successful athletes.

Initial motivation for participation in sport was attributed to the influence of the family for 80 percent of the All-Americans, yet intrinsic motivation and commitment to sport eventually developed out of the love these athletes had for their sport. All ten of the athletes in this current study cited enjoyment as a reason they finally committed to the pursuit of their sport. Several athletes specified that part of the enjoyment of their sport was the connection they felt to other athletes and friends who participated. Finally, several athletes spoke of enjoying sport at an early age due to being good at it and excelling right away; they enjoyed sport as they excelled.

Every one of the All-Americans reported experiencing doubt at some point during their athletic career. Half of the athletes doubted when they were not winning or improving as much as they anticipated. Others doubted due to the expectations they had to win, and some doubted when they compared their ability to that of someone else they believed was better. Doubting when injured was also experienced by these athletes.

Experiencing pressure situations was also a common experience for the All-American athletes, and along with the pressure, misdirected attention and strong emotions. Forty percent of the All-Americans recalled one of their best performances to be during a National competition. Athletes also recalled putting pressure on themselves with the expectations they had going into competition. Two athletes recalled the pressure being greater as they were a leader or captain of the team.

Lack of focus and emotional control was the most often cited hindrance for 60 percent of the All-Americans. Focusing on the wrong thing such as outcome was specifically mentioned by two of the athletes in this study. Furthermore, emotions and nerves associated with the pressure and competition would also sometimes get in the way of performing at their best, as 30 percent of athletes recalled. Especially when handling a loss, 80 percent of the All-Americans reacted to defeat initially by letting their emotions go and felt frustrated, disappointed, or upset.

On the contrary, the All-Americans recognized the importance of maintaining a positive attitude. Using positive self-talk and maintaining a great attitude was mentioned by 50 percent of the athletes as a mental skill they used during college in order to reach success in sport. Specifically, looking only at the positives in adverse situations was cited by several athletes. Three of the All-Americans maintained a positive attitude by looking forward and moving on from difficult situations. While performing, half of the athletes used self-talk in order to talk themselves through high pressure situations. Having fun and using laughter, for 30 percent of the athletes, was another particular strategy for remaining positive during competition.

Although 70 percent of the All-Americans felt it was rare to have a peak performance in sport, 60 percent felt they often or always performed at a high level. Consistency was emphasized by 40 percent of the athletes, as they explained that although they only experienced a handful of peak performances they delivered good performances on a consistent basis.

**Success related mental skills.** Several mental skills were found to be used by the All-American athletes in order to reach success in sport. Focus was the most often cited skill

throughout the athlete transcripts. Being focused was emphasized during competition and as a skill used during preparation for competition. In order to cope with the pressure during competition, four of the All-Americans used the strategy of focusing on their own performance in order to block out irrelevant distractions. When describing their peak performance, half of the athletes recalled being in the moment and simply reacting rather than thinking. Furthermore, 40 percent were so focused they only had a vague memory and details of their best performance.

Perseverance even when they wanted to give up was also cited often by the athletes in this study. Rather than giving in to the desire to quit, the All-Americans would persist in the face of adversity. Thirty percent of the athletes described the enjoyment of pushing the limits and seeing what they were capable of doing. On days they felt they were underperforming yet still won in competition, 40 percent of athletes spoke of simply making it happen by conquering the desire to give up.

Half of the All-Americans relied on a specific routine for competition and used visualization during their collegiate athletic careers. Visualization was the most often cited skill used when the athletes were asked about their confidence and how they prepared for a competition. However, when asked what mental skills were used during college in order to reach success, the ability to relax during a performance, and in the time leading up to competition, was most often cited; 60 percent of the All-Americans believed in the importance of relaxation.

There was great variation in the amount of mental skills training the All-Americans experienced. For several of the All-Americans, the mental skills training was integrated into the physical training. Forty percent of the athletes explained their mental skills use as

happening simultaneously with the physical training, and expressed difficulty in separating the two aspects. Another 60 percent of the athletes reported minimal mental skills training and use of mental skills. Thirty percent of the athletes took a sport psychology class during college.

**Mental toughness.** The definition for mental toughness used in this research, and developed from the existing body of literature (Bull et al., 2005; Fourie & Potgieter, 2001; Gould & Dieffenbach, 2002; Jones et al., 2002; Jones, Hanton, & Connaughton, 2007; Thelwell, Weston, & Greenless, 2005), proved useful for the purpose of this study. The definition provided to the All-American athletes, after they were given an opportunity to generate their own definition was: a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience.

There was support for this definition by many of the athletes, although some of the attributes of the definition were supported more than others. Specifically, 80 percent of the All-Americans related to confidence, 60 percent related to composure, and 50 percent related to resiliency. Staying composed and controlling emotions, as well as having confidence from the preparation, and confidence in their technique and method, were commonly highlighted by the athletes with regard to mental toughness. Resiliency was emphasized by the All-Americans as the ability to handle anything and adapt accordingly to the situation, and 40 percent related to persistence and pressing on through challenges.

Forty percent of the athletes related to embracing the lifestyle and training required of them and emphasized the amount of time and numerous experiences it takes in order to learn

the attributes of mental toughness. Sacrifice was familiar to these athletes. Thirty percent added that the definition for mental toughness likely varies with each person, situation, and sport.

Prior to being provided this definition of mental toughness, the All-American athletes were given the opportunity to generate their own definition. Components of resiliency were emphasized most often by the All-American athletes when they provided their own definition of mental toughness. Specifically, being able to let the negatives go and move on from a mistake and disastrous performance were crucial for 40 percent of the athletes. Forty percent of athletes specified looking only at the positives while facing adversity. Another 40 percent emphasized that mental toughness requires overcoming adversity and conquering the desire to give up. Finally, 30 percent of the All-Americans believed the ability to focus and block out distractions was crucial to the definition of mental toughness.

### **Recommendations**

Based on the mental skills discovered as beneficial for the successful athletes who were interviewed in this study, it is recommended that educational development programs include the following skills for performance enhancement: relaxation techniques, visualization, focus, perseverance, and use of routines. Mental skills training programs should emphasize that mental skills be incorporated into the physical training, rather than keeping the two aspects of performance separate. Mental skills should be practiced on a consistent basis, just as physical training is required.

Based on the components of mental toughness provided by the All-American athletes and the attributes which they related to from the definition provided to them by the primary researcher, the following definition for mental toughness is proposed: the learned resiliency

to remain confident, composed, and focused in the face of adversity and the ability to embrace the lifestyle and training required to obtain such attributes.

It is recommended that future research on mental toughness further explore the components of resiliency in athletic experiences and investigate the developmental aspects regarding adversity faced and challenges overcome. Specifically, future research should focus on how resiliency was learned, and investigate the influences of the father-athlete and coach-athlete relationships more in depth. Since the coach typically spends a considerable amount of time with an athlete, it is recommended that the coach be consulted in the future recruitment of athletes for participation in studies on mental toughness; it would be beneficial to ask the coach if they believe an athlete is mentally tough prior to an athlete interview.

It is also recommended that future researchers continue to explore the definition of mental toughness and qualitatively analyze perceptions of the related attributes and lifestyle suggested by elite athletes such as the All-Americans within this study. By continuing to investigate mental toughness in a qualitative manner and with the individuals who have reached success, meaningful data can be acquired which will assist in developing a reliable and valid instrument for measuring mental toughness.



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APPENDIX A  
INFORMED CONSENT FORM

## Informed Consent

The purpose of this research study is to interview All-American athletes from Western Washington University (WWU) with the intention of learning about the mental characteristics that may have led to the athlete's success within their sport.

I understand that:

Participants will be interviewed (audio-recorded) for approximately 60 - 90 minutes in order to discuss the following areas related to mental toughness and sport: confidence, achievement motivation and passion, coping with adversity, and performing effectively under pressure. At the end of the interview, the Athletic Coping Skills Inventory (ACSI-28) will be administered to each interviewee.

There are no expected risks or discomforts associated with participation. Possible benefits of participation include the opportunities to relive past athletic successes, and to extend the body of research on mental toughness and passion in sport.

Participation is voluntary. Participants may choose to not answer questions they are uncomfortable with, and may choose to withdraw from the research study at any time without penalty.

All information obtained in this study is strictly confidential and will remain so at all times. All documents and audio recording materials will be kept in a private location and will only be accessed by the researchers involved in this study. Names will not be associated with results at any point in time.

My signature on this form does not waive my legal rights.

I am at least 18 years of age.

This study is conducted by Kelly Jones. Any questions you have regarding this study may be directed to her at 206-696-9030 or [kjones426@gmail.com](mailto:kjones426@gmail.com). If you have any questions about your participation or rights as a research participant, you may contact the WWU Human Protections Administrator (HPA), 360-650-3220. If during or after participation in this study you suffer from any research related adverse effects, please notify the researcher conducting the study or the WWU Human Protections Administrator.

**I have read the above description and agree to participate in this study.**

\_\_\_\_\_  
Participant's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Participant's Printed Name

Please sign both copies of this form and retain the copy highlighted "Participant Copy".

Researcher Copy

**Participant Copy**

APPENDIX B  
DEMOGRAPHIC QUESTIONNAIRE



**Demographic Questionnaire**

Name:

Gender:

Age:

Sport:

Age you began your sport:

Number of siblings/birth order:

Various levels you competed at your sport:

Highest level of success/greatest moment reached in your sport:

Year(s) received All-American:

Year of education that All-American honor was received (i.e. junior, senior):

Received athletic scholarship:

Transfer student:

APPENDIX C

INTERVIEW QUESTIONS BY CONTENT CATEGORY

Content Category	Interview Questions
Developmental Aspects	<ol style="list-style-type: none"> <li>1. Were you involved in other sports as a child?</li> <li>2. What was your family's involvement in your sport?</li> <li>3. Is there anything in particular about your childhood or growing up that you feel led directly to your success in college athletics?</li> </ol>
Peak Performance and Flow	<ol style="list-style-type: none"> <li>4. I would like for you to take as much time as you need and recall one of your best performances in your sport. Please describe this event for me in as much detail as possible.</li> <li>5. How frequently did you have performances like the one you just described?</li> </ol>
General Performance Characteristics	<ol style="list-style-type: none"> <li>6. What mental skills have you used to reach success in your sport?</li> <li>7. Are there any mental attributes you feel have hindered your performances?</li> <li>8. Can you recall any performances which resulted in the outcome you were seeking, but might not have been your best day or the ideal circumstances? How did you handle those days or times?</li> </ol>
Mental Toughness	<ol style="list-style-type: none"> <li>9. What is your definition of mental toughness? How would you describe it?</li> <li>10. Mental Toughness has been described as a psychological attribute that enables athletes to cope with the demands of training, competition, and lifestyle by consistently remaining focused, confident and composed, especially in performance settings and situations that require perseverance, persistence, and resilience. How does this relate to you?</li> </ol>
Confidence	<ol style="list-style-type: none"> <li>11. Who first believed in you?</li> <li>12. Who believed in you during your college athletic career?</li> <li>13. Have you experienced times of doubt in your abilities?</li> <li>14. How many hours per week did you spend on <i>physical skill development</i> and deliberate practice related to your sport?</li> <li>15. How many hours per week did you spend developing <i>mental skills</i> and engage in deliberate practice of that aspect of training?</li> <li>16. How did you prepare for competitions in your sport?</li> </ol>
Achievement Motivation and Passion for Sport	<ol style="list-style-type: none"> <li>17. How did you first get involved in your sport?</li> <li>18. What were the reasons you committed to your sport?</li> </ol>

<b>Content Category</b>	<b>Interview Questions continued</b>
Coping with Adversity	19. What obstacles have you faced while training and competing in your sport? Were you able to cope with those challenges? How? 20. I would like you to recall a tough loss during your college athletic career. How did you handle the loss?
Performing Effectively Under Pressure	21. I would like you to recall a high pressure situation in your sport, a time when you felt as though a lot was riding on the line. Describe this to me in as much detail as possible. How did you handle that pressure?

APPENDIX D

ATHLETIC COPING SKILLS INVENTORY-28

## SURVEY OF ATHLETIC EXPERIENCES

**DIRECTIONS** 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. Please put an X in the circle that indicates how often you have these experiences when playing sports.

	Almost Never	Sometimes	Often	Almost Always
1. On a daily or weekly basis, I set very specific goals for myself that guide what I do.	○	○	○	○
2. I get the most out of my talent and skills.	○	○	○	○
3. When a coach tells me how to correct a mistake I've made, I tend to take it personally and get upset.	○	○	○	○
4. When I'm playing sports, I can focus my attention and block out distractions.	○	○	○	○
5. I remain positive and enthusiastic during competition, no matter how badly things are going.	○	○	○	○
6. I tend to play better under pressure because I think more clearly.	○	○	○	○
7. I worry quite a bit about what others think of my performance.	○	○	○	○
8. I tend to do lots of planning about how to reach my goals.	○	○	○	○
9. I feel confident that I will play well.	○	○	○	○
10. When a coach or manager criticizes me, I become upset rather than helped.	○	○	○	○
11. It is easy for me to keep distracting thoughts from interfering with something I am watching or listening to.	○	○	○	○
12. I put a lot of pressure on myself by worrying about how I will perform.	○	○	○	○
13. I set my own performance goals for each practice.	○	○	○	○
14. I don't have to be pushed to practice or play hard; I give 100%.	○	○	○	○
15. If a coach criticizes or yells at me, I correct the mistake without getting upset about it.	○	○	○	○
16. I handle unexpected situations in my sport very well.	○	○	○	○
17. When things are going badly, I tell myself to keep calm, and this works for me.	○	○	○	○
18. The more pressure there is during a game, the more I enjoy it.	○	○	○	○
19. While competing, I worry about making mistakes or failing to come through.	○	○	○	○
20. I have my game plan worked out in my head long before the game begins.	○	○	○	○
21. When I feel myself getting too tense, I can quickly relax my body and calm myself.	○	○	○	○
22. To me, pressure situations are challenges that I welcome.	○	○	○	○
23. I think about and imagine what will happen if I fail or screw up.	○	○	○	○
24. I maintain emotional control regardless of how things are going for me.	○	○	○	○
25. It is easy for me to direct my attention and focus on a single object or person.	○	○	○	○
26. When I fail to reach my goals, it makes me try even harder.	○	○	○	○
27. I improve my skills by listening carefully to advice and instruction from coaches.	○	○	○	○
28. I make fewer mistakes when the pressure is on because I concentrate better.	○	○	○	○

**Athletic Coping Skills Inventory-28**

## Scoring Key

**Coping with Adversity**

5, 17, 21, 24

**Coachability**

3\*, 10\*, 15, 27

**Concentration**

4, 11, 16, 25

**Confidence and Achievement Motivation**

2, 9, 14, 26

**Goal Setting and Mental Preparation**

1, 8, 13, 20

**Peaking Under Pressure**

6, 18, 22, 28

**Freedom from Worry**

7\*, 12\*, 19\*, 23\*

**Personal Coping Resources**

Total score or sum of subscale scores

\* Reverse scored items; all other items scored from 0 (almost never) to 3 (almost always).

Smith, R. E., Schutz, R. W., Smoll, F. L., & Ptacek, J. T. (1995). Development and validation of a multidimensional measure of sport-specific psychological skills: The Athletic Coping Skills Inventory-28. *Journal of Sport and Exercise Psychology, 17*, 379-398.

APPENDIX E  
DEMOGRAPHIC INFORMATION



**Athlete Demographic Information**

Athlete	Gender	Age	Age Began Sport	Sport	All-American Honor	National Champion	ACSI Total Score
1	Male	28	2	Basketball	Sr	NA	56
2	Female	28	7	Basketball	Sr	NA	68
3	Male	21	14	Indoor/Outdoor Track and Field	Jr - 2x/Sr	3x	74
4	Female	23	14	Outdoor Track and Field	Fr/So	1x	73
5	Male	22	16	Cross Country	Fr/So/Sr	NA	56
6	Female	21	13	Cross Country	So/Jr - CC; Jr/Sr - 2x Indoor TF; Jr/Sr - Outdoor TF; Sr - Indoor TF	NA	51.5
7	Female	27	17	Rowing	So/Jr/Sr	3x	51
8	Female	24	18	Rowing	Sr	3x	60
9	Male	27	12	Golf	Fr/Jr/Sr	NA	56
10	Female	26	14	Golf	Jr/Sr	NA	67

\*Athlete 6 earned All-American in cross country, indoor and outdoor track and field

Fr = Freshman

So = Sophomore

Jr = Junior

Sr = Senior

CC = Cross Country

TF = Track and Field

APPENDIX F

RAW DATA, GENERAL, AND EMERGENT THEMES

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<b><u>A. Developmental Aspects - Q1</u></b>	<b><u>Developmental Aspects</u></b>	<b><u>Experiences</u></b>
<ul style="list-style-type: none"> <li>a. Played baseball/softball (8)</li> <li>b. Played basketball (7)</li> <li>c. Played soccer (7)</li> <li>d. Participated in track and field/cross country (6)</li> <li>e. Played volleyball (2)</li> <li>f. Participated in wrestling (2)</li> <li>g. Played tennis (2)</li> <li>h. Participated in swimming (2)</li> <li>i. Played golf (2)</li> <li>j. Participated in skiing/snowboarding (2)</li> <li>k. Active family (2)</li> <li>l. Played informal games with family (2)</li> <li>m. Participated in gymnastics (1)</li> <li>n. Participated in Irish dance (1)</li> <li>o. Not involved in organized sports as kid (1)</li> <li>p. Active group of friends (1)</li> <li>q. HS captain of two sports simultaneously (1)</li> <li>r. Did back to back practices for two sports (1)</li> </ul>	<ul style="list-style-type: none"> <li>Played multiple sports in youth (48/10) (Q1 - Item a, b, c, e, f, g, h, i, j, m, n, q, r) (Q3 - Item e, m)</li> <li>Family's athleticism was influential (25/10) (Q1 - Item k, l) (Q2 - Item c) (Q3 - Item c, d, i, j)</li> <li>Family was supportive and involved (18/9) (Q2 - Item b, e, g) (Q3 - Item g, h, k)</li> <li>Father was especially influential (15/7) (Q2 - Item d, k, l, m) (Q3 - Item a)</li> <li>Sibling athlete was influential (15/9) (Q2 - Item a) (Q3 - Item b)</li> <li>Drive to compete (9/5) (Q2 - Item n) (Q3 - Item f, n, o, p, u, w, x)</li> </ul>	<ul style="list-style-type: none"> <li>Multi sport athlete (28/10) (Category A - Item a, b, c, d)</li> <li>Experienced strong emotions (24/10) (Category G - Item b) (Category U - Item a, b, f, h)</li> <li>Pressure situations (21/10) (Category D - Item d) (Category G - Item c) (Category S - Item b, c) (Category V - Item a, b)</li> <li>Consistently performed well (7/6) (Category E - Item b, c)</li> <li>Peak performances are rare (7/7) (Category E - Item a)</li> </ul>
<b><u>B. Developmental Aspects - Q2</u></b>		
<ul style="list-style-type: none"> <li>a. Sibling was athlete (9)</li> <li>b. Supportive/Involved/Encouraging family (8)</li> <li>c. Parents and family were physically active (7)</li> <li>d. Dad got me into sport (5)</li> <li>e. Parents traveled to a lot of my competitions (3)</li> <li>f. Family was minimally involved in sports (2)</li> <li>g. Family is really busy but also very close (2)</li> <li>h. Family 's culture does not emphasize sport (1)</li> <li>i. A friend got me involved in organized sport (1)</li> <li>j. Didn't want parents at my games (1)</li> <li>k. Dad required one year participation then our choice to continue (1)</li> <li>l. Dad has never put pressure on us kids to run (1)</li> <li>m. Dad and I talk every night after my workout (1)</li> <li>n. Has always been some family rivalry (1)</li> </ul>		

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<p>o. Some resentment from sister who wanted success (1)            p. Some reactions from my dad bother me (1)            q. Mom is not athletic (1)</p>		
<p><b>C. Developmental Aspects - Q3</b></p>		
<p>a. Father was very influential (7)            b. Siblings influenced me for the better (6)            c. Parent's athletic background influenced me (6)            d. I understood working hard was important (5)            e. Excelled in sport early on (3)            f. I loved to explore and run around (2)            g. Parents pushed me to try new things (2)            h. Parents were always very supportive (2)            i. Family was athletic and provided example (2)            j. Grandparent had the most effect on me (1)            k. Parents never allowed "I can't" (1)            l. Tennis helped mental toughness (1)            m. Combination of team and individual helped mental game (1)            n. HS coach instilled drive for sport in us (1)            o. Competing with HS teammates pushed me to get better (1)            p. Never winning HS meet made me strive to be successful (1)            q. Everything got me to where I am today (1)            r. I was an extreme tomboy (1)            s. Playing musical instrument increased lung capacity (1)            t. Riding unicycle and walking on stilts increased balance (1)            u. A lot of pent up energy/drive going into college (1)            v. My size or build (1)            w. I'm a very competitive person (1)            x. I didn't have a fear of failure (1)</p>		<p><b>Motivation</b></p> <p>Influenced and supported by family's athleticism (47/10)            (Category B - Item a, b, c, e)            (Category C - Item b, c)            (Category Q - Item a, b)</p> <p>Excelled early in sport due to natural attributes (15/10)            (Category C - Item e)            (Category Q - Item c, d)            (Category R - Item b)</p> <p>Father was great influence (15/7)            (Category B - Item d)            (Category C - Item a)            (Category K - Item b)</p> <p>Coach believed in me (15/9)            (Category K - Item a, c)            (Category L - Item a)</p> <p>Love for sport (10/10)            (Category R - Item a, d)</p> <p>Connection to others (4/4)            (Category R - Item c)</p>
<p><b>D. Peak Performance and Flow - Q1</b></p>		
<p>a. This is the time to do it/nothing to lose/went for it (5)            b. In the moment and not thinking/just reacting (5)            c. Vague memory of best performance (4)            d. National competition (4)</p>		

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<p>e. Focused and driven in competitive environment (4)</p> <p>f. Was a really close finish (4)</p> <p>g. Once I competed I let the emotions go (3)</p> <p>h. Weather didn't affect me (3)</p> <p>i. Set a new PR (2)</p> <p>j. Focused on technique (2)</p> <p>k. National qualifying event (2)</p> <p>l. So nervous (2)</p> <p>m. Told myself I can do this (2)</p> <p>n. Fun &amp; exciting atmosphere (2)</p> <p>o. Had no idea what was going on (2)</p> <p>p. Let it happen in high pressure situation (2)</p> <p>q. Best I've ever played (2)</p> <p>r. Mind was spinning (2)</p> <p>s. Most comfortable/Best I've ever felt in competition (2)</p> <p>t. Push the competition to the next level (2)</p> <p>u. Enjoyed the pressure/mental challenge (2)</p> <p>v. Gave me a high like nothing else (2)</p> <p>w. My coach was relaxed (1)</p> <p>x. Trusted my coach (1)</p> <p>y. Forced to act as own coach and that added stress (1)</p> <p>z. Made conscious effort to shut off perception of pain in brain (1)</p> <p>aa. Had no expectations (1)</p> <p>bb. Composed yet aggressive (1)</p> <p>cc. Remembers clearly (1)</p> <p>dd. I was prepared (1)</p> <p>ee. Day of competition it was all business (1)</p> <p>ff. I never let them beat me (1)</p> <p>gg. Gave my best effort (1)</p> <p>hh. Find way to reign in mind when it's going many directions (1)</p> <p>ii. Good camaraderie with my opponent (1)</p> <p>jj. I enjoyed the large group of spectators (1)</p> <p>kk. Just started getting confident (1)</p> <p>ll. Saw what I was going to do before it happened (1)</p> <p>mm. Didn't make too many mistakes (1)</p>	<p><b><u>Peak Performance and Flow</u></b></p> <p>Focus and flow (34/10) (Q1 - Item b, c, e, g, h, j, p, q, s, z, bb, dd, ee, hh, kk, ll)</p> <p>Thrived in pressure situation (32/8) (Q1 - Item a, d, f, i, k, m, n, t, u, v, ff, ii, jj) (Q2 - Item e)</p> <p>Rarely had a peak performance (9/7) (Q2 - Item a, d)</p> <p>Consistently performed at high level (8/6) (Q1 - Item mm) (Q2 - Item b, c)</p> <p>Coach influenced performance (3/3) (Q1 - Item w, x, y)</p>	<p><b><u>Cognitive Processes</u></b></p> <p>Maintained positive attitude (27/10) (Category F - Item c) (Category I - Item b) (Category P - Item j) (Category U - Item e, g) (Category W - Item a)</p> <p>Experienced doubt (17/10) (Category M - Item a, b, c, d, e)</p> <p>Misdirected attention (10/7) (Category G - Item a) (Category W - Item f)</p>

RAW DATA THEMES  
BY CATEGORIES AND QUESTIONS

GENERAL THEMES  
WITHIN CATEGORIES AND QUESTIONS

EMERGENT THEMES CATEGORIES A - W  
(3 or more responses)

**E. Peak Performance and Flow - Q2**

- a. Rare to have a performance like that (7)
- b. I was consistent player (4)
- c. Often/Always performed at a high level (3)
- d. Had a few other performances that were close (2)
- e. I thrive on the elevated pressure of good competition (2)

**F. General Performance Characteristics - Q1**

- a. Relaxation/Use techniques to relax (8)
- b. Composure/Numb emotions (6)
- c. Use positive self-talk/Maintain great attitude (6)
- d. Visualize performance (5)
- e. Focusing and blocking out distractions (5)
- f. Don't give up/Press on (4)
- g. Shut mind off and trust my body to do it (2)
- h. Mental toughness from competition experience (2)
- i. Really competitive/Want to be the best (2)
- j. Not afraid to lose/Free from doubt (2)
- k. Sport isn't who I am, just what I do (2)
- l. Stick to the plan/Use routines (2)
- m. Use disappointment/loss/pain to motivate (2)
- n. Organized/Detailed/Scheduled (1)
- o. Compete against myself (1)
- p. Prepare for competition (1)
- q. Take my time (1)
- r. Rely on past success (1)
- s. Can't think about the outcome (1)
- t. Commit to what you're confident in (1)
- u. Just go with the flow (1)
- v. Laugh it off (1)

**G. General Performance Characteristics - Q2**

- a. Thinking too much/Over analyze (7)
- b. Emotions/Nerves get in the way (4)

**General Performance Characteristics**

- Focus on task (16/5)  
(Q1 - Item e, g, l, n, p, s)  
(Q3 - Item e, m)
- Competitive and determined (13/8)  
(Q1 - Item f, i, j, o)  
(Q2 - Item f, g)  
(Q3 - Item h)
- Use loss for improvement (11/8)  
(Q1 - Item m)  
(Q3 - Item a, f, g)
- Adapt to situation (11/6)  
(Q3 - Item b, d, l, p)
- Relaxation (10/6)  
(Q1 - Item a, q)  
(Q3 - Item k)
- Composure and emotion management (9/7)  
(Q1 - Item b, u, v)  
(Q3 - Item n)
- Lack of focus and emotional control (9/6)  
(Q2 - Item b, d, i)  
(Q3 - Item i)
- Over thinking (7/3)  
(Q2 - Item a)
- Relied on past success (6/5)  
(Q1 - Item h, r, t)  
(Q3 - Item j)

**Success Related Mental Skills**

- Focus (43/10)  
(Category D - Item b, c, e, h)  
(Category F - Item e)  
(Category H - Item e)  
(Category I - Item d)  
(Category J - Item h)  
(Category P - Item g)  
(Category W - Item b, c)
- Perseverance (41/10)  
(Category D - Item a)  
(Category F - Item f)  
(Category H - Item b, d)  
(Category I - Item c)  
(Category J - Item g)  
(Category R - Item e)  
(Category S - Item a)  
(Category T - Item a, b)
- Specific competition routines (19/8)  
(Category P - Item c, d, e, f, h)
- Visualization (18/8)  
(Category F - Item d)  
(Category O - Item a)  
(Category P - Item a)
- Mental aspect is always present (10/5)  
(Category O - Item b, c)

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
c. Putting pressure on self (3) d. Intimidated by the competition (2) e. People pleaser (1) f. Perfectionist (1) g. Working myself too hard (1) h. Struggled with the things I had to say to motivate teammates (1) i. Lack of focus (1) j. Lack of commitment (1)	Maintain positive attitude (6/5) (Q1 - Item c)  Visualize (5/5) (Q1 - Item d)  Pressure on self (3/3) (Q2 - Item c)	Relaxation (8/5) (Category F - Item a)  Formal mental skills training (6/6) (Category O - Item e, f)
<b>H. General Performance Characteristics - Q3</b>		
a. Accept it/Learn from it/Move on (5) b. Under performed but still won (5) c. Relied on teammates (4) d. Just make it work/happen (4) e. Focused on what was working (3) f. Not considered a win if I don't reach my goal (2) g. Review and improve (2) h. Refused to be beaten/Went for it (2) i. Weather conditions affected my performance (2) j. Relied on past success/training for that situation (2) k. Took my time (1) l. Go with instincts/Don't think too much (1) m. Focus only on self during competition (1) n. Good at taking things as they are (1) o. The expectations on me helped me through (1) p. Adapted technique to the conditions (1) q. I built the team up for it (1) r. I have had a lot of luck (1)		Relied on teammate (4/3) (Category H - Item c)  Minimal mental skills training (4/4) (Category O - Item d)
<b>I. Mental Toughness - Q1</b>		
a. Let negative go/Move on/Mistake recovery (6) b. Look only at positives in adverse situations (4) c. Overcome/Conquer/Don't give up when want to (4) d. Focus/Block out distractions (3) e. Mental toughness has many attributes/Different each sport (2)		

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
f. Go after it/Never back down (2) g. Confidence (2) h. Believe/Trust in the preparation (2) i. Sync body and mind in training, competition, and life (1) j. Consistency (1) k. Take time to recover rather than work harder (1) l. Praising own performance (1) m. Sharing the glory of the win (1) n. Not being too emotional over something petty (1) o. There are more important days to come in life (1) p. Always evolving into a better person (1) q. Not arrogant (1) r. Patience (1) s. Learned mental toughness (1) t. Relying on past success (1) u. Strength has already happened so you can't lose the toughness (1) v. Being ok with second if you gave it your all (1) w. Concentrate on self (1) x. Help teammate focus and share the toughness (1) y. Want to compete (1)	<p style="text-align: center;"><b><u>Mental Toughness</u></b></p> Resilient to adversity (22/8) (Q1 - Item a, b) (Q2 - Item c, m, p, s) Confidence (22/9) (Q1 - Item g, h, l, q, t) (Q2 - Item b, e, n, bb) Persist and persevere (17/7) (Q1 - Item c, f, r) (Q2 - Item g, j, l, w, y) Concentration (10/6) (Q1 - Item d, w, x) (Q2 - Item h, t, aa) Composure and emotion management (10/8) (Q1 - Item n, v) (Q2 - Item a) Embrace required lifestyle (9/5) (Q1 - Item i) (Q2 - Item d, u, v, z) Mental toughness is a learned attribute (6/6) (Q1 - Item s) (Q2 - Item f, x) Different for each person/sport (5/3) (Q1 - Item e) (Q2 - Item i) Integrity (3/3) (Q1 - Item m) (Q2 - Item k, q)	<p style="text-align: center;"><b><u>Mental Toughness Attributes</u></b></p> Resiliency (39/10) (Category H - Item a) (Category I - Item a) (Category J - Item c) (Category P - Item b) (Category S - Item d) (Category U - Item c, d) Composure and emotion management (21/8) (Category D - Item g) (Category F - Item b) (Category J - Item a) (Category W - Item d) Confidence (21/9) (Category J - Item b, e) (Category W - Item e, g, h) Sacrifice (14/5) (Category C - Item d) (Category J - Item d, f) Individual and situation specific (3/3) (Category J - Item i)
<p style="text-align: center;"><b><u>J. Mental Toughness - Q2</u></b></p> a. Stay composed/Control emotions (8) b. Confidence in method/technique (8) c. Resilient/Adapt/Handle anything (8) d. Embrace the lifestyle and training required (5) e. Confidence from the preparation/training (4) f. Takes a lot of experience and time to learn mental toughness (4) g. Persistence/Don't give up/Press on (4) h. Stay focused (3) i. Difficult to generalize definition/Varies with person and situation (3) j. Perseverance (2) k. Be respectful to others (2) l. Find a way to get it done/No excuses (2) m. Wanted and thrived on challenge of competition (2) n. Train like you're going to compete/Simulation training (2)		



RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<p>o. That definition sums up the team/my life (1)</p> <p>p. Motivated by a hostile environment (1)</p> <p>q. Character shines through (1)</p> <p>r. Passionate about the sport (1)</p> <p>s. No such thing as an optimal day (1)</p> <p>t. Not letting the competition intimidate you (1)</p> <p>u. Find balance (1)</p> <p>v. Sport transfers to life and vice versa (1)</p> <p>w. Sport has taught me hard work pays off (1)</p> <p>x. Mental toughness is developed physically (1)</p> <p>y. Working as hard with or without an audience (1)</p> <p>z. Separate self from others because sport is priority (1)</p> <p>aa. Knowing your race plan is important (1)</p> <p>bb. Take what I am and train to that (1)</p> <p>cc. Wanting team to succeed (1)</p>		
<b><u>K. Confidence - Q1</u></b>		
<p>a. Coach believed in me first (4)</p> <p>b. Father first believed in me (3)</p> <p>c. Coach's confidence gave me confidence (3)</p> <p>d. Believed in myself (2)</p> <p>e. Parents believed in me (2)</p> <p>f. Mother/Sister was supportive (2)</p> <p>g. Belief grew with success/hard work (2)</p> <p>h. Playing with better competition gave me confidence (1)</p> <p>i. My sister believed in me (1)</p>		
<b><u>L. Confidence - Q2</u></b>		
<p>a. Coach believed in me (8)</p> <p>b. My best friend/teammate (2)</p> <p>c. Parents believed in me (1)</p> <p>d. Everyone who is part of my support group (1)</p> <p>e. My dad (1)</p> <p>f. Comments from other coaches/sport psych professionals (1)</p> <p>g. Coach believing gave me confidence (1)</p>		

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<p>h. My family (1)</p> <p>i. Believed in myself (1)</p>	<p><b><u>Confidence</u></b></p> <p>Prepared prior to competition (25/10) (Q5 - Item g, k, m) (Q6 - Item c, e, h, n, q, r, t, v, y, z)</p> <p>Experienced self doubt (24/10) (Q3 - Item a, b, c, d, e, f, g, h, j, l, m)</p> <p>Visualization (17/7) (Q5 - Item a, f, p) (Q6 - Item a)</p> <p>Coach believed in me (15/9) (Q1 - Item a) (Q2 - Item a, f, g) (Q3 - Item k)</p> <p>Believed in self (13/7) (Q1 - Item c, d, g, h) (Q2 - Item i) (Q3 - Item n, o, p) (Q6 - Item s)</p> <p>Relax and have fun (13/6) (Q5 - Item o) (Q6 - Item d, i, j, o)</p> <p>Constantly prepared for my sport (12/6) (Q4 - Item j) (Q5 - Item b, c, l)</p> <p>No structured routine or mental skills used (9/6) (Q5 - Item d, n) (Q6 - Item m, x, cc)</p>	
<p><b><u>M. Confidence - Q3</u></b></p> <p>a. Doubted when I wasn't improving/winning (5)</p> <p>b. Comparing myself to other's ability made me doubt (3)</p> <p>c. Definitely had doubts (3)</p> <p>d. There's always going to be doubts (3)</p> <p>e. Doubted when injured/hurt (3)</p> <p>f. Expectations made me doubt (2)</p> <p>g. Was mentally weak when younger (1)</p> <p>h. Too much thinking made me doubt (1)</p> <p>i. Dedication to the team got me through doubts (1)</p> <p>j. Considered quitting (1)</p> <p>k. Doubted until coach gave me opportunity (1)</p> <p>l. All the hard work it takes made me doubt (1)</p> <p>m. Many times I didn't feel I belonged in a competition (1)</p> <p>n. Don't experience doubt in training/practice (1)</p> <p>o. Confidence grew from challenge by teammates' ability (1)</p> <p>p. Perseverance and staying at it helped me doubt less (1)</p>		
<p><b><u>N. Confidence - Q4</u></b></p> <p>a. 18 hours (2)</p> <p>b. 17 hours (2)</p> <p>c. Location limited practice (2)</p> <p>d. 10 hours (1)</p> <p>e. 15 hours (1)</p> <p>f. 19 hours (1)</p> <p>g. 25 hours (1)</p> <p>h. 30 hours (1)</p> <p>i. 40 hours (1)</p> <p>j. Feels like I'm constantly training (1)</p>		

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<b><u>O. Confidence - Q5</u></b>	<p>Focus (8/5) (Q6 - Item g, p, aa, bb)</p> <p>Followed routine (8/5) (Q5 - Item i) (Q6 - Item f, k)</p> <p>Be flexible (8/5) (Q6 - Item b, l)</p> <p>Family believed in me (7/6) (Q1 - Item e, f, i) (Q2 - Item c, h)</p> <p>Formal sport psychology training (5/3) (Q5 - Item e, h)</p> <p>Father believed in me (4/3) (Q1 - Item b) (Q2 - Item e)</p>	
<p>a. Visualization (6)</p> <p>b. Mental training is constant/Constant thought (6)</p> <p>c. Happens at same time as the physical (4)</p> <p>d. Didn't do much mental stuff (4)</p> <p>e. Took sport psychology class (3)</p> <p>f. Watch video/Listen to audio (3)</p> <p>g. Mentally prepare all day of competition (2)</p> <p>h. Worked with sport psychologist couple of times (2)</p> <p>i. Have exact routine/developed race plan (2)</p> <p>j. Practice was focused and dedicated time for working hard (1)</p> <p>k. Prepared game day by thinking more (1)</p> <p>l. Verbal debrief with teammates constantly (1)</p> <p>m. Mentally prepare more in days leading up to competition (1)</p> <p>n. Sometimes used them in certain situations (1)</p> <p>o. Listen to a lot of music (1)</p> <p>p. Use last race to visualize next one (1)</p> <p>q. Sport is kept separate from rest of life (1)</p>		
<b><u>P. Confidence - Q6</u></b>		
<p>a. Visualize what it would look like (7)</p> <p>b. Be flexible/Don't expect it to go according to plan (6)</p> <p>c. Meet and talk with team/coach prior to competition (4)</p> <p>d. Listen to music (4)</p> <p>e. Familiarize myself with the competition/Scouting reports (4)</p> <p>f. Had a routine/Always same thing (4)</p> <p>g. Focus in/Get focused (4)</p> <p>h. Paid attention to what and when I ate (3)</p> <p>i. Shake it all out/Get loose (3)</p> <p>j. Have fun/Laugh (3)</p> <p>k. Always showered before a game (2)</p> <p>l. Have an open mind/Respond to whatever happens (2)</p> <p>m. No specific or structured routine (2)</p> <p>n. Get a good night of sleep/Early to bed (2)</p> <p>o. Relax as much as possible (2)</p>		

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<p>p. Keep head clear/Don't over think (2)</p> <p>q. Get there early to prepare (2)</p> <p>r. Practice round day before a competition (2)</p> <p>s. Knowing I can power through any situation (1)</p> <p>t. Prepare to trust my body (1)</p> <p>u. Only let positive in and keep the negative out (1)</p> <p>v. Psych myself up (1)</p> <p>w. Keep it simple (1)</p> <p>x. Just go out there and do it (1)</p> <p>y. Keep body in work mode all day of game (1)</p> <p>z. Intimidate the competition (1)</p> <p>aa. Planned extensively for focus points (1)</p> <p>bb. Prepare on the way to competition (1)</p> <p>cc. More physical than mental (1)</p> <p>dd. Wrote confidence building notes to self (1)</p>	<p><b><u>Achievement Motivation and Passion for Sport</u></b></p> <p>Enjoyment (19/10) (Q1 - Item d) (Q2 - Item a, d, e, i, j, n)</p> <p>Family's influence (13/8) (Q1 - Item a, b, g, l, m) (Q2 - Item g, h)</p> <p>Natural fit (12/7) (Q1 - Item c, e, f) (Q2 - Item b)</p> <p>Connection to others (8/7) (Q1 - Item i, j, k) (Q2 - Item c, k)</p>	
<p><b><u>Q. Achievement Motivation and Passion for Sport - Q1</u></b></p>	<p>a. Parents influence (5)</p> <p>b. Siblings influence as athlete (3)</p> <p>c. My body type/size (3)</p> <p>d. It was fun/liked it/good at it (3)</p> <p>e. Coach assigned me to sport because of ability (2)</p> <p>f. I threw further than the boys (1)</p> <p>g. Been playing since I can remember (1)</p> <p>h. To treat depression (1)</p> <p>i. To be around my crush (1)</p> <p>j. To make myself known (1)</p> <p>k. A friend's influence (1)</p> <p>l. Grandpa's influence (1)</p> <p>m. Forced to choose one sport to pursue (1)</p>	
<p><b><u>R. Achievement Motivation and Passion for Sport - Q2</u></b></p>	<p>a. Loved playing the sport/It was fun (7)</p> <p>b. Was good at it/Had natural ability (6)</p> <p>c. The network of people/Friendships/Connection to others (4)</p>	

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<p>d. Way of life/Passion/Addicted (3)</p> <p>e. Enjoy pushing self/See what I'm capable of (3)</p> <p>f. Realized someone is investing in me/Don't let them down (2)</p> <p>g. Wanted to be like brother (1)</p> <p>h. Dad wanted me to (1)</p> <p>i. I liked being outside (1)</p> <p>j. Connection between body and mind (1)</p> <p>k. Opportunity to be part of something bigger than by myself (1)</p> <p>l. Every situation is different (1)</p> <p>m. Convenient (1)</p> <p>n. Like the solitude and peace (1)</p>	<p><b><u>Coping with Adversity</u></b></p> <p>Dissappointed and upset (15/10) (Q2 - Item a, b, u)</p> <p>Dwelling on the loss (14/8) (Q1b - Item n) (Q2 - Item f, h, i, l, n, q, t)</p> <p>Used adversity to improve (13/6) (Q1b - Item a) (Q2 - Item d, j, m, v)</p> <p>Pressure and expectations (11/5) (Q1a - Item b, c, e, g, n, o)</p> <p>Relyed on support network (11/8) (Q1b - Item c, d, f, g, h) (Q2 - Item c)</p> <p>Look forward positively (10/6) (Q1b - Item k, l) (Q2 - Item e, k, o)</p> <p>Transition to college (8/5) (Q1a - Item d, h, i, m, q, t)</p> <p>Injury and illness (7/7) (Q1a - Item a, j, l)</p> <p>Acceptance of self (7/3) (Q1b - Item i, j, m) (Q2 - Item g, r)</p>	
<p><b><u>S. Coping with Adversity - Q1a</u></b></p> <p>a. Injuries prior to college kept me out (5)</p> <p>b. Expectations/Pressure I put on self (4)</p> <p>c. Felt more pressure as leader/captain of team (3)</p> <p>d. Mentally weak as freshman/Transition to college (3)</p> <p>e. Community pressure once winning national title (1)</p> <p>f. Challenging to find a place to work on my technique/drills (1)</p> <p>g. Challenging to be divided between my culture and my sport (1)</p> <p>h. Challenging doing it on my own (1)</p> <p>i. Separation from family in college (1)</p> <p>j. I was anemic for a year in college (1)</p> <p>k. Challenged by the limitation of own body (1)</p> <p>l. Slight eating disorder (1)</p> <p>m. Stressed about school (1)</p> <p>n. Comparing myself to others (1)</p> <p>o. Afraid of declines in performance (1)</p> <p>p. Conflict with teammates over lifestyle choices (1)</p> <p>q. Sleep deprivation (1)</p> <p>r. Learning to communicate with teammates (1)</p> <p>s. Family was not wealthy/Missed opportunities (1)</p> <p>t. Had less experience than most college players (1)</p>		

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<b><u>T. Coping with Adversity - Q1b</u></b>	Patience (4/3) (Q1b - Item b) (Q2 - Item s)  Missed opportunities to train (2/2) (Q1a - Item f, s)  Team dynamics (2/2) (Q1a - Item p, r)	
a. Work harder/Practice more to improve (4) b. Patience/Took time/Slow progression to success (3) c. Friends (1) d. Family (1) e. Used the disability to share my faith (1) f. Community accepted my disability (1) g. Coach worked with me (1) h. Knowing I was still part of the team (1) i. Knowing I was still talented (1) j. Remembered I like doing this for a reason (1) k. I have a positive outlook on life (1) l. Set aside now for the bigger picture (1) m. Realizing I am healthy the way I am (1) n. Still working through it (1)		
<b><u>U. Coping with Adversity - Q2</u></b>		
a. Disappointed/Very upset/Frustrated (8) b. Walked away/Collapsed and cried or let emotions go (6) c. Family/Coach/Teammate helped me put it in perspective (6) d. Pushed me to get better/Chose to build off it (5) e. Look forward/Can't change the past/Don't dwell (5) f. Shut myself away from everyone/Stayed home for days (3) g. Realized that does not define me/Better than that/Turning point (3) h. Difficult and still not over it (3) i. Thought for a long time about how I'd screwed up (2) j. Learning from it got me through/Good learning experience (2) k. Took week or few days off then back to work (2) l. Questioned what more I could have done (2) m. Decided not to fear losing anymore (1) n. No closure since it was last competition of year and career (1) o. Was meant to be/Part of the bigger plan (1) p. Wrote in my journal (1) q. Especially didn't want to talk to family about it (1) r. Took expectations off myself (1)		

RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
<p>s. Time heals all wounds (1)  t. Took months to comprehend and analyze what had happened (1)  u. Felt I let teammates down (1)  v. What doesn't kill you makes you stronger (1)</p>	<p><b><u>Performing Effectively Under Pressure</u></b>  Pressure situations (17/10)  (Q1a - Item a, b, c, d, e, f, g, h, i, j)</p>	
<p><b><u>V. Performing Effectively Under Pressure - Q1a</u></b>  a. Pressure from everyone thinking I/We would win (4)  b. Put pressure on self (3)  c. Felt the pressure of teammates (2)  d. Pressure of being team leader/captain (2)  e. Felt the pressure to make it happen (1)  f. Pressure from rankings (1)  g. Pressure from defending the national title (1)  h. Pressure of hosting the event (1)  i. Pressure of a lot of people watching (1)  j. Felt pressure when was behind (1)  k. Many new circumstances for me (1)</p>	<p>Focused on own performance (13/6)  (Q1b - Item b, c, e, s)  Talked myself through it (8/5)  (Q1b - Item a, m, r)  Maintained composure (7/4)  (Q1b - Item d, l, o, u)  Relied on preparation and success (6/4)  (Q1b - Item g, h)  Outcome oriented (4/3)  (Q1b - Item f, j)</p>	
<p><b><u>W. Performing Effectively Under Pressure - Q1b</u></b>  a. Talked myself through it/Put it in perspective (6)  b. Focus on own performance/Keep the distractions out (5)  c. Stay focused on what I need to do/Forget the outcome (4)  d. Tried to stay composed and calm (4)  e. Knew I needed to step up (3)  f. Focused on the wrong thing/Outcome oriented (3)  g. Relied on past success in similar situation (3)  h. Trusted that my preparation and hard work were enough (3)  i. Handled it poorly (1)  j. Just wanted everyone to accept me if I lost (1)  k. Gave myself the out to lose (1)  l. Took deep breaths (1)  m. Realized it wasn't meant to be (1)  n. Have to have mental toughness (1)  o. Such a relief once it was over (1)  p. I cried (1)</p>		

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RAW DATA THEMES BY CATEGORIES AND QUESTIONS	GENERAL THEMES WITHIN CATEGORIES AND QUESTIONS	EMERGENT THEMES CATEGORIES A - W (3 or more responses)
q. I talked through it with a teammate (1) r. Thought about commitment (1) s. Not much was on my mind (1) t. I was nervous (1) u. Tense but in a good way (1) v. Buckled under the pressure (1) w. Didn't put pressure on self (1) x. Got angry with the external feedback from every one (1)		

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APPENDIX G

FREQUENCY DISTRIBUTION OF RAW DATA RESPONSES

**FREQUENCY DISTRIBUTION OF RAW DATA RESPONSES**

Responses (Category and Question)	Number of Athlete Responses											Rank Order			
	Developmental Aspects	Peak Performance and Flow	General Performance Characteristics	Mental Toughness	Confidence	Achievement Motivation & Passion for Sport	Coping with Adversity	Performing Effectively Under Pressure	Total Responses	# of Athletes Contributing					
Sibling was athlete (B)	9											9	9	1	
Played baseball/softball (A)	8												8	8	2
Supportive/Involved/Encouraging family (B)	8												8	8	3
Relaxation/Use techniques to relax (F)			8										8	5	4
Stay composed/Control emotions (J)				8									8	6	5
Confidence in method/technique (J)				8									8	8	6
Resilient/Adapt/Handle anything (J)				8									8	5	7
Coach believed in me (L)					8								8	8	8
Disappointed/Very upset/Frustrated (U)								8					8	8	9
Played basketball (A)	7												7	7	10
Played soccer (A)	7												7	7	11
Parents and family were physically active (B)	7												7	7	12
Father was very influential (C)	7												7	7	13
Rare to have a performance like that (E)		7											7	7	14
Thinking too much/Over analyze (G)			7										7	3	15
Visualize what it would look like (P)					7								7	7	16
Loved playing the sport/It was fun (R)								7					7	7	17
Participated in track and field/cross country (A)	6												6	6	18
Siblings influenced me for the better (C)	6												6	6	19
Parent's athletic background influenced me (C)	6												6	6	20
Composure/Numb emotions (F)			6										6	5	21
Use positive self-talk/Maintain great attitude (F)			6										6	5	22
Let negative go/Move on/Mistake recovery (I)				6									6	4	23
Visualization (O)					6								6	6	24
Mental training is constant/Constant thought (O)					6								6	5	25
Be flexible/Don't expect it to go according to plan (P)					6								6	3	26
Was good at it/Had natural ability (R)						6							6	6	27
Walked away/Collapsed and cried or let emotions go (U)												6	6	5	28

## FREQUENCY DISTRIBUTION OF RAW DATA RESPONSES

Responses (Category and Question)	Number of Athlete Responses											Rank Order
	Developmental Aspects	Peak Performance and Flow	General Performance Characteristics	Mental Toughness	Confidence	Achievement Motivation & Passion for Sport	Coping with Adversity	Performing Effectively Under Pressure	Total Responses	# of Athletes Contributing		
Family/Coach/Teammate helped me put it in perspective (U)								6	6	6	6	29
Talked myself through it/Put it in perspective (W)								6	6	6	5	30
Dad got me into sport (B)	5								5	5	5	31
I understood working hard was important (C)	5								5	5	3	32
This is the time to do it/nothing to lose/went for it (D)		5							5	5	3	33
In the moment and not thinking/just reacting (D)		5							5	5	5	34
Visualize performance (F)			5						5	5	5	35
Focusing and blocking out distractions (F)			5						5	5	4	36
Accept it/Learn from it/Move on (H)			5						5	5	3	37
Under performed but still won (H)			5						5	5	5	38
Embrace the lifestyle and training required (J)				5					5	5	4	39
Doubted when I wasn't improving/winning (M)					5				5	5	5	40
Parents influence (Q)						5			5	5	5	41
Injuries prior to college kept me out (S)								5	5	5	5	42
Pushed me to get better/Chose to build off it (U)								5	5	5	5	43
Look forward/Can't change the past/Don't dwell (U)								5	5	5	5	44
Focus on own performance/Keep the distractions out (W)								5	5	5	4	45
Vague memory of best performance (D)		4							4	4	4	46
National competition (D)		4							4	4	4	47
Focused and driven in competitive environment (D)		4							4	4	4	48
Was a really close finish (D)		4							4	4	3	49
I was consistent player (E)		4							4	4	4	50
Don't give up/Press on (F)			4						4	4	3	51
Emotions/Nerves get in the way (G)			4						4	4	3	52
Relied on teammates (H)			4						4	4	3	53
Just make it work/happen (H)			4						4	4	4	54
Look only at positives in adverse situations (I)				4					4	4	4	55
Overcome/Conquer/Don't give up when want to (I)				4					4	4	4	56

## FREQUENCY DISTRIBUTION OF RAW DATA RESPONSES

Responses (Category and Question)	Number of Athlete Responses											Rank Order
	Developmental Aspects	Peak Performance and Flow	General Performance Characteristics	Mental Toughness	Confidence	Achievement Motivation & Passion for Sport	Coping with Adversity	Performing Effectively Under Pressure	Total Responses	# of Athletes Contributing		
Confidence from the preparation/training (J)				4					4	4	4	57
Takes a lot of experience and time to learn mental toughness (J)				4					4	4	4	58
Persistence/Don't give up/Press on (J)				4					4	4	4	59
Coach believed in me first (K)					4				4	4	4	60
Happens at same time as the physical (O)					4				4	4	4	61
Didn't do much mental stuff (O)					4				4	4	4	62
Meet and talk with team/coach prior to competition (P)					4				4	4	4	63
Listen to music (P)					4				4	4	4	64
Familiarize myself with the competition/Scouting reports (P)					4				4	4	4	65
Had a routine/Always same thing (P)					4				4	4	4	66
Focus in/Get focused (P)					4				4	4	4	67
The network of people/Friendships/Connection to others (R)						4			4	4	4	68
Expectations/Pressure I put on self (S)							4		4	3	3	69
Work harder/Practice more to improve (T)							4		4	4	4	70
Pressure from everyone thinking I/We would win (V)								4	4	4	4	71
Stay focused on what I need to do/Forget the outcome (W)								4	4	4	4	72
Tried to stay composed and calm (W)								4	4	4	3	73
Parents traveled to a lot of my competitions (B)	3								3	3	3	74
Excelled in sport early on (C)	3								3	3	3	75
Once I competed I let the emotions go (D)		3							3	3	3	76
Weather didn't affect me (D)		3							3	3	3	77
Often/Always performed at a high level (E)		3							3	3	3	78
Putting pressure on self (G)			3						3	3	3	79
Focused on what was working (H)			3						3	3	3	80
Focus/Block out distractions (I)				3					3	3	3	81
Stay focused (J)				3					3	3	3	82
Difficult to generalize definition/Varies with person and situation (J)				3					3	3	3	83
Father first believed in me (K)					3				3	3	3	84



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Played tennis (A)	2									2	2	113
Participated in swimming (A)	2									2	2	114
Played golf (A)	2									2	2	115
Participated in skiing/snowboarding (A)	2									2	2	116
Active family (A)	2									2	2	117
Played informal games with family (A)	2									2	2	118
Family was minimally involved in sports (B)	2									2	1	119
Family is really busy but also very close (B)	2									2	1	120
I loved to explore and run around (C)	2									2	1	121
Parents pushed me to try new things (C)	2									2	2	122
Parents were always very supportive (C)	2									2	2	123
Family was athletic and provided example (C)	2									2	2	124
Set a new PR (D)		2								2	2	125
Focused on technique (D)		2								2	2	126
National qualifying event (D)		2								2	2	127
So nervous (D)		2								2	2	128
Told myself I can do this (D)		2								2	1	129
Fun & exciting atmosphere (D)		2								2	2	130
Had no idea what was going on (D)		2								2	2	131
Let it happen in high pressure situation (D)		2								2	2	132
Best I've ever played (D)		2								2	2	133
Mind was spinning (D)		2								2	2	134
Most comfortable/Best I've ever felt in competition (D)		2								2	2	135
Push the competition to the next level (D)		2								2	2	136
Enjoyed the pressure/mental challenge (D)		2								2	2	137
Gave me a high like nothing else (D)		2								2	2	138
Had a few other performances that were close (E)		2								2	2	139
I thrive on the elevated pressure of good competition (E)		2								2	2	140

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Shut mind off and trust my body to do it (F)			2						2	2	141
Mental toughness from competition experience (F)			2						2	2	142
Really competitive/Want to be the best (F)			2						2	2	143
Not afraid to lose/Free from doubt (F)			2						2	2	144
Sport isn't who I am, just what I do (F)			2						2	1	145
Stick to the plan/Use routines (F)			2						2	2	146
Use disappointment/loss/pain to motivate (F)			2						2	2	147
Intimidated by the competition (G)			2						2	2	148
Not considered a win if I don't reach my goal (H)			2						2	2	149
Review and improve (H)			2						2	2	150
Refused to be beaten/Went for it (H)			2						2	2	151
Weather conditions affected my performance (H)			2						2	2	152
Relied on past success/training for that situation (H)			2						2	2	153
Mental toughness has many attributes/Different each sport (I)				2					2	2	154
Go after it/Never back down (I)				2					2	2	155
Confidence (I)				2					2	2	156
Believe/Trust in the preparation (I)				2					2	2	157
Perseverance (J)				2					2	2	158
Be respectful to others (J)				2					2	2	159
Find a way to get it done/No excuses (J)				2					2	2	160
Wanted and thrived on challenge of competition (J)				2					2	2	161
Train like you're going to compete/Simulation training (J)				2					2	2	162
Believed in my self (K)					2				2	2	163
Parents believed in me (K)					2				2	2	164
Mother/Sister was supportive (K)					2				2	2	165
Belief grew with success/hard work (K)					2				2	2	166
My best friend/teammate (L)					2				2	2	167
Expectations made me doubt (M)					2				2	1	168





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Family's culture does not emphasize sport (B)	1									1	1	197
A friend got me involved in organized sport (B)	1									1	1	198
Didn't want parents at my games (B)	1									1	1	199
Dad required one year participation then our choice to continue (C)	1									1	1	200
Dad has never put pressure on us kids to run (B)	1									1	1	201
Dad and I talk every night after my workout (B)	1									1	1	202
Has always been some family rivalry (B)	1									1	1	203
Some resentment from sister who wanted success (B)	1									1	1	204
Some reactions from my dad bother me (B)	1									1	1	205
Mom is not athletic (B)	1									1	1	206
Grandparent had the most effect on me (C)	1									1	1	207
Parents never allowed "I can't" (C)	1									1	1	208
Tennis helped mental toughness (C)	1									1	1	209
Combination of team and individual helped mental game (C)	1									1	1	210
HS coach instilled drive for sport in us (C)	1									1	1	211
Competing with HS teammates pushed me to get better (C)	1									1	1	212
Never winning HS meet made me strive to be successful (C)	1									1	1	213
Everything got me to where I am today (C)	1									1	1	214
I was an extreme tomboy (C)	1									1	1	215
Playing musical instrument increased lung capacity (C)	1									1	1	216
Riding unicycle and walking on stilts increased balance (C)	1									1	1	217
A lot of pent up energy/drive going into college (C)	1									1	1	218
My size or build (C)	1									1	1	219
I'm a very competitive person (C)	1									1	1	220
I didn't have a fear of failure (C)	1									1	1	221
My coach was relaxed (D)		1								1	1	222
Trusted my coach (D)			1							1	1	223
Forced to act as own coach and that added stress (D)										1	1	224

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Made conscious effort to shut off perception of pain in brain (D)		1								1	1	225
Had no expectations (D)		1								1	1	226
Composed yet aggressive (D)		1								1	1	227
Remembers clearly (D)		1								1	1	228
I was prepared (D)		1								1	1	229
Day of competition it was all business (D)		1								1	1	230
I never let them beat me (D)		1								1	1	231
Gave my best effort (D)		1								1	1	232
Find way to reign in mind when it's going many directions (D)		1								1	1	233
Good comraderie with my opponent (D)		1								1	1	234
I enjoyed the large group of spectators (D)		1								1	1	235
Just started getting confident (D)		1								1	1	236
Saw what I was going to do before it happened (D)		1								1	1	237
Didn't make too many mistakes (D)		1								1	1	238
Organized/Detailed/Scheduled (F)			1							1	1	239
Compete against myself (F)			1							1	1	240
Prepare for competition (F)			1							1	1	241
Take my time (F)			1							1	1	242
Rely on past success (F)			1							1	1	243
Can't think about the outcome (F)			1							1	1	244
Commit to what you're confident in (F)			1							1	1	245
Just go with the flow (F)			1							1	1	246
Laugh it off (F)			1							1	1	247
People pleaser (G)			1							1	1	248
Perfectionist (G)			1							1	1	249
Working myself too hard (G)			1							1	1	250
Struggled with the things I had to say to motivate teammates (G)			1							1	1	251
Lack of focus (G)			1							1	1	252

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Lack of commitment (G)			1							1	1	253
Took my time (H)			1							1	1	254
Go with instincts/Don't think too much (H)			1							1	1	255
Focus only on self during competition (H)			1							1	1	256
Good at taking things as they are (H)			1							1	1	257
The expectations on me helped me through (H)			1							1	1	258
Adapted technique to the conditions (H)			1							1	1	259
I built the team up for it (H)			1							1	1	269
I have had a lot of luck (H)			1							1	1	261
Sync body and mind in training, competition, and life (I)				1						1	1	262
Consistency (I)				1						1	1	263
Take time to recover rather than work harder (I)				1						1	1	264
Praising own performance (I)				1						1	1	265
Sharing the glory of the win (I)				1						1	1	266
Not being too emotional over something petty (I)				1						1	1	267
There are more important days to come in life (I)				1						1	1	268
Always evolving into a better person (I)				1						1	1	269
Not arrogant (I)				1						1	1	270
Patience (I)				1						1	1	271
Learned mental toughness (I)				1						1	1	272
Relying on past success (I)				1						1	1	273
Strength has already happened so you can't lose the toughness (I)				1						1	1	274
Being ok with second if you gave it your all (I)				1						1	1	275
Concentrate on self (I)				1						1	1	276
Help teammate focus and share the toughness (I)				1						1	1	278
Want to compete (I)				1						1	1	279
That definition sums up the team/my life (J)				1						1	1	280
Motivated by a hostile environment (J)				1						1	1	281

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Character shines through (J)				1						1	1	282
Passionate about the sport (J)				1						1	1	283
No such thing as an optimal day (J)				1						1	1	284
Not letting the competition intimidate you (J)				1						1	1	285
Find balance (J)				1						1	1	286
Sport transfers to life and vice versa (J)				1						1	1	287
Sport has taught me hard work pays off (J)				1						1	1	288
Mental toughness is developed physically (J)				1						1	1	289
Working as hard with or without an audience (J)				1						1	1	290
Separate self from others because sport is priority (J)				1						1	1	291
Knowing your race plan is important (J)				1						1	1	292
Take what I am and train to that (J)				1						1	1	293
Wanting team to succeed (J)				1						1	1	294
Playing with better competition gave me confidence (K)					1					1	1	295
My sister believed in me (K)					1					1	1	296
Parents believed in me (L)					1					1	1	297
Every one who is part of my support group (L)					1					1	1	298
My dad (L)					1					1	1	299
Comments from other coaches/sport psych professionals (L)					1					1	1	300
Coach believing gave me confidence (L)					1					1	1	301
My family (L)					1					1	1	302
Believed in myself (L)					1					1	1	303
Was mentally weak when younger (M)					1					1	1	304
Too much thinking made me doubt (M)					1					1	1	305
Dedication to the team got me through doubts (M)					1					1	1	306
Considered quitting (M)					1					1	1	307
Doubted until coach gave me opportunity (M)					1					1	1	308
All the hard work it takes made me doubt (M)					1					1	1	309

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Many times I didn't feel I belonged in a competition (M)					1						1	1	310
Don't experience doubt in training/practice (M)					1						1	1	311
Confidence grew from challenge by teammates' ability (M)					1						1	1	312
Perseverance and staying at it helped me doubt less (M)					1						1	1	313
10 hours (N)					1						1	1	314
15 hours (N)					1						1	1	315
19 hours (N)					1						1	1	316
25 hours (N)					1						1	1	317
30 hours (N)					1						1	1	318
40 hours (N)					1						1	1	319
Feels like I'm constantly training (N)					1						1	1	320
Practice was focused and dedicated time for working hard (O)					1						1	1	321
Prepared game day by thinking more (O)					1						1	1	322
Verbal debrief with teammates constantly (O)					1						1	1	323
Mentally prepare more in days leading up to competition (O)					1						1	1	324
Sometimes used them in certain situations (O)					1						1	1	325
Listen to a lot of music (O)					1						1	1	326
Use last race to visualize next one (O)					1						1	1	327
Sport is kept separate from rest of life (O)					1						1	1	328
Knowing I can power through any situation (P)					1						1	1	329
Prepare to trust my body (P)					1						1	1	330
Only let positive in and keep the negative out (P)					1						1	1	331
Psych my self up (P)					1						1	1	332
Keep it simple (P)					1						1	1	334
Just go out there and do it (P)					1						1	1	335
Keep body in work mode all day of game (P)					1						1	1	336
Intimidate the competition (P)					1						1	1	337
Planned extensively for focus points (P)					1						1	1	338

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Prepare on the way to competition (P)					1					1	1	339
More physical than mental (P)					1					1	1	340
Wrote confidence building notes to self (P)					1					1	1	341
I threw further than the boys (Q)									1	1	1	342
Been playing since I can remember (Q)									1	1	1	343
To treat depression (Q)									1	1	1	344
To be around my crush (Q)									1	1	1	345
To make myself known (Q)									1	1	1	346
A friend's influence (Q)									1	1	1	347
Grandpa's influence (Q)									1	1	1	348
Forced to choose one sport to pursue (Q)									1	1	1	349
Wanted to be like brother (R)									1	1	1	350
Dad wanted me to (R)									1	1	1	351
I liked being outside (R)									1	1	1	352
Connection between body and mind (R)									1	1	1	353
Opportunity to be part of something bigger than by myself (R)									1	1	1	354
Every situation is different (R)									1	1	1	355
Convenient (R)									1	1	1	356
Like the solitude and peace (R)									1	1	1	357
Community pressure once winning national title (S)									1	1	1	358
Challenging to find a place to work on my technique/drills (S)									1	1	1	359
Challenging to be divided between my culture and my sport (S)									1	1	1	360
Challenging doing it on my own (S)									1	1	1	361
Separation from family in college (S)									1	1	1	362
I was anemic for a year in college (S)									1	1	1	363
Challenged by the limitation of own body (S)									1	1	1	364
Slight eating disorder (S)									1	1	1	365
Stressed about school (S)									1	1	1	366

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Comparing myself to others (S)								1		1	1	367
Afraid of declines in performance (S)								1		1	1	368
Conflict with teammates over lifestyle choices (S)								1		1	1	369
Sleep deprivation (S)								1		1	1	370
Learning to communicate with teammates (S)								1		1	1	371
Family was not wealthy/Missed opportunities (S)								1		1	1	372
Had less experience than most college players (S)								1		1	1	373
Friends (T)								1		1	1	374
Family (T)								1		1	1	375
Used the disability to share my faith (T)								1		1	1	376
Community accepted my disability (T)								1		1	1	377
Coach worked with me (T)								1		1	1	378
Knowing I was still part of the team (T)								1		1	1	379
Knowing I was still talented (T)								1		1	1	380
Remembered I like doing this for a reason (T)								1		1	1	381
I have a positive outlook on life (T)								1		1	1	382
Set aside now for the bigger picture (T)								1		1	1	383
Realizing I am healthy the way I am (T)								1		1	1	384
Still working through it (T)								1		1	1	385
Decided not to fear losing any more (U)								1		1	1	386
No closure since it was last competition of year and career (U)								1		1	1	387
Was meant to be/Part of the bigger plan (U)								1		1	1	388
Wrote in my journal (U)								1		1	1	389
Especially didn't want to talk to family about it (U)								1		1	1	390
Took expectations off myself (U)								1		1	1	391
Time heals all wounds (U)								1		1	1	392
Took months to comprehend and analyze what had happened (U)								1		1	1	393
Felt I let teammates down (U)								1		1	1	394

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What doesn't kill you makes you stronger (U)								1	1	1	1	395
Felt the pressure to make it happen (V)									1	1	1	396
Pressure from rankings (V)									1	1	1	397
Pressure from defending the national title (V)									1	1	1	398
Pressure of hosting the event (V)									1	1	1	399
Pressure of a lot of people watching (V)									1	1	1	400
Felt pressure when was behind (V)									1	1	1	401
Many new circumstances for me (V)									1	1	1	402
Handled it poorly (W)									1	1	1	403
Just wanted every one to accept me if I lost (W)									1	1	1	404
Gave myself the out to lose (W)									1	1	1	405
Took deep breaths (W)									1	1	1	406
Realized it wasn't meant to be (W)									1	1	1	407
Have to have mental toughness (W)									1	1	1	408
Such a relief once it was over (W)									1	1	1	409
I cried (W)									1	1	1	410
I talked through it with a teammate (W)									1	1	1	411
Thought about commitment (W)									1	1	1	412
Not much was on my mind (W)									1	1	1	413
I was nervous (W)									1	1	1	414
Tense but in a good way (W)									1	1	1	415
Buckled under the pressure (W)									1	1	1	416
Didn't put pressure on self (W)									1	1	1	417
Got angry with the external feedback from every one (W)									1	1	1	418



APPENDIX H  
RESPONSES CITED THREE OR MORE TIMES

1. Developmental Aspects:

- Sibling was athlete (9)
- Supportive/involved/encouraging family (8)
- Played baseball/softball (8)
- Parent and family were physically active (7)
- Father was very influential (7)
- Played basketball (7)
- Played soccer (7)
- Siblings influenced me for the better (6)
- Parent's athletic background influenced me (6)
- Participated in track and field/cross country (6)
- Dad got me into sport (5)
- I understood working hard was important (5)
- Parents traveled to a lot of my competitions (3)
- Excelled in sport early on (3)

2. Peak Performance and Flow:

- Rare to have a performance like that (7)
- This is the time to do it/nothing to lose/went for it (5)
- In the moment and not thinking/just reacting (5)
- Vague memory of best performance (4)
- National competition (4)
- I was a consistent player (4)
- Focused and driven in competitive environment (4)
- Was a really close finish (4)
- Once I competed I let the emotions go (3)
- Weather didn't affect me (3)
- Often/always performed at a high level (3)

3. General Performance Characteristics:

- Relaxation/use techniques to relax (8)
- Thinking too much/over analyze (7)
- Composure/numb emotions (6)
- Use positive self-talk/maintain great attitude (6)
- Visualize performance (5)
- Focusing and blocking out distractions (5)
- Accept it/learn from it/move on (5)
- Underperformed but still won (5)
- Don't give up/press on (4)
- Relied on teammates (4)
- Emotions/nerves get in the way (4)
- Just make it work/happen (4)
- Putting pressure on self (3)

- Focused on what was working (3)
4. Mental Toughness:
- Stay composed/control emotions (8)
  - Confidence in method/technique (8)
  - Resilient/adapt/handle anything (8)
  - Let negative go/move on/mistake recovery (6)
  - Embrace the lifestyle and training required (5)
  - Look only at positives in adverse situations (4)
  - Overcome/conquer/don't give up when want to (4)
  - Confidence from the preparation/training (4)
  - Takes a lot of experience and time to learn mental toughness (4)
  - Persistence/don't give up/press on (4)
  - Focus/block out distractions (3)
  - Stay focused (3)
  - Difficult to generalize definition/varies with person and situation (3)
5. Confidence:
- Coach believed in me (8)
  - Visualize what it would look like (7)
  - Visualization (6)
  - Mental training is constant/constant thought (6)
  - Be flexible/don't expect it to go according to plan (6)
  - Doubted when I wasn't improving/winning (5)
  - Coach believed in me first (4)
  - Happens at the same time as the physical (4)
  - Didn't do much mental stuff (4)
  - Meet and talk with team/coach prior to competition (4)
  - Listen to music (4)
  - Familiarize myself with the competition/scouting reports (4)
  - Had a routine/always same thing (4)
  - Focus in/get focused (4)
  - Comparing myself to other's ability made me doubt (3)
  - Coach's confidence gave me confidence (3)
  - Father first believed in me (3)
  - Definitely had doubts (3)
  - There's always going to be doubts (3)
  - Doubted when injured/hurt (3)
  - Paid attention to what and when I ate (3)
  - Took sport psychology class (3)
  - Watch video/listen to audio (3)
  - Shake it all out/get loose (3)
  - Have fun/laugh (3)

6. Achievement Motivation and Passion for Sport:

- Loved playing the sport/it was fun (7)
- Was good at it/had natural ability (6)
- Parents influence (5)
- The network of people/friendships/connection to others (4)
- Siblings influence as athlete (3)
- My body type/size (3)
- It was fun/liked it/good at it (3)
- Way of life/passion/addicted (3)
- Enjoy pushing self/see what I'm capable of (3)

7. Coping with Adversity:

- Disappointed/very upset/frustrated (8)
- Walked away/collapsed and cried or let emotions go (6)
- Family/coach/teammate helped me put it in perspective (6)
- Injuries prior to college kept me out (5)
- Pushed me to get better/chose to build off it (5)
- Look forward/can't change the past/don't dwell (5)
- Expectations/pressure I put on self (4)
- Work harder/practice more to improve (4)
- Felt more pressure as leader/captain of team (3)
- Mentally weak as freshman/transition to college (3)
- Patience/took time/slow progression to success (3)
- Shut myself away from everyone/stayed home for days (3)
- Realized that does not define me/better than that/turning point (3)
- Difficult and still not over it (3)

8. Performing Effectively Under Pressure:

- Talked myself through it/put it in perspective (6)
- Focus on own performance/keep the distractions out (5)
- Stay focused on what I need to do/forget the outcome (4)
- Tried to stay composed and calm (4)
- Pressure from everyone thinking I/we would win (4)
- Put pressure on self (3)
- Knew I needed to step up (3)
- Focused on the wrong thing/outcome oriented (3)
- Relied on past success in similar situation (3)
- Trusted that my preparation and hard work were enough (3)

APPENDIX I  
EMERGENT THEMES

1. Experiences
  - a. Multi-sport athlete (28/10)
  - b. Experienced strong emotions (24/10)
  - c. Pressure situations (21/10)
  - d. Consistently performed well (7/6)
  - e. Peak performances are rare (7/7)
  
2. Motivation
  - a. Influenced and supported by family's athleticism (47/10)
  - b. Excelled early in sport due to natural attributes (15/10)
  - c. Father was great influence (15/7)
  - d. Coach believed in me (15/9)
  - e. Love for sport (10/10)
  - f. Connection to others (4/4)
  
3. Cognitive Processes
  - a. Maintained positive attitude (27/10)
  - b. Experienced doubt (17/10)
  - c. Misdirected attention (10/7)
  
4. Success Related Mental Skills
  - a. Focus (43/10)
  - b. Perseverance (41/10)
  - c. Specific competition routines (19/8)
  - d. Visualization (18/8)
  - e. Mental aspect is always present (10/5)
  - f. Relaxation (8/5)
  - g. Formal mental skills training (6/6)
  - h. Relied on teammate (4/3)
  - i. Minimal mental skills training (4/4)
  
5. Mental Toughness Attributes
  - a. Resiliency (39/10)
  - b. Composure and emotion management (21/8)
  - c. Confidence (21/9)
  - d. Sacrifice (14/5)
  - e. Individual and situation specific (3/3)

APPENDIX J

FREQUENCY DISTRIBUTION OF EMERGENT THEMES

**FREQUENCY DISTRIBUTION OF EMERGENT THEMES**

Emergent Themes	Number of Athlete Responses Related to Theme										Total Responses	# of Athletes Contributing	Rank Order
	Developmental Aspects	Peak Performance and Flow	General Performance Characteristics	Mental Toughness	Confidence	Achievement Motivation & Passion for Sport	Coping with Adversity	Performing Effectively Under Pressure					
Influenced and supported by family's athleticism	39					8					47	10	1
Focus		16	8	6	4			9			43	10	2
Perseverance		5	13	8		3	12				41	10	3
Resiliency			5	14	6		14				39	10	4
Multi sport athlete	28										28	10	5
Maintained positive attitude			6	4	3		8	6			27	10	6
Experienced strong emotions			4				20				24	10	7
Pressure situations		4	3				7	7			21	10	8
Composure and emotion management		3	6	8				4			21	8	9
Confidence				12				9			21	9	10
Specific competition routines					19						19	8	11
Visualization			5		13						18	8	12
Experienced doubt					17						17	10	13
Excelled early in sport due to natural attributes	3					12					15	10	14
Father was great influence	12				3						15	7	15
Coach believed in me					15						15	9	16
Sacrifice	5			9							14	5	17
Love for sport						10					10	10	18
Misdirected attention			7					3			10	7	19
Mental aspect is always present					10						10	5	20
Relaxation			8								8	5	21
Consistently performed well		7									7	6	22
Peak performances are rare		7									7	7	23
Formal mental skills training					6						6	6	24
Connection to others						4					4	4	25
Relied on teammate			4								4	3	26
Minimal mental skills training					4						4	4	27
Individual and situation specific				3							3	3	28



APPENDIX K

ATHLETIC COPING SKILLS INVENTORY – 28  
SCORES BY ATHLETE

ATHLETIC COPING SKILLS INVENTORY SCORES BY ATHLETE

Athlete	Gender	Subscale								Total Personal Coping Resources
		Coping with Adversity	Coachability	Concentration	Confidence & Achievement Motivation	Goal Setting & Mental Preparation	Peaking under Pressure	Freedom from Worry		
1	M	8	11	8	10	8	11	0	56	
2	F	7	12	10	11	10	12	6	68	
3	M	9	12	11	12	9	10	11	74	
4	F	12	12	10	12	4	12	11	73	
5	M	9	9	7	10	7	5	9	56	
6	F	6.5	5.5	8.5	10	12	4.5	4.5	51.5	
7	F	7	8	8	12	6	7	3	51	
8	F	10	8	11	8	11	4	8	60	
9	M	10	10	8	8	4	7	9	56	
10	F	10	12	11	10	5	12	7	67	
<b>Mean</b>		<b>8.85</b>	<b>9.95</b>	<b>9.25</b>	<b>10.30</b>	<b>7.60</b>	<b>8.45</b>	<b>6.85</b>	<b>61.25</b>	