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ATHLETIC IDENTITY AND HYPERCOMPETITIVENESS:
IMPACT ON ATHLETES' ATTITUDES TOWARD PAIN AND SPORT-RELATED
INJURY

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ATHLETIC IDENTITY AND HYPERCOMPETITIVENESS:
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A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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Abstract

The sporting world often praises and recognizes athletes who display a “fight-through-the-pain” mentality, putting the team and/or individual accolades before their own physical health or risk of further injury. However, some athletes’ excessive drive to compete and win may potentially put them at higher risk for harm, both physically and psychologically, depending on their response to pain and injury. This study explored the impact of overly competitive attitudes on an athlete’s ability to cope with pain and injury in sport. Specifically, responses on a pain coping attitudes inventory were examined in relation to measures of athletic identity and hypercompetitiveness for a sample of 114 intercollegiate athletes at a midwestern NCAA Division I school. Results were compared across gender and sport-orientation (team vs. individual) using 2-tailed analyses of variance and hierarchical multiple regression modeling. Findings from this study suggest that hypercompetitive attitudes are a stronger predictor than athletic identity of determining how an athlete will respond to injury. Results also indicate that individual- and team-oriented athletes display similar athletic identity, hypercompetitive attitudes, and pain coping ability. Furthermore, males in this sample demonstrated higher overall pain coping responses than females, regardless of sport orientation.

Chapter One

Introduction

Overview

Athletic identity can be defined as “the degree to which an individual identifies with the athlete role” (Brewer, Van Raalte, & Linder, 1993). A strong athletic identity has been shown to be connected with a higher degree of athletic competence, physical involvement, attractive body, physical strength and higher achievement motivation, which, in turn, may manifest itself as increased competitiveness, higher goal orientation, and increased motivation to win (Van Raalte, Brewer, Brewer, & Linder, 1992). This competitive nature and winning motivation can sometimes push an athlete to the limits of physical safety. Thus, it is possible that a strong athletic identity may prompt individuals to engage in a sport or exercise activity to the extent that their physical health is jeopardized. In addition, excessive training, participating in sport or exercise while injured, and other extreme behaviors may in some cases negate the potential health/fitness benefits of a strong athletic identity (Brewer et al., 1993).

Increased competitiveness may have a negative impact on an athlete’s approach to training, specifically when over-training could lead to increased risks for athletic injury. While competitive attitudes have been examined in athletes, there remains a gap in the research as to the potential cumulative impact of a strong athletic identity and overly competitive attitudes on pain and injury response. According to Horney (1937), *hypercompetitiveness* refers to an indiscriminate need by individuals to compete and win—and to avoid losing—at any cost as a means of maintaining or enhancing feelings of self-worth. Following this view on hypercompetitiveness, it stands to reason that

athletes possessing unhealthy levels of hypercompetitiveness would potentially be at greater risk for injury, in addition to possessing negative attributes in regard to injury coping responses. However, when much of the sporting world promotes and celebrates a “play through the pain” mentality, it may be difficult to tease out individual characteristics versus sport-specific or ‘culture-of-sport’ characteristics that contribute to attitudes toward pain and injury.

According to theory, how an athlete responds to injury is largely based on their perception of the injury. Several studies (Anderson & Williams, 1988; Folkman & Lazarus, 1991; Weiss & Troxel, 1986; Wiese-Bjornstal, Smith, Shaffer, and Morrey, 1998) have looked at models relating to stress processes in an individual’s cognitive appraisal of their situation (i.e., injury). The basic framework of these models suggests that how an individual interprets or appraises an injury determines how the individual will react emotionally (e.g., anger, depression, acceptance). Therefore, excessive competitiveness in an athlete may contribute to how s/he perceives injury, and subsequently how s/he approaches rehabilitation from injury.

Additionally, sport sociology research has shown how social structure and sport networks can influence athletic identity and support in relationship to the athlete’s attitude about injury (Brustad & Ritter-Taylor, 1997). Much of Nixon’s (1993a, 1993b, 1994a, 1994b, 1996a, 1996b; as cited in Loland, Skirstad, & Waddington, 2006) research has centered on a *risk-pain-injury* paradox indicative of a sporting “culture of risk.” This paradox rationalizes the risks of athletic participation and normalizes injuries and “playing hurt” in order to continue competing (Loland et al., 2006). Loland et al. (2006) outlined this paradox in their book:

Specifically, the paradox identified by Nixon concerns athletes' continued efforts to gain success while injured or in pain, a situation in which their chances to perform well, and to achieve success, would appear to be reduced. This paradox is distinct from, although not unconnected with, the more obvious one which links sport and exercise with good health and enjoyment. For Nixon, the idea of participating in sport in which risk-taking is expected and which may lead to chronic pain and long-term injury, conflicts with what he holds to be 'common sense' notions. But, as he demonstrates, this paradox represents a largely accurate picture of professional and elite-level sport. (p. 20-21)

In a study done by Wiese-Bjornstal et al. (1998), sociological dynamics of gender and subculture differences emerged as possible aids for understanding the distinct individual responses to sport injury. Qualitative studies focusing on the possibility of gender differences have also suggested that male and female athletes respond differently to their injuries; however, there is yet to be a clear consensus on this. In one study (Granito Jr., 2001), the athletes and student trainers commented on difference between sexes, sport opportunities, and the nature of male and female athletics as contributing to their feeling that male and female athletes respond differently to their injuries. Another study by Granito Jr. (2002) looked at athletes' injury experiences and found gender differences in three general areas: Female athletes tended to be less satisfied with the coaching relationships as a result of the injury, failed

to report any significant social interactions with significant others, and seemed to be more concerned with how the injury would affect their future health.

In an exploratory investigation of competitive orientations among Division I intercollegiate athletes and non-athletes, Gill and Dzewaltowski (1988) found that males scored higher than females on measures of competitiveness and win orientation. Also, they found that athletes scored higher than nonathletes on most measures, but particularly so on sport-specific competitiveness scores. Gill and Dzewaltowski's (1988) study also uncovered differences between sports on the competitive measures. However, these were unrelated to gender and seemed to reflect the competitive structure of the sporting activity. In a study looking at athletic identity as an important motivator, Tusak, Faganel, and Bednarik (2005) found a positive correlation between athletic identity and negative achievement motivation (motive to avoid failure). Based on their findings, it appears that athletes with a high athletic identity seem to have a strong need to avoid failure (Tusak et al., 2005). Unfortunately, when athletes combine this need with hypercompetitive attitudes, there exists the potential for psychological and/or physical harm.

Statement of the Problem

As noted earlier, competitive nature and winning motivation can sometimes push an athlete to the limits of physical safety. It is also possible that a strong athletic identity may prompt individuals to engage in a sport or exercise activity to the extent that their physical health is jeopardized. Excessive training, participating in sport or exercise while injured, and other such behaviors may in some cases negate the potential health/fitness benefits of a strong athletic identity (Brewer et al., 1993). Combine a

strong athletic identity with a hypercompetitive, “win-at-any-cost” attitude, and the potential risk of injury in sport will likely increase. Additionally, excessive competitiveness may lead athletes to hold cavalier attitudes toward pain and injury, such as false bravado or feelings of invulnerability. Cognitive appraisal models suggest that the athletes’ response to injury itself directly affects their susceptibility to injury. In the event an athlete has difficulty coping with an injury, there are often detrimental psychological effects, such as depression or anxiety.

To date, there is a paucity of research exploring possible links between athletic identity and excessive competitiveness and attitudes toward pain and injury. Thus, this study seeks to illuminate potential issues related to the impact of hypercompetitiveness on an athlete’s susceptibility to sport-induced injury. Specifically, this study will explore the potential cumulative influence of athletic identity and hypercompetitiveness on athletes’ responses on a pain coping attitudes inventory. Additional consideration will be given to examining athletes competing in individual-oriented sports versus athletes competing in team-oriented sports, with the expectation that athletes competing in individual-oriented sports will demonstrate higher levels of hypercompetitiveness. Understanding more about how hypercompetitive athletes react to injury and cope with pain may provide sport psychologists, athletic trainers, and coaching staff with potentially helpful prevention and intervention strategies.

Chapter Two

Review of the Literature

Theoretical Grounding (Stress and Injury Model/Theory)

Several studies (Anderson & Williams, 1988; Folkman & Lazarus, 1991; Weiss & Troxel, 1986; Wiese-Bjornstal et al., 1998) have looked at models relating to stress processes in an individual's cognitive appraisal of their situation (i.e., injury). The shared basic framework of these models suggests that the individual interpretation or injury appraisal determines how the athlete will react emotionally (e.g., anger, depression, acceptance).

In particular, the Stress and Injury Model (Andersen & Williams, 1988) has driven much research on predicting coping responses to injury. The model is composed of three major factors: personality, history of stressors, and coping resources. These factors may operate alone or in combination to affect the stress response, and in turn the occurrence and severity of injury. Additionally, the model contends that these psychosocial variables influence how athletes respond under acutely stressful situations; however, only the athlete's response itself directly affects their susceptibility to injury. For example, it has been hypothesized that athletes with many life stressors, few coping resources, and certain personality dispositions (e.g., high competitive anxiety) will, when placed in a stressful situation, demonstrate a greater stress response (e.g., generalized muscle tension and distractibility) and hence be more at risk of injury. Athletes with this high-risk profile will have a greater likelihood of injury than those with the opposite profile (Williams & Andersen, 1998).

The cognitive appraisal model approach to explain how athletes respond to an

injury is based on how the injury is perceived by the athlete (Brewer, 1994; Wiese-Bjornstal et al., 1998). This approach suggests that an interaction between personal factors made up of injury aspects and individual characteristics, and situational factors made up of sport related factors, social aspects, and environmental conditions influence the thought processes athletes have about an injury (Wiese-Bjornstal & Shaffer, 1999, as cited in Granito, Jr., 2001). Lazarus and Folkman (1984) break down the cognitive appraisal of injury into two processes: (a) primary appraisal, where the individual asks, “Is this harmful to me?” and (b) secondary appraisal, made after the initial assessment and asks the question, “Will I be able to deal with this situation, and, if so, how?” Emotional and behavioral responses to the injury are then generated as a result of the individual’s appraisal of the situation. The Wiese-Bjornstal et al. (1998) version of the cognitive appraisal model emphasizes that the response to injury is dynamic and can change over time and centers around three factors: cognitive appraisals (i.e., rate of perceived recovery, sense of loss or relief, attributions), emotional response (i.e., frustration, fear, grief), and behavioral outcomes (i.e., rehabilitation adherence, use of coping strategies, use of social support networks).

Athletic Identity and Gender

As noted earlier, research suggests that athletic identity plays a significant role in athletes’ coping responses to pain and injury (e.g., Brewer et al., 1993). Potential differences in how male and female athletes construct their athletic identity, in addition to differences in how athletic identity relates to concepts of self and gender, may also impact such coping responses.

However, the literature appears mixed when it comes to athletic identity and the roles males and females play in the sporting environment. In a study using a high school athlete population ($N = 389$), Wiechman and Williams (1997) tested the relationship of scores on the Athletic Identity Measurement Scale (AIMS; Brewer et al., 1993) to age, gender, years of athletic experience, ethnicity, and expectations of competing at the college/pro level. They found that males in their sample had a stronger athletic identity than females and had higher expectations of playing at the college/pro level. In a sample of undergraduate students, Van Raalte et al. (1992) found male students reported a higher athletic identity than female students (psychology and kinesiology students). Also, when Nasco and Webb (2006) combined athletes with nonathletes in their data set, they found that males reported higher overall athletic identity than females, supporting previous research (Brewer et al., 1993). However, when separated by athletic status, gender differences existed primarily in the nonathlete respondents. The only gender effect in athletes to emerge was that males' athletic identity seemed more connected to external rewards associated with being an athlete than did females' identity. The authors suggest this difference may reflect the higher public recognition afforded male athletes and male-dominated sports in the United States, especially among collegiate sports from which the athlete samples were obtained (Nasco & Webb, 2006). Similarly, Tusak et al. (2005) found no differences in athletic identity with respect to gender in a sample of elite Slovenian athletes. However, competitiveness and negative competitive motivation appeared more important for predicting the female athlete's athletic identity, whereas win orientation and positive competitive motivation contributed the most to predicting the male athlete's athletic identity.

According to social role theory, men are expected to fulfill the masculine gender role that reflects agentic qualities and women are expected to fulfill the feminine gender role that reflects communal qualities (Wood & Eagly, 2002). Using a social role theoretical approach, Harrison and Lynch (2005) looked at the influence of athletic roles upon perceived gender role orientations of male and female athletes. In their study they found that athlete gender did not significantly affect global perceptions of gender role orientation:

However, we did find that athletic roles were important inasmuch as athletes who fulfill stereotypically masculine athletic roles (i.e., football and basketball) are likely to be perceived as having a masculine gender role orientation. Likewise, athletes who fulfill a stereotypically feminine athletic role (cheerleading) are likely to be perceived as having a feminine gender role orientation. (p. 234)

Results from their study would suggest that athletes' perceived gender role orientations are more likely to be affected by the athletic roles they fulfill rather than their gender (Harrison & Lynch, 2005).

Royce, Gebelt, and Duff (2003) note that gender role conflict is "purported to be generated by the dissonance of the female athlete's need to identify with two incompatible roles: the valued feminine role, and the unvalued, even stigmatizing, athletic role for girls and women (p. 48)." However, the authors go on to contend that research has failed to support this notion of role conflict in female athletes (Allison, 1991; Anthrop & Allison, 1983; Goldberg & Chandler, 1991; Miller, Heinrich, & Cass, 1996; Miller & Levy, 1996; Sage & Loudermilk, 1979; as cited in Royce et al., 2003).

In their sample of NCAA athletes, Royce et al. (2003) interviewed female athletes and found they perceived themselves as having both a feminine and athletic identity and that each can be salient at different times:

Rather, it appears that these collegiate athletes have been able to integrate these distinctly different identities into their sense of self and are not conflicted by difference between them. Rather than manage their “off-court” presentation in response to stereotypes and discrimination, they seem comfortable with both identities. (p. 57)

The authors go on to contend that, for some women, the athletic role is highly respected and also seen as not detracting from the feminine one. They also suggest that being able to maintain a psychological separation of the athletic self from the feminine self would give no cause for dissonance, thus female athletes should not be expected to experience gender role conflict because of their athletic participation (Royce et al., 2003).

Pain and Injury and Gender

The use of force and violence and the tolerance of risk in sport have been shown to be valued by many male athletes as masculinizing (Young, White, & McTeer, 1994). This may also be true of pain and injury, which Messner (1990) noted tend to be routine in competitive male sports:

In many of our most popular sports, the achievement of goals (scoring and winning) is predicated on the successful utilization of violence—that is, these are activities in which the human body is routinely turned into a weapon to be used against other bodies, resulting in pain, serious injury, and even death. (p. 203)

Young et al. (1994) found that male athletes in their study indicated that enduring pain through the rehabilitation process was linked to self-improvement and feelings of masculinity:

For some, this meant redefining philosophical postures (taking slightly less risk, being more prepared, living for the moment), but for most it meant regaining bulk, strength, confidence, and self-image—factors all demonstrably tied to reconstructed masculinity in the postinjury context. (p. 189)

Further, the authors contend that an athlete's masculinity comes into question when he does not conform to the pain principle. Acknowledging injury except in its most traumatic form indicates the athlete is succumbing to affect, has not developed sufficient disrespect for pain, or is no longer prepared to sacrifice his body for the team. Also, in the cult of male physicality, the athlete may be perceived as giving way to parts of himself that are threateningly perceived as "soft" or feminine (Young et al., 1994).

Ideas of masculinity and male physicality in sport provide some explanation for the common practice where young males regard subjecting their bodies to violence and pain as legitimate or natural. Messner (1990) suggests these attitudes contribute to a lack of criticism of the way male sport is organized:

To question their decision to give up their bodies would ultimately mean to question the entire institutionalized system of rules through which they had successfully established relationships and a sense of identity. (p. 212)

Young et al. (1994) contend that ideas of masculinity and femininity in sport are socially constructed and thus impact athletes' attitudes toward injury:

Through the way that males expose their bodies to physical risk, play while injured, and rehabilitate in order to be potentially injured again, it is clear that while males may not actually enjoy physical violence and pain, the rewards of hegemonic masculinity remains meaningful enough.
(p. 192)

Athletic Identity and Pain and Injury Coping

It is commonly recognized that athletes differ in their ability to function with pain following an injury. An injury in itself is often a traumatic event where emotional and psychological reactions are typically produced based on the individual's perceptions of loss (i.e., mobility, playing time, career). Injuries can often prevent athletes from pursuing a self-defining activity. As a result, they are particularly vulnerable to psychological reactions such as anxiety, depression, fear, and loss of self-esteem (Green & Weinberg, 2001). Sonestrom and Morgan (1989) suggested that certain components of self-esteem, physical self-efficacy and perceived physical competence are likely to be affected by the occurrence of injury, while Chan and Grossman (1988) found that global measures of self-esteem were lower in injured runners than those who were able to continue running. Additionally, Leddy, Lamber, and Ogles (1994) compared injured and recovered athletes to noninjured athletes and found that injured athletes reported significantly lower total and physical self-esteem than noninjured athletes.

How an athlete responds to injury is often an important determinant of their

subsequent psychological functioning and may impact their ability to cope with the associated pain and rehabilitation process. Brewer (1993) conducted four studies examining the extent to which an individual's identification with the athlete role was related to depressive symptoms with the occurrence of a real or imagined injury. Findings from each of the four studies indicated that athletic identity was significantly related to depression following injury, with participants higher in athletic identity reacting more negatively to injury, imagined or real, than participants lower in athletic identity. Brewer (1994) also noted the actual occurrence of an injury is considered less critical to understanding an individual's emotional reactions than is the way in which the injury is perceived, consistent with the Stress and Injury Coping Model. To illustrate further, Tracey (2003) examined athletes' emotional response to the injury and rehabilitation process using qualitative methods. Participants in the study reported a significant investment in their respective sports and demonstrated a high level of athletic identity. Many disclosed that part of the function of sport was as an outlet to deal with various stressful events that occurred in their lives. The elimination of sport participation posed difficulty for the participants because such an important part of their lives was temporarily taken away. Suffice it to say, how an athlete responds to injury is critical to understanding important psychosocial factors involved in the injury and healing process.

Injury Coping and Rehabilitation. Negative psychological responses to injury often result in a lack of rehabilitation adherence or prolonged recovery rates (or both), prompting those who work with injured athletes to look for additional strategies to improve the overall rehabilitation process (Hamson-Utley, Martin, & Walters, 2008).

Hamson-Utley et al. (2008) also noted that psychological skills can be used during sport injury rehabilitation to motivate athletes to adhere to rehabilitation, to increase speed of recovery, to control anxiety levels, and to enhance self-confidence. However, those who hold negative attitudes toward certain psychological skills are less likely to implement them during rehabilitation. It is important, then, for practitioners, coaches, and training staff to be aware of potential factors influencing athletes' approaches towards the rehabilitation process. Research on the knowledge and skills that contribute to the successful rehabilitation of injured athletes indicates that the athletes should be willing to listen, maintain a positive attitude, and be intrinsically motivated and willing to learn about the injury and rehabilitation techniques (Wiese, Weiss, & Yukelson, 1991). In addition to athletic attitudes impacting injury and pain tolerance, research has also shown relationships between sport-related attitudes and athletic performance.

Athletic Identity and Hypercompetitiveness

One commonly researched factor impacting athletes' response to injury is competitive attitudes, not just in the sporting arena but also in daily life. In a study looking at athletic identity as an important motivator, Tusak et al. (2005) found that athletic identity was correlated with win orientation, competitiveness and positive competitive motivation. They also found a positive correlation between athletic identity and negative achievement motivation (motive to avoid failure), suggesting that athletes with a high athletic identity have a strong need to avoid failure (Tusak et al., 2005). When athletes combine this need with competitive attitudes, however, there exists the potential for psychological and/or physical harm.

Although there are clear negative implications for having overly competitive

attitudes, the drive to compete, in some cases, may serve a more psychologically healthy purpose. To illustrate, personal development competitiveness is an attitude in which the primary focus is not on the outcome (i.e., winning), but rather more on enjoyment and mastery of the task (Ryckman, Hammer, Kaczor, & Gold, 1996). Unlike overly competitive attitudes, the focus is not on the derogation of others in order to enhance the self. Rather, others are seen as helpers who provide the individual with personal learning and discovery opportunities (Ryckman, Libby, van den Borne, Gold, & Linder, 1997). Furthermore, positive links have been found between personal development competitiveness and concern for the welfare of others, personal and social self-esteem, and optimal psychological health (Ryckman et al., 1996; Ryckman et al., 1997).

Exaggerated competitive attitudes, however, may have a detrimental impact on an individual's development and personality functioning. Hypercompetitive attitudes have been associated with neuroticism, and with other psychological difficulties such as mistrust, Machiavellianism, dogmatism, narcissism, low self-esteem, and low optimal psychological health (Ryckman, Hammer, Kaczor, & Gold, 1990; Ryckman, Thornton, & Butler, 1994). As mentioned earlier, Horney (1937) noted *hypercompetitiveness* refers to an indiscriminate need by individuals to compete and win—and to avoid losing—at any cost as a means of maintaining or enhancing feelings of self-worth. Associated with this need, there appears to be an attendant orientation of manipulation, aggressiveness, exploitation, and denigration of others across a myriad of situations. In order to test Horney's theory, Ryckman and his colleagues created scales that measure contrasting attitudes about competition. Their Hypercompetitive Attitude Scale (HCA)

operationalizes the excessive competitiveness that Karen Horney believed to be central to neurotic functioning (Ryckman et al., 1990). In contrast to this measure, the Personal Development Competitive Attitude Scale (PDCA) looks at healthy attitudes in which competition functions as useful in promoting self-development (Ryckman et al., 1996). In a factor analysis of the aforementioned measures of competitiveness, Houston, McIntire, Kinnie, and Terry's (2002) results revealed that the HCA and PDCA scales loaded on different factors. Similarly, in a study looking at competitive attitudes in relation to disordered eating, it was shown that it is hypercompetitiveness that is positively related to disordered eating and not personal development competitiveness, the latter being a more psychologically healthy kind of competitive attitude (Burckle, Ryckman, Gold, Thornton, & Audesse, 1999). Ryckman et al. (1990) suggested the HCA could be utilized to help identify athletes maintaining unhealthy attitudes of "win-at-any-cost" and disparaging views of their opponents, also noting that changes in athletes' attitudes could also be assessed following psychoeducational interventions. Considering the emphasis culture and society places on valuing athletes who "fight through the pain" to help their team in competition (e.g., Bret Favre's celebrated NFL record of 297 consecutive games without missing a start, or Kerri Strug's heroic vault on an injured ankle to secure the team gold medal at the 1996 Olympic Games), it is important to consider the possible impact overly competitive attitudes can have on their ability to cope with pain and athletic injury.

Hypercompetitiveness and Individual versus Team Sports

There exists a paucity of research looking at relationships between attitudes of exaggerated competitiveness and individual versus team sports. There is a general

consensus in the literature, however, that athletes' levels of competitiveness vary according to a multitude of factors. Despite the lack of research in this area, there have been numerous studies looking at the relationship among other athlete characteristics and competitive attitudes, specifically, goal orientation and mental toughness. For example, in a study looking at achievement goal orientations (how people define success), Hanrahan and Cerin (2009) found individual sport athletes to be higher in ego orientation than team athletes. They noted that people with a strong ego orientation define success as being better than competitors. The authors also noted that in individual sports it is usually clear how an athlete's performance compares to others through times (e.g., swimming and track), scores (e.g., golf and gymnastics), or placings (e.g. triathlon or wrestling). Typically, one will see athletes' names on a rank-order list of performance outcome results; however, individual performances within team sports are often difficult to compare (Hanrahan & Cerin, 2009). According to the findings from this study, one would expect to find correlations between ego orientation and hypercompetitiveness.

Nicholls, Polman, Levy, and Backhouse (2009) looked at factors contributing to the concept of 'mental toughness' in athletes, with type of sport (individual versus team athletes) as a proposed predictor. Based on previous research, they hypothesized that team sport athletes would report higher mental toughness scores than individual athletes (Bull, Shambrook, James, & Brooks, 2005; Clough, Earle, & Sewell, 2002; Vealey, 1988; as cited in Nicholls et al., 2009). However, results from their study revealed that there were no significant differences among athletes who participate in team or individual sports. The authors noted their study was restricted in its ability to explain

how underlying attributes of mental toughness affect performance. Competitive attitudes were not examined in this study; however, as noted earlier in regard to ego orientation, one might surmise a correlation between competitiveness and mental toughness.

Athletic Identity, Hypercompetitiveness, and Injury Coping

As noted earlier, having a strong athletic identity has been connected with a higher importance of athletic competence, physical involvement, attractive body, physical strength and higher achievement motivation, which manifests itself as competitiveness, higher goal orientation and a motive to win (Van Raalte et al., 1992). The problems linked to strong athletic identity arise when there is a commitment to the role of the athlete at the expense of other aspects of life. For example, overcommitment to the athlete role may lead to dysfunctional practices within the athlete role: over training, anxiety when not training, or in extreme cases, the use of performance enhancing drugs (Horton & Mack, 2000). Green and Weinberg (2001) note it is important to study personal and situational factors that can influence postinjury reactions, in order for sport psychologists and other practitioners (i.e., physicians, physical therapists, trainers) to better understand and treat the individual who suffers an athletic injury.

The current study does not seek to explore relationships between exaggerated competitive attitudes and factors such as anxiety, mental toughness, or competitive orientations. Its purpose is, however, to examine the potential impact of a strong athletic identity and hypercompetitiveness on an athlete's ability to cope with pain and injury. As mentioned earlier, it is commonly recognized that athletes differ in their ability to

function with pain following an injury. Injuries are often traumatic events and can lead to negative emotional and psychological reactions based on the athlete's perceptions of loss (i.e., mobility, playing time, career). The Stress and Injury Model (Andersen & Williams, 1988) suggests that psychosocial variables of personality, history of stressors and coping resources may operate alone or in combination to affect the stress response, and in turn the occurrence and severity of injury. One aspect that has been hypothesized to produce a greater stress response is certain personality dispositions (e.g., high competitiveness), hence placing the athlete at increased risk of injury. Based on this premise, athletes with high-risk profiles would appear to be at greater risk of injury than those with the opposite profile (Williams & Andersen, 1998).

Research suggests exaggerated competitive attitudes may have a detrimental impact on an individual's development and personality functioning. Considering that the Hypercompetitive Attitude Scale (HCA) operationalizes the excessive competitiveness which Horney (1937) believed to be central to neurotic functioning (Ryckman et al., 1990), this view of *hypercompetitiveness* may serve as a useful framework from which to explore the relationship between athletic identity, overly competitive attitudes, and pain and injury coping.

Based on the literature review, the following research questions are proposed:

- (1) Will athletic identity and hypercompetitive attitudes predict athletes' pain coping responses?
- (2) Will scores on measures of athletic identity and pain coping responses differ among sports?
- (3) Do athletes who compete in sports where individual performance impacts individual national rankings and accolades (i.e., individual national champion in their respective area) hold more competitive attitudes than athletes

who compete in sports where team outcome (i.e., winning the game) is the primary recognized goal? 4) Will gender impact athletes' responses on measures of athletic identity, hypercompetitive attitudes, or pain coping response?

More specifically, the following hypotheses are proposed:

1. Athletic identity and hypercompetitive attitudes will significantly predict pain coping response, with hypercompetitive attitudes contributing additional variance above and beyond athletic identity.
2. No significant between-group differences are expected on athletic identity and pain coping response based on sport orientation.
3. Athletes competing in sports where individual performance outcomes impact individual recognition and national accolades will demonstrate higher scores on hypercompetitive attitudes than athletes competing in sports where team outcome is the singular goal (i.e., winning the game).
4. Based on previous research on intercollegiate athletes, no significant differences are expected on athletic identity, hypercompetitive attitudes, or pain coping response based on athlete gender.

Methods

Participants

A convenience sample of 114 NCAA Division I college athletes from a Midwestern university was obtained (90 women and 23 men). The median age was 19 (range = 17 – 26) and year of athletic eligibility was a sophomore (range = freshman – 5th year senior). Most (100; 88%) identified as Caucasian, 5 (4%) as African American, 4 (3%) as American Indian, 2 (2%) as Hispanic American, 1 (1%) as Asian American, 1

(1%) as Multiracial, and 1 (1%) did not respond. Family income as reported by participants was less than \$20,000 for 3 (3%) participants, between \$20,000 and \$60,000 for 35 (30%), between \$60,000 and \$100,000 for 36 (32%), and greater than \$100,000 for 29 (25%), with 11 (10%) not reporting family income. The sample included athletes competing in the following sports: baseball ($n = 4$), basketball ($n = 2$), cross-country ($n = 6$), football ($n = 4$), golf ($n = 8$), gymnastics ($n = 16$), rowing ($n = 18$), soccer ($n = 1$), softball ($n = 10$), tennis ($n = 3$), track & field ($n = 12$), volleyball ($n = 2$), wrestling ($n = 2$), cheerleading ($n = 15$), and dance ($n = 18$). Athletes were divided into two categories based on their sport type: individual-oriented vs. team-oriented (Individual, $n = 74$: cross-country, golf, gymnastics, tennis, wrestling, cheerleading, dance, track & field; Team, $n = 39$: baseball, basketball, football, rowing, soccer, softball, volleyball).

Measures

Demographic Information. Information obtained from athletes included: race/ethnicity, age, gender, SES, sport, year of athletic eligibility, current sport participation/playing status, time spent training for sport in scheduled team practices, time spent training for sport outside of scheduled practices (i.e., strength and/or cardiovascular training, sport-specific exercises, etc...), and brief injury/pain history. In addition to the demographic questionnaire, three instruments were used in this study: the Athletic Identity Measurement Scale (AIMS), the Hypercompetitive Attitude Scale (HCA), and the Sports Inventory for Pain – 15 (SIP-15).

Athletic Identity Measurement Scale (AIMS). Athletic identity has been defined as “the degree to which an individual identifies with the athlete role” (Brewer et

al., 1993, p.237). The AIMS consists of 10 statements to which the participants respond based on their agreement or disagreement with each statement. Data reduction for the AIMS involves summation of scores on the ten items and the reporting of a single AIMS score represents the degree to which they identify themselves as athletes (Brewer et al., 1993). Sample items include “I consider myself an athlete,” “Sport is the most important part of my life,” and “I would be very depressed if I were injured.”

During development of the instrument (Brewer et al., 1993), a principal factor analysis was performed on AIMS responses. A single athletic identity factor (*eigenvalue* = 6.03) emerged. Corrected item-local correlations were above .45 for all items and were generally above .70. This suggests that each of the items contributed effectively to the total AIMS score. A coefficient alpha of .93 was obtained, providing support for the internal consistency of the AIMS. The test-retest reliability coefficient of the AIMS was .89, indicating that AIMS scores are stable over a 14-day period. Construct validity of the AIMS was demonstrated by high correlations with scores on the Perceived Importance Profile (PIP) and the Importance of Sports Competence Scale, $r(225) = .83, p < .0005$. Weaker, but still significant, correlations with the other PIP factors were obtained (importance of physical conditioning, $r = .56, p < .0005$; importance of attractive body, $r = .35, p < .0005$; importance of physical strength, $r = .53, p < .0005$). A two-factor (sex X level of athletic involvement) ANOVA provided further support for the validity of the AIMS. There was a significant main effect for the level of athletic involvement, $F(3,242) = 91.89, p < .005$, and males scored significantly higher on the AIMS than females, $F(1,242) = 9.46, p < .003$. Follow up studies demonstrated high internal consistency (*alpha* = .87), and males ($M = 35.96, SD =$

11.86) had significantly higher AIMS scores than females ($M = 26.22$, $SD = 11.87$), $t(437) = 8.60$, $p < .0005$ (Brewer et al., 1993). Preliminary results from the present study demonstrated comparable internal consistency ($\alpha = .84$).

Hypercompetitive Attitude Scale (HCA). Ryckman et al. (1990) derived the construct of hypercompetitiveness from Horney (1937), interpreting hypercompetitiveness as “an indiscriminate need by individuals to compete and win (and avoid losing) at any cost as a means of maintaining or enhancing feelings of self-worth” (Ryckman et al., 1990, p. 632). Respondents to the 26-item HCA use a 5-point continuum ranging from 1 (never true of me) to 5 (always true of me). Sample items include “It’s a dog eat dog world,” “If you don’t get the better of others, they will surely get the better of you,” and “Failure or loss in competition makes me feel less worthy as a person.”

Initial construction of the HCA (Ryckman et al., 1990) demonstrated strong internal consistency, with an alpha of .91. Item-total correlations ranged from .35 to .70, with an average r of .49. A follow-up study to determine test-retest reliability was satisfactory, $r(99) = .81$, $p < .001$. The means and standard deviations for the first and second administrations were $M = 72.07$ ($SD = 14.12$) and $M = 71.87$ ($SD = 12.18$), respectively. To establish validity of the scale, the authors administered the HCA along with a battery of personality tests to two separate samples of male and female undergraduate students. In the first sample, there was a positive correlation between the HCA scale and the Win-at-any-Cost Sports Competition Scale (Lakie, 1964), $r(68) = .24$, $p < .05$, providing preliminary support for the HCA scale’s convergent validity. In the second sample, the HCA scale showed strong convergent validity, $r(47) = .48$, $p <$

.001, with the Competitive-Cooperative Attitude Scale (Martin & Larsen, 1976). The HCA scale's validity was further bolstered by a lack of correlation with social desirability bias, $r(47) = p < .01$. Preliminary results from the present study demonstrated acceptable internal consistency ($\alpha = .85$).

Sports Inventory for Pain – 15 (SIP-15). This instrument was developed to measure how athletes respond to pain resulting from injury or rehabilitative efforts. The original 25-item sport-specific measure (Myers et al., 1992) was revised using a principal components factor analysis ($N = 221$) that yielded a 15-item inventory with three factors: Coping by Direct Action (COP; $ev = 4.32$; 7 items), Catastrophizing (CAT; $ev = 1.84$; 5 items), and Somatic Awareness (SOM; $ev = 1.40$; 3 items). Confirmatory factor analyses ($N = 387$), MANOVAs and Multiple Regression Analyses ($N = 780$) confirmed the factorial and empirical validity of the revised SIP (Bourgeois et al., 2009). Internal Consistency reliabilities ($N = 387$) were as follows: COP ($\alpha = .89$), CAT ($\alpha = .76$), and SOM ($\alpha = .54$). A Personal Coping Resources (PCR) composite (COP – CAT) provides an overall index of ability to deal with pain. Sample items include “When in pain, I tell myself it doesn't hurt,” “When injured, I just ignore the pain,” and “I do not allow pain to interfere with my performance.” Preliminary results from the present study demonstrated comparable internal consistencies for both the COP ($\alpha = .84$) and CAT ($\alpha = .78$) subscale factors.

Bourgeois et al. (2009) note that subsequent research yielded support for the empirical (criterion related) validity of the SIP. They found that, in studies involving high contact/high injury-potential sports, the SIP indices of pain coping significantly differentiated between gender, injury potential, type of sport athlete, and type of sport

(Encarnacion, Meyers, Ryan, & Pease, 2000; Meyers, Bourgeois, & LeUnes, 2001a; Meyers, Bourgeois, & LeUnes, 2001 b.; as cited in Bourgeois et al, 2009). The efficacy of the SIP in delineating pain coping styles has also been documented among high school athletes and other adolescent populations, emerging as a compelling predictor of pain response and athletic performance (Meyers et al., 2001a; Meyers et al., 2001b). Additionally, among participants from clinical sports medicine settings (Wooten, Myers, Fincher, O'Conner, & Woods, 2002), male respondents endorsed significantly higher total pain coping scores than female patients undergoing knee reconstruction and rehabilitation as well as higher coping skills among young athletes when compared to older patients (cited in Bourgeois et al., 2009). Finally, the SIP-15 scales were found to be strong predictors of self-reports of sport participation and the extent to which pain interferes with performance and rehabilitation persistence.

Procedures

Data for this study was collected from male and female athletes at an NCAA Division I Midwestern university. Permission to recruit athlete participants was obtained from the head coach and/or athletic training personnel for each athletic team prior to recruitment. To recruit athlete participants, the researcher contacted academic services and sport psychology staff to schedule times to provide a brief oral description of the study during scheduled athlete orientation briefings.

During the brief oral description of the study, all prospective athlete participants were notified that their participation was strictly voluntary and confidentiality of responses would be maintained. Athlete participants were informed that the online surveys consisted of questions pertaining to sport-related attitudes, as well as attitudes

toward injury and pain. They were instructed to answer the questions while reflecting on their respective sport as a reference point. The researcher answered any questions the athlete participants had during the oral description. Following all face-to-face recruitment speeches for the athlete participants, a listserv of athletes enrolled at the university was obtained from the athletic department for on-line dissemination of the surveys via an email link.

Prior to administration of the on-line surveys and data collection, athlete participants read and electronically signed an informed consent form. Athlete participants were reminded that their consent to volunteer for the study was optional, and there was no penalty for choosing not to complete the surveys. Data collection involved completion of a demographic form and three brief instruments designed to measure athletic identity, hypercompetitiveness, and pain coping response. Upon completion, all responses were stored electronically on a secure server file for subsequent data analysis.

Results

Preliminary and Descriptive Analyses

An a-priori power analysis revealed that the minimum sample size required for a hierarchical multiple regression to detect a medium effect ($f^2 = .15$) with an alpha level of .05 and a desired power level of .80 was 57 (Cohen, Cohen, West, & Aiken, 2003; Soper, 2011). Means, standard deviations, and intercorrelations for all measured variables are shown in Table 1. Correlations between predictor variables of AIMS and HCA were moderate, suggesting no multicollinearity issues ($r = .44, p < .0005$). Correlations between Gender and PCR ($r = .27, p < .005$) and HCA and PCR ($r = .34, p$

< .0005) were small but significant, while AIMS and the PCR were not correlated ($r = -.08, p = .23$).

Hypothesis Testing

To test the first hypothesis, a hierarchical multiple regression model was developed with the PCR score as the criterion variable. The predictor variables included Gender, Athletic Identity, and Hypercompetitiveness. AIMS and HCA scores were centered prior to entering these variables into the final regression model. Gender was dummy coded and entered in the first step. Athletic Identity scores were entered in the second step to explore the unique contribution of athletic identity beyond the amount of variance explained by gender, and Hypercompetitiveness scores were entered in a third step to determine whether hypercompetitive attitudes explained any variance beyond gender and athletic identity. After examining the main effects, the moderating effects of gender were examined by creating and entering an interaction variable for gender and hypercompetitiveness in the fourth step.

Table 2 provides a summary of the results of the hierarchical multiple regression model. The R^2 explained by the full hierarchical regression model (Cohen & Cohen, 1983) was significant and explained 26.7% of the variance in PCR ($F[1,87] = 21.88, p < .0005$; adjusted $R^2 = .24$). Specifically, results revealed Gender to be significant at the first step, explaining 7% of the variance in PCR ($F[1,89] = 6.83, p < .05$; adjusted $R^2 = .06$). Athletic Identity was not found to be significant at the second step ($p = .30$). As predicted, Hypercompetitiveness was significant at the third step, explaining 18% of the variance in PCR ($\Delta R^2 = .18, \Delta F[1,87] = 21.86, p < .0005$; adjusted $R^2 = .24$). In order to examine the impact of gender as a potential moderator of HCA, an interaction term

(Gender x HCA) was entered as a block at the last step. The interaction was not significant and did not account for additional variance in PCR scores ($F[1,86] = .01, p = .92$; adjusted $R^2 = .23$).

To test the remaining hypotheses, a multivariate analysis of variance was run to examine between-group differences (See Table 3). A 2x2 MANOVA was run with sport orientation and gender as independent variables and scores on the AIMS, HCA, and PCR as dependent variables. There was a statistically significant difference between males and females on the combined dependent variables ($F[3,85] = 4.16, p = .008, \eta^2 = .13$). When the results for the dependent variables were considered separately, the only difference to reach statistical significance was overall pain coping ability ($F[1,87] = 8.67, p = .004, \eta^2 = .09$). An inspection of the mean scores indicated that males reported slightly higher pain coping attitudes ($M = 15.63, SD = 5.30$) than females ($M = 10.25, SD = 6.07$).

As expected, there were no significant differences between male and female athletes on athletic identity ($p = .36$) and hypercompetitiveness ($p = .87$). However, contrary to expectations, there were no significant differences between sport orientations when comparing hypercompetitive attitudes ($p = .42$), suggesting that athletes hold similar hypercompetitive attitudes regardless of their sport orientation. Also, there were no significant between-group differences for athletic identity ($p = .67$) and overall pain coping ability ($p = .19$) based on sport orientation, suggesting that athletes competing in individual-oriented and team-oriented sports have similar athletic identity and pain coping response. Interestingly, there was a significant interaction effect between gender and sport orientation on athletic identity ($F[1,87] = 4.47, p =$

.037, $\eta^2 = .05$). For males, athletic identity was higher in team-oriented athletes ($M = 3.9$, $SD = .60$) than individual-oriented athletes ($M = 3.61$, $SD = .68$), while for females athletic identity was higher in individual-oriented athletes ($M = 3.82$, $SD = .63$) than team-oriented athletes ($M = 3.38$, $SD = .49$). (See Figure 1 for graph)

Discussion

Previous research has demonstrated the relationship between strong athletic identity and emotional and psychological reactions resulting from injury (Brewer, 1993; Chan & Grossman, 1988; Green & Weinberg, 2001; Leddy et al., 1994; Sonestrom & Morgan, 1989; Tracey, 2003), while others have looked at the relationship between athletic identity and competitive drive to succeed and win (Ryckman et al., 1990; Tusak et al., 2005). The present study explored the relationships among athletic identity, hypercompetitiveness, and pain coping response. Specifically, the author examined the cumulative influence of athletic identity and hypercompetitiveness on a sample of collegiate athletes' responses on a pain coping response inventory.

Results suggest that hypercompetitive attitudes have a significant impact above and beyond athletic identity on an athlete's overall coping response to pain and injury. While regression analyses did not show athletic identity to be a significant predictor of pain coping response in this study and multivariate analyses of variance demonstrated no significant differences between males and females on athletic identity and hypercompetitiveness, males demonstrated higher scores than females on a measure of overall pain coping ability. This is consistent with previous findings looking at gender differences in pain responding (Bourgeois et al., 2009; Wooten et al., 2002) and concepts of pain relating to masculinity in sport (Messner, 1990; Young et al., 1994).

Looking across gender groups, results indicate athletic identity was a significant predictor of pain coping response for males, whereas for females, hypercompetitiveness was a significant predictor of pain coping ability. This is an interesting finding, considering there were no significant differences in athletic identity and hypercompetitiveness between genders. Also, the effect of sport-orientation on the relationship between gender and athletic identity was interesting and warrants further examination. Unique sport subculture factors and gender norms may contribute to differences in athletic identity between males and females, depending on the type of sport they play. Given the mixed literature on gender and athletic identity (Brewer et al., 1993; Harrison and Lynch, 2005; Nasco and Webb, 2006; Royce et al., 2003; Tusak et al., 2005; Van Raalte et al., 1992; Wiechman and Williams 1997), it will be important for future studies to further examine the relationships between gender, competitive attitudes, pain coping ability, and sport orientation.

Athletes' levels of competitiveness vary according to a multitude of factors, and the literature has demonstrated mixed results when comparing individual and team sports (Hanrahan & Cerin, 2009; Nicholls et al., 2009). Based on previous research, this study expected to find individual-oriented and team-oriented athletes to hold similar levels of athletic identity and pain coping response. As predicted, there were no significant differences between the two groups; however, expected differences in hypercompetitive attitudes between sport orientations did not pan out. Considering that Hanrahan and Cerin (2009) found individual-sport athletes to have higher ego orientation (i.e., success defined as being better than competitors) than team-sport athletes, it was hypothesized that individual-oriented athletes would also demonstrate

significantly higher levels of hypercompetitiveness than athletes in team-oriented sports. Contrary to expectations, results from this study suggest that athletes hold similar hypercompetitive attitudes regardless of their sport orientation.

Naturally, there are some obvious limitations to this study. First, the sample was limited to collegiate athletes at a high-profile NCAA Division I school, in addition to an unequal representation of gender and sport orientation (females [$n = 90$] and males [$n = 23$]; individual-sport [$n = 74$] and team-sport [$n = 39$]). Although an a-priori power analysis indicated an N of 57 would be sufficient to detect a moderate effect, these results may not generalize to all athlete populations due to the limited sample size for the different sports/athletic activities represented. Also, there was little ethnic/cultural diversity represented in the sample (88% identified as Caucasian), thus caution should be taken when generalizing results to a diverse population. A small portion of the participants did not complete every instrument, and pairwise deletion methods were used to account for specific missing values in the analysis. Considering the majority of participants completed the questionnaires online, there may have been confounding variables impacting response patterns (e.g., not allowing adequate time to complete all instruments, experiencing distractions while taking survey, high attrition rates for disinterested participants).

Despite the aforementioned limitations, this study contributes to the research base by demonstrating the impact an athlete's competitive attitude has on their ability to cope with and manage pain from athletic injury. While athletic identity has been linked to various psychological and emotional constructs, there is little definitive evidence to suggest consistency in how these look in male and female athletes. Results from this

study suggest that hypercompetitive attitudes should be strongly considered and factored into predictive models when determining how an athlete will respond to injury. Many in the sporting world, including athletes, coaching and training staff, and even spectators, share a “win-at-all-costs” and a “play-through-the-pain” mentality, thus placing unrealistic expectations on the limits of physical performance, particularly when an athlete puts competition ahead of personal health and safety. It will be important for future research to examine aspects of competitiveness and physiological awareness in athletes to determine potential warning signs in attitudes or behaviors that may put them at increased risk for athletic injury, such as potentially unhealthy levels of peer competitiveness inside and outside of the sporting arena or poor adherence to/compliance with physical rehabilitation protocols. Examining these factors may help sporting programs bring more awareness of athletes’ attitudes and psychological coping styles, thus informing best practices and standards of care for sport psychologists, coaches, and athletic trainers. Also, further understanding of the complexity of sports performance factors may help researchers and practitioners assist injured athletes by facilitating more effective recovery from athletic injury through the use of improved assessment measures, training protocols, and education for coaching and athletic training staff.

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Table 1

Means, Standard Deviations, Alphas, and Intercorrelations of Athletic Identity, Hypercompetitiveness, and Personal Coping Resources

<i>Variable</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>
1. AIMS	112	3.65	.64	(.84)	.44*	-.08
2. HCA	96	75.28	12.63		(.85)	.34*
3. PCR	97	11.28	6.47			

Note: Cronbach's alphas are placed on diagonal.

* $p < .0005$

Table 2

*Hierarchical Multiple Regression Analysis for Variables Predicting Pain Coping**Ability*

<i>Variable</i>	<i>B</i>	<i>SE B</i>	<i>β</i>	<i>R</i> ²	<i>ΔR</i> ²
Step 1					
Gender	4.27	1.64	.27	.07	.07*
Step 2					
Athletic Identity	-1.08	1.03	-.11	.08	.01
Step 3					
Hypercompetitiveness	.25	.05	.48	.27	.18**
Step 4					
Gender x Hypercompetitiveness	.01	.13	.03	.27	.00

* $p < .05$; ** $p < .0005$

Table 3

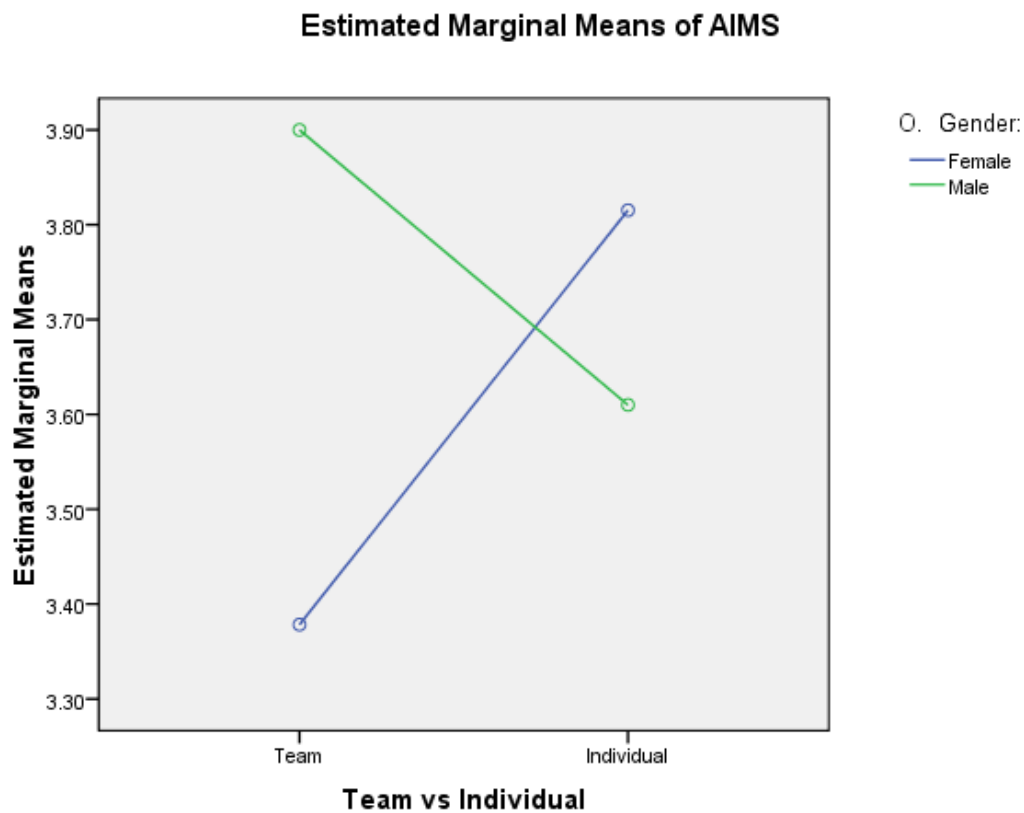
2x2 MANOVA Test of Between-Subjects Effects

<i>IV</i>	<i>DV</i>	<i>F</i>	<i>Sig.</i>	η^2
Gender	AIMS	.85	.36	.01
	HCA	.03	.87	.00
	PCR	8.68	.00**	.09
Sport Orientation	AIMS	.18	.67	.00
	HCA	.66	.42	.01
	PCR	1.72	.19	.02
Gender * Orientation	AIMS	4.47	.04*	.05
	HCA	.09	.76	.00
	PCR	.23	.63	.00

* $p < .05$, ** $p < .005$

Figure 1

The effect of sport-orientation on the relationship between gender and athletic identity



Appendix A

Demographics

*Please mark an X by your responses

A. Sport:

- | | |
|--|---------------------------------------|
| <input type="checkbox"/> Baseball | <input type="checkbox"/> Volleyball |
| <input type="checkbox"/> Basketball | <input type="checkbox"/> Wrestling |
| <input type="checkbox"/> Cross Country | <input type="checkbox"/> Cheerleading |
| <input type="checkbox"/> Football | <input type="checkbox"/> Pom Pon |
| <input type="checkbox"/> Golf | <input type="checkbox"/> Studio Dance |
| <input type="checkbox"/> Gymnastics | Track & Field (please indicate which) |
| <input type="checkbox"/> Rowing | <input type="checkbox"/> Runner |
| <input type="checkbox"/> Soccer | <input type="checkbox"/> Jumper |
| <input type="checkbox"/> Softball | <input type="checkbox"/> Pole Vaulter |
| <input type="checkbox"/> Tennis | <input type="checkbox"/> Thrower |

B. Year of Athletic Eligibility: C. Are you currently in your playing/competition season?

- | | |
|--|------------------------------|
| <input type="checkbox"/> Freshmen | <input type="checkbox"/> Yes |
| <input type="checkbox"/> Sophomore | <input type="checkbox"/> No |
| <input type="checkbox"/> Junior | |
| <input type="checkbox"/> Senior | |
| <input type="checkbox"/> 5 th Year Senior | |

D. How would you describe your current playing status?

- Rarely play in games/participate in competitions
 Sometimes play in games/participate in competitions
 Often play in games/participate in competitions
 Starter

E. How many hours per week do you spend in **scheduled** team practices?

- 1-3
 4-7
 8-10
 10+

F. How many **additional** hours do you spend in physical exercise outside of team practices? (e.g., strength and/or cardiovascular training, sport-specific exercises, etc...)

- 1-3
 4-6
 6+

G. How long has your **most severe** athletic injury kept you from participation in your sport?

- < 2 weeks
 2 weeks to 1 month
 1 month to 3 months

_____ 3 months to 6 months
 _____ > 6 months

H. How long ago was your **most recent** athletic injury that kept you from participation in your sport?

_____ < 2 weeks
 _____ 2 weeks to 1 month
 _____ 1 month to 3 months
 _____ 3 months to 6 months
 _____ > 6 months

I. Have you experienced pain or injury during your participation in sport for which you did **NOT** immediately seek assistance? (i.e., You played with it or attempted to “walk it off.”)

_____ Yes
 _____ No

If you checked yes, why did you not report the injury immediately?

J. On a scale of 1 to 10, with 10 being the worst pain you have ever felt in your entire life (or can imagine feeling), how bad does the pain have to get before you seek help for pains and injuries?

(Please circle one number only)

Pain	1	2	3	4	5	6	7	8	9	10	Worst
Free											Pain

K. On a scale of 1 to 10, how high would you rate your pain tolerance?

(Please circle one number only)

Little	1	2	3	4	5	6	7	8	9	10	Extremely
to No											High

L. On a scale of 1 to 10, how likely are you to play through the pain and injury in your sport?

(Please circle one number only)

Never	1	2	3	4	5	6	7	8	9	10	Always
-------	---	---	---	---	---	---	---	---	---	----	--------

M. Rate how strongly you believe others in your sport should play through the pain and injury.

(Please circle one number only)

Never 1 2 3 4 5 6 7 8 9 10 Always

N. Please write in your current age: _____

O. Gender:

_____ Female

_____ Male

_____ Other: (e.g., trans, genderqueer, etc...) _____

P. Race/Ethnicity:

_____ African American/Black

_____ American Indian or Alaskan Native

_____ Asian

_____ Hispanic/Latino

_____ Native Hawaiian or Pacific Islander

_____ Caucasian/White

_____ Multiracial and/or multiethnic

_____ Other: _____

Q. Family Income:

_____ < \$20,000

_____ \$60,000-\$80,000

_____ \$20,000-\$40,000

_____ \$80,000-\$100,000

_____ \$40,000-\$60,000

_____ > \$100,000

Appendix B

AIMS

Directions: In the following questions, please circle the answer that best fits for you. Please answer every item, and clearly circle ONE response per statement.

Response Scale: SD = Strongly Disagree
 D = Disagree
 N = Neutral
 A = Agree
 SA = Strongly Agree

	Strongly Disagree				Strongly Agree
1. I consider myself an athlete.	SD	D	N	A	SA
2. I have many goals related to sport.	SD	D	N	A	SA
3. Most of my friends are athletes.	SD	D	N	A	SA
4. Sport is the most important part of my life.	SD	D	N	A	SA
5. I spend more time thinking about sport than anything else.	SD	D	N	A	SA
6. I need to participate in sport to feel good about myself.	SD	D	N	A	SA
7. Other people see me mainly as an athlete.	SD	D	N	A	SA
8. I feel bad about myself when I do poorly in sport.	SD	D	N	A	SA
9. Sport is the only important thing in my life.	SD	D	N	A	SA
10. I would be very depressed if I were injured.	SD	D	N	A	SA

Appendix C

HCA

Directions: In the following questions, please mark the answer that best fits for you. Please answer every item, and clearly mark ONE response per statement.

Response Scale: 1 = Never true of me
 2 = Seldom true of me
 3 = Sometimes true of me
 4 = Often true of me
 5 = Always true of me

- _____ 1. Winning in competition makes me feel more powerful as a person.
- _____ 2. I find myself being competitive in situations that do not call for competition.
- _____ 3. I do not see my opponents in competition as my enemies.
- _____ 4. I compete with others even if they are not competing with me.
- _____ 5. Success in athletic competition does not make me feel superior to others.
- _____ 6. Winning in competition does not give me a greater sense of self-worth.
- _____ 7. When my competitors receive awards for their accomplishments, I feel envy.
- _____ 8. I find myself turning a friendly game or activity into a serious contest or conflict.
- _____ 9. It's a dog-eat-dog world. If you don't get the better of others, they will surely get the better of you.
- _____ 10. I do not mind giving credit to someone for doing something that I could have done just as well or better.
- _____ 11. If I can disturb my opponent in some way in order to get the edge in competition, I will do so.
- _____ 12. I really feel down when I lose in athletic competition.
- _____ 13. Gaining praise from others is not an important reason why I enter competitive situations.
- _____ 14. I like the challenge of getting someone to like me who is already involved with someone else.
- _____ 15. I do not view my relationships in competitive terms.
- _____ 16. It does not bother me to be passed by someone while I am driving on the roads.
- _____ 17. I cannot stand to lose an argument.
- _____ 18. In school, I do not feel superior whenever I do better on tests than other students.
- _____ 19. I feel no need to get even with a person who criticizes or makes me look bad in front of others.
- _____ 20. Losing in competition has little effect on me.
- _____ 21. Failure or loss in competition makes me feel less worthy as a person.
- _____ 22. People who quit during competition are weak.
- _____ 23. Competition inspires me to excel.
- _____ 24. I do not try to win arguments with members of my family.
- _____ 25. I believe that you can be a nice person and still win or be successful in competition.
- _____ 26. I do not find it difficult to be fully satisfied with my performance in a competitive situation.

Appendix D

SIP-15

Directions: In the following questions, please circle the answer that best fits for you. Please answer every item, and clearly circle ONE response per statement.

Response Scale: SD = Strongly Disagree
 D = Disagree
 N = Neutral
 A = Agree
 SA = Strongly Agree

	Strongly Disagree				Strongly Agree
1. I owe it to myself and those around me to perform even when my pain is bad.	SD	D	N	A	SA
2. When injured, I feel that it's never going to get better.	SD	D	N	A	SA
3. When in pain, I tell myself it doesn't hurt.	SD	D	N	A	SA
4. I seldom or never have dizzy spells or headaches.	SD	D	N	A	SA
5. When I am hurt, I just go on as if nothing happened.	SD	D	N	A	SA
6. When hurt, I worry all the time about whether it will end.	SD	D	N	A	SA
7. When injured, I tell myself to be tough and carry on.	SD	D	N	A	SA
8. Pain from my injuries is awful and I feel overwhelmed.	SD	D	N	A	SA
9. When hurt, I tell myself I can't let the pain stand in the way of what I want to do.	SD	D	N	A	SA
10. I hardly ever notice my heart pounding and I am seldom short of breath.	SD	D	N	A	SA
11. When injured, I just ignore the pain.	SD	D	N	A	SA
12. I can't seem to keep pain out of my mind.	SD	D	N	A	SA
13. I do not allow pain to interfere with my performance.	SD	D	N	A	SA
14. I often worry about being injured.	SD	D	N	A	SA
15. I very seldom have spells of the blues.	SD	D	N	A	SA

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Appendix E

Athletic Identity and Hypercompetitiveness:
Impact on Athletes' Attitudes Toward Pain and Sport-Related Injury
Dissertation Prospectus

Owen-John Williams, M.Ed.

University of Oklahoma

January 2011

Chapter One

Introduction

Overview

Athletic identity can be defined as “the degree to which an individual identifies with the athlete role” (Brewer, Van Raalte, & Linder, 1993). A strong athletic identity has been shown to be connected with a higher degree of athletic competence, physical involvement, attractive body, physical strength and higher achievement motivation, which, in turn, may manifest itself as increased competitiveness, higher goal orientation, and increased motivation to win (Van Raalte, Brewer, Brewer, & Linder, 1992). This competitive nature and winning motivation can sometimes push an athlete to the limits of physical safety. It is possible that a strong athletic identity may prompt individuals to engage in a sport or exercise activity to the extent that their physical health is jeopardized. Excessive training, participating in sport or exercise while injured, and other such behaviors may in some cases negate the potential health/fitness benefits of a strong athletic identity (Brewer et al., 1993).

Increased competitiveness may have a negative impact on an athlete’s approach to training, specifically when over-training could lead to increased risks for athletic injury. While competitive attitudes have been examined in athletes, there remains a gap in the research as to the potential cumulative impact of a strong athletic identity and overly competitive attitudes on pain and injury response. According to Horney (1937), *hypercompetitiveness* refers to an indiscriminate need by individuals to compete and win—and to avoid losing—at any cost as a means of maintaining or enhancing feelings of self-worth, with an attendant orientation of manipulation, aggressiveness,

exploitation, and denigration of others across a myriad of situations. Following this view on hypercompetitiveness, it stands to reason that athletes possessing unhealthy levels of hypercompetitiveness would potentially be at greater risk for injury, in addition to possessing negative attributes in regards to injury coping responses. However, when much of the sporting world promotes and celebrates a ‘play through the pain’ mentality, it may be difficult to tease out individual characteristics versus sport-specific or ‘culture-of-sport’ characteristics that contribute to attitudes toward pain and injury.

How an athlete responds to injury is largely based on their perception of the injury. The Stress and Injury Model (Andersen & Williams, 1988) focuses on the bidirectional relationship between athletes’ cognitive appraisals of demands, consequences, and resources in the sport situation and their physiological reactions (e.g., increased muscle tension) and attentional responses (e.g., increased distractibility, narrowing of the visual field). Several studies (Anderson & Williams, 1988; Folkman & Lazarus, 1991; Weiss & Troxel, 1986; Wiese-Bjornstal et al., 1998) have looked at models relating to stress processes in an individual’s cognitive appraisal of their situation (i.e., injury). The basic framework of these models suggests that how an individual interprets or appraises an injury determines how the individual will react emotionally (e.g., anger, depression, acceptance). Excessive competitiveness in an athlete, internally or externally driven, may contribute to how they perceive injury, and subsequently how they approach rehabilitation from injury.

Sport sociology research has shown how social structure and sport networks can influence athletic identity and support in relationship to the athlete’s attitude about

injury (Brustad & Ritter-Taylor, 1997). Much of Nixon's (1993a, 1993b, 1994a, 1994b, 1996a, 1996b; as cited in Loland, Skirstad, & Waddington, 2006) research has centered on a *risk-pain-injury* paradox indicative of a sporting 'culture of risk.' This paradox rationalizes the risks of athletic participation and normalizes injuries and 'playing hurt' in order to continue competing (Loland et al., 2006). Loland et al. (2006) outlined this paradox in their book:

Specifically, the paradox identified by Nixon concerns athletes' continued efforts to gain success while injured or in pain, a situation in which their chances to perform well, and to achieve success, would appear to be reduced. This paradox is distinct from, although not unconnected with, the more obvious one which links sport and exercise with good health and enjoyment. For Nixon, the idea of participating in sport in which risk-taking is expected and which may lead to chronic pain and long-term injury, conflicts with what he holds to be 'common sense' notions. But, as he demonstrates, this paradox represents a largely accurate picture of professional and elite-level sport. (p. 20-21)

In a study done by Wiese-Bjornstal, Smith, Shaffer, and Morrey (1998), sociological dynamics of gender and subculture differences emerged as possible factors toward understanding the distinct individual responses to sport injury. Qualitative studies focusing on the possibility of gender differences have also suggested that male and female athletes respond differently to their injuries; however, there is yet to be a clear consensus on this. In one study (Granito Jr., 2001) the athletes and student trainers commented on difference between sexes, sport opportunities, and the nature of

male and female athletics as contributing to their feeling that male and female athletes respond differently to their injuries. Another study by Granito Jr. (2002) looked at athletes' injury experiences and found gender differences in three general areas: Female athletes tended to be less satisfied with the coaching relationships as a result of the injury, failed to report any significant social interactions with significant others, and seemed to be more concerned with how the injury would affect their future health.

Sport remains a powerful gender demarcator, reproducing traditional hegemonic forms that render the relationship between sport, the body, gender, and sexuality especially ideologically challenging (Vertinsky, 2006, as cited in Mean & Kassing, 2008). Women athletes are routinely cast as traditionally feminine, a paradoxical sporting practice that re/produces female athletes as women who play sport rather than as athletes first and foremost (Mean & Kassing, 2008). Sports that allow women participants to remain true to the stereotyped expectations of femininity (such as being graceful and nonaggressive) and that provide for beauty and aesthetic pleasure have been socialized and labeled as "feminine" (Koivula, 2001). Sports such as gymnastics, dance, and figure skating come to mind when describing the aforementioned characteristics of stereotypical feminine expectations. While these female athletes may not be considered "tough" when compared to the physically violent sports of football and hockey, there are high degrees of pain tolerance and strong responses toward athletic injury present in these traditionally "feminine" sports.

In an exploratory investigation of competitive orientations among Division I intercollegiate athletes and non-athletes, Gill and Dzewaltowski (1988) found that males scored higher than females on measures of competitiveness and win orientation.

Also, they found that athletes scored higher than nonathletes on most measures, but particularly so on sport-specific competitiveness scores. Gill and Dziewaltowski's (1988) study also uncovered differences between sports on the competitive measures; however, these were unrelated to gender but seemed to reflect the competitive structure of the sporting activity. In a study looking at athletic identity as an important motivator, Tusak, Faganel, and Bednarik (2005) found that athletic identity correlates with win orientation, competitiveness and positive competitive motivation. They also found a positive correlation between athletic identity and negative achievement motivation (motive to avoid failure). Based on their findings, it is suggested that athletes with a high athletic identity seem to have a strong need to avoid failure (Tusak et al., 2005). Unfortunately, when athletes combine this need with hypercompetitive attitudes, there exists the potential for psychological and/or physical harm.

Statement of the Problem

As noted earlier, competitive nature and winning motivation can sometimes push an athlete to the limits of physical safety. It is also possible that a strong athletic identity may prompt individuals to engage in a sport or exercise activity to the extent that their physical health is jeopardized. Excessive training, participating in sport or exercise while injured, and other such behaviors may in some cases negate the potential health/fitness benefits of a strong athletic identity (Brewer et al., 1993). Combine a strong athletic identity with a hypercompetitive, "win-at-any-cost" attitude, and the potential risk of injury in sport will likely increase. Additionally, excessive competitiveness may lead athletes to hold cavalier attitudes toward pain and injury, such as false bravado or feelings of invulnerability. The framework of the Stress and

Injury Model (Andersen & Williams, 1988) suggests that the athletes' response to injury itself directly affects their susceptibility to injury. In the event an athlete has difficulty coping with an injury, there are often detrimental psychological effects, such as depression or anxiety.

To date, there is a paucity of research exploring possible links between athletic identity and excessive competitiveness and attitudes toward pain and injury. Thus this study seeks to illuminate potential issues related to hypercompetitiveness impacting an athlete's susceptibility to experiencing sport-induced injury. Specifically, this study will explore the potential cumulative influence of athletic identity and hypercompetitiveness on athletes' responses on a pain coping attitudes inventory. Additional consideration will be given to looking at athletes competing in individual-oriented sports versus athletes competing in team-oriented sports, with the expectation that athletes competing in individual-oriented sports will demonstrate higher levels of hypercompetitiveness. Understanding more about how hypercompetitive athletes react to injury and cope with pain can provide sport psychologists, athletic trainers, and coaching staff with potentially helpful prevention and/or intervention strategies.

Chapter Two

Review of the Literature

Theoretical Grounding (Stress and Injury Model/Theory)

The Stress and Injury Model (Andersen & Williams, 1988) has driven much research on predicting coping responses to injury. The core mechanism in this model is the stress response, a bidirectional relationship between athletes' cognitive appraisals of demands, consequences, and resources in the sport situation and their physiological reactions (e.g., increased muscle tension) and attentional responses (e.g., increased distractibility, narrowing of the visual field). These variables may increase the vulnerability to injury by disrupting one's coordination and flexibility as well as interfering with the detection of important environmental cues (Maddison & Prapavessis, 2005). The Stress and Injury Model is composed of three major factors: personality, history of stressors, and coping resources. These factors may operate alone or in combination to affect the stress response, and in turn the occurrence and severity of injury. It is suggested through the model that these psychosocial variables influence how athletes respond under acutely stressful situations; however, only the athletes' response itself directly affects their susceptibility to injury. For example, it has been hypothesized that athletes with many life stressors, few coping resources, and certain personality dispositions (e.g., high competitive anxiety) will, when placed in a stressful situation, demonstrate a greater stress response (e.g., generalized muscle tension and distractibility) and hence be more at risk of injury. Athletes with this high-risk profile will have a greater likelihood of injury than those with the opposite profile (Williams & Andersen, 1998). The final component of the model refers to interventions. It is

suggested that in order to prevent injuries caused by stress, the intervention should focus on (a) altering the cognitive appraisal of potentially stressful events, and (b) modifying the physiological and attentional aspects of the stress response (Anderson & Williams, 1988).

Several studies (Anderson & Williams, 1988; Folkman & Lazarus, 1991; Weiss & Troxel, 1986; Wiese-Bjornstal et al., 1998) have looked at models relating to stress processes in an individual's cognitive appraisal of their situation (i.e., injury). The basic framework of these models suggests that how an individual interprets or appraises an injury determines how the individual will react emotionally (e.g., anger, depression, acceptance).

Lazarus and Folkman (1984) break down the cognitive appraisal of injury into two processes: (a) primary appraisal, where the individual asks, "Is this harmful to me?" and (b) secondary appraisal, made after the initial assessment and asks the question, "Will I be able to deal with this situation, and, if so, how?" Emotional and behavioral responses to the injury are then generated as a result of the individual's appraisal of the situation. The cognitive appraisal model approach to explain how athletes respond to an injury is based on how the injury is perceived by the athlete (Brewer, 1994; Wiese-Bjornstal et al., 1998). This approach suggests that an interaction between personal factors made up of injury aspects and individual characteristics, and situational factors made up of sport related factors, social aspects, and environmental conditions influence the thought processes athletes have about an injury (Wiese-Bjornstal & Shaffer, 1999, as cited in Granito, Jr., 2001). The Wiese-Bjornstal et al. (1998) version of the cognitive appraisal model emphasizes that the response to injury is dynamic and can

change over time and centers around three factors: cognitive appraisals (i.e., rate of perceived recovery, sense of loss or relief, attributions), emotional response (i.e., frustration, fear, grief), and behavioral outcomes (i.e., rehabilitation adherence, use of coping strategies, use of social support networks). As noted earlier, athletic identity plays a significant role in athletes' coping responses to pain and injury. Potential differences in how male and female athletes construct their athletic identity, in addition to differences in how athletic identity relates to concepts of self and gender, may impact such coping responses.

Athletic Identity and Gender

The literature appears mixed when it comes to athletic identity and the roles males and females play in the sporting environment. In a study using a high school athlete population ($N = 389$), Wiechman and Williams (1997) tested the relationship of scores on the Athletic Identity Measurement Scale (AIMS; Brewer et al., 1993) to age, gender, years of athletic experience, ethnicity, and expectations of competing at the college/pro level. They found that males in their sample had a stronger athletic identity than females and had higher expectations of playing at the college/pro level. In a sample of undergraduate students, Van Raalte et al. (1992) found male students to have a higher athletic identity than female students (psychology and kinesiology students). Also, when Nasco and Webb (2006) combined athletes with nonathletes in their data set, they found that males reported higher overall athletic identity than females confirmed in previous research (Brewer et al., 1993). However, when separated by athletic status, gender differences existed primarily in the nonathlete respondents. The only gender effect in athletes to emerge was that males' athletic identity seemed more

connected to external rewards associated with being an athlete than did females' identity. The authors suggest this difference seems to reflect the higher public recognition afforded male athletes and male-dominated sports in the United States, especially in collegiate sports from which the athlete samples were obtained (Nasco & Webb, 2006). Similarly, Tusak et al. (2005) found no differences in athletic identity with respect to gender in a sample of elite Slovenian athletes. However, competitiveness and negative competitive motivation appeared more important for predicting the female athlete's athletic identity, whereas win orientation and positive competitive motivation contributed the most to predicting the male athlete's athletic identity.

According to social role theory, men are expected to fulfill the masculine gender role that reflects agentic qualities and women are expected to fulfill the feminine gender role that reflects communal qualities (Wood & Eagly, 2002). Using a social role theoretical approach, Harrison and Lynch (2005) looked at the influence of athletic roles upon perceived gender role orientations of male and female athletes. In their study they found that athlete gender did not significantly affect global perceptions of gender role orientation:

However, we did find that athletic roles were important inasmuch as athletes who fulfill stereotypically masculine athletic roles (i.e., football and basketball) are likely to be perceived as having a masculine gender role orientation. Likewise, athletes who fulfill a stereotypically feminine athletic role (cheerleading) are likely to be perceived as having a feminine gender role orientation. (p. 234)

Results from their study would suggest that athletes' perceived gender role orientations are more likely to be affected by the athletic roles they fulfill rather than their gender (Harrison & Lynch, 2005).

Mean and Kassing (2008) contend that the community of sport is a powerful site for the construction of masculinity, male identities, and heterosexuality. Consequently, the increased entry of women into the sporting arena has been actively resisted, with women athletes either excluded or framed within traditional, sexualized discourses of femininity and heterosexuality. While the passage of Title IX has led to increased female participation, women athletes remain on the peripheries of the community of sport, having yet to achieve sporting empowerment (Mean & Kassing, 2008). The regular appearance of more women in the community of sport would suggest that female athletes have overcome traditional hegemony to participate in sport. However, restricted and limited participation comprises a powerful strategy that positions women at the boundaries of the category and thereby reduces the threat of female participation (Mean & Kassing, 2008). The paradoxical linking of female athletic empowerment and traditional female (hetero)sexual appeal observed in media responses to the 1999 Women's World Cup soccer championship illustrates this practice (Christopherson, Janning, & McConnell, 2002). Mean and Kassing (2008) maintain that as a consequence of this paradox, women athletes achieve athletic identities using familiar culturally established discourses of male athleticism while simultaneously managing femininity.

Royce, Gebelt, and Duff (2003) note that gender role conflict is "purported to be generated by the dissonance of the female athlete's need to identify with two

incompatible roles: the valued feminine role, and the unvalued, even stigmatizing, athletic role for girls and women (p. 48).” However, the authors go on to contend that research has failed to support this notion of role conflict in female athletes (Allison, 1991; Anthrop & Allison, 1983; Goldberg & Chandler, 1991; Miller, Heinrich, & Cass, 1996; Miller & Levy, 1996; Sage & Loudermilk, 1979; as cited in Royce et al., 2003). In their sample of NCAA athletes, Royce et al. (2003) interviewed female athletes and found that they perceive themselves as having both a feminine and athletic identity and that each can be salient at different times:

Rather, it appears that these collegiate athletes have been able to integrate these distinctly different identities into their sense of self and are not conflicted by difference between them. Rather than manage their “off-court” presentation in response to stereotypes and discrimination, they seem comfortable with both identities. (p. 57)

The authors go on to contend that, for some women, the athletic role is highly respected and also is seen as not detracting from the feminine one. They also suggest that being able to maintain a psychological separation of the athletic self from the feminine self would give no cause for dissonance, thus female athletes should not be expected to experience gender role conflict because of their athletic participation (Royce et al., 2003).

The use of force and violence and the tolerance of risk in sport have been shown to be valued by many male athletes as masculinizing (Young, White, & McTeer, 1994). This may also be true of pain and injury, which Messner (1990) noted tend to be routine in competitive male sports:

In many of our most popular sports, the achievement of goals (scoring and winning) is predicated on the successful utilization of violence—that is, these are activities in which the human body is routinely turned into a weapon to be used against other bodies, resulting in pain, serious injury, and even death. (p. 203)

Young et al. (1994) found that male athletes in their study indicated that enduring pain through the rehabilitation process was linked to self-improvement and feelings of masculinity:

For some, this meant redefining philosophical postures (taking slightly less risk, being more prepared, living for the moment), but for most it meant regaining bulk, strength, confidence, and self-image—factors all demonstrably tied to reconstructed masculinity in the postinjury context. (p. 189)

Further, the authors contend that an athlete's masculinity comes into question when he does not conform to the pain principle. Acknowledging injury except in its most traumatic form indicates the athlete is succumbing to affect, has not developed sufficient disrespect for pain, or is no longer prepared to sacrifice his body for the team. Also, in the cult of male physicality, the athlete may be perceived as giving way to parts of himself that are threateningly perceived as “soft” or feminine (Young et al., 1994).

Ideas of masculinity and male physicality in sport provide some explanation for the common practice where young males regard subjecting their bodies to violence and pain as legitimate or natural. Messner (1990) suggests these attitudes contribute to a lack of criticism of the way male sport is organized:

To question their decision to give up their bodies would ultimately mean to question the entire institutionalized system of rules through which they had successfully established relationships and a sense of identity. (p. 212)

Young et al. (1994) contend that ideas of masculinity and femininity in sport are socially constructed, which impact athletes' attitudes toward injury:

Through the way that males expose their bodies to physical risk, play while injured, and rehabilitate in order to be potentially injured again, it is clear that while males may not actually enjoy physical violence and pain, the rewards of hegemonic masculinity remains meaningful enough. (p. 192)

Regardless of gender, athletic identity seems a strong part of one's self-concept and psychosocial frame of reference for how to relate to others interpersonally.

Brewer et al. (1993) have shown that athletic identity is a unique and important dimension of the self-concept that can be regarded as both a cognitive structure and a social role. Taylor and Taylor (1997) contend that the athletic identity of athletes, who are seriously involved in sport, usually comprises a great deal of the entire self-image, thus they are able to satisfy the needs of their athletic identity simply by participating in sport. Adding to this, Horton and Mack (2000) note that as a cognitive structure, athletic identity provides a framework for interpreting information, determines how an athlete copes with career-threatening situations, and inspires behavior consistent with the athlete role. As a social role, athletic identity may be determined by the perceptions of those close to the athlete. Often, an individual whose social network emphasizes the

athletic dimension of their persona will internalize the perceptions of these important people and will define the self as others define them: as an athlete. Additionally, individuals strong in athletic identity may surround themselves with other athletes who encourage a self-definition centered on athletics (Horton & Mack, 2000). Research results are varied on the stability of athletic identity an athlete holds over time once they have finished competing in their sport.

In their study, Van Raalte et al. (1992) found a negative correlation with athletic identity and age—the older athletes are, the more they engage also in other activities and roles, which consequentially decreases their athletic identity. In a study on athletes' coping with retirement from sport, Grove, Lavalley, and Gordon (1997) found that retired athletes with higher AIMS scores experienced more anxiety when exploring career options after retirement, demonstrated lower levels of pre-retirement career planning, and took longer to adjust to retirement, both emotionally and socially, than retirees with lower reported levels of athletic identity. Nasco and Webb (2006) looked at public and private dimensions of athletic identity and found that current athletes reported higher levels of public athletic identity than retired athletes, but retired athletes reported higher levels of private athletic identity. The authors suggested these findings were due to retired athletes having spent significantly more years in their sport ($M = 10.37$, $SD = 4.72$) than current athletes ($M = 7.92$, $SD = 4.1$) and the fact that current athletes were still competing in public competitions.

As noted earlier, having a strong athletic identity has been connected with a higher importance of athletic competence, physical involvement, attractive body, physical strength and higher achievement motivation, which manifests itself as

competitiveness, higher goal orientation and a motive to win (Van Raalte et al., 1992). In a study looking at marathon runners, Horton and Mack (2000) found that having a strong athletic identity can benefit athletic performance and lead to positive psychological and physical experience of athletic training. Research on psychology and kinesiology students by Van Raalte et al. (1992) showed athletic identity increases with level of involvement in sports. In the same study they found that university athletes with strong athletic identity show higher motivation to practice than athletes with lower athletic identity.

The problems linked to strong athletic identity arise when there is a commitment to the role of the athlete at the expense of other aspects of life. For example, overcommitment to the athlete role may lead to dysfunctional practices within the athlete role: over training, anxiety when not training, or in extreme cases, the use of performance enhancing drugs (Horton & Mack, 2000). Green and Weinberg (2001) note it is important to study personal and situational factors that can influence postinjury reactions, in order for sport psychologists and other practitioners (i.e., physicians, physical therapists, trainers) to better understand and treat the individual who suffers an athletic injury.

Athletic Identity and Injury Coping

It is commonly recognized that athletes differ in their ability to function with pain following an injury. An injury in itself is often a traumatic event where emotional and psychological reactions are typically produced based on the individual's perceptions of loss (i.e., mobility, playing time, career). Injuries can often prevent athletes from pursuing a self-defining activity. As a result, they are particularly

vulnerable to psychological reactions such as anxiety, depression, fear, and loss of self-esteem (Green & Weinberg, 2001). Sonestrom and Morgan (1989) suggested that certain components of self-esteem, physical self-efficacy and perceived physical competence, are likely to be affected by the occurrence of injury, while Chan and Grossman (1988) found that global measures of self-esteem were lower in injured runners than those who were able to continue running. Additionally, Leddy, Lamber, and Ogles (1994) compared injured and recovered athletes to noninjured athletes and found that injured athletes reported significantly lower total and physical self-esteem than noninjured athletes.

How an athlete responds to injury is often an important determinant of their subsequent psychological functioning and may impact their ability to cope with the associated pain and rehabilitation process. Brewer (1993) conducted four studies examining the extent to which an individual's identification with the athlete role was related to depressive symptoms with the occurrence of a real or imagined injury. Findings from each of the four studies indicated that athletic identity was significantly related to depression following injury, with participants higher in athletic identity reacting more negatively to injury, imagined or real, than participants lower in athletic identity. Brewer (1994) also noted the actual occurrence of an injury is considered less critical to understanding an individual's emotional reactions than is the way in which the injury is perceived by that individual. Tracey (2003) examined athletes' emotional response to the injury and rehabilitation process using qualitative methods. Participants in the study reported a significant investment in their respective sports and demonstrated a high level of athletic identity. Many disclosed that part of the function

of sport was for an outlet to deal with various stressful events that occurred in their lives. The elimination of sport participation posed difficulty for the participants because such an important part of their lives was temporarily taken away. How an athlete responds to injury is critical to understanding important psychosocial factors involved in the injury and healing process.

Negative psychological responses to injury often result in a lack of rehabilitation adherence or prolonged recover rates (or both), prompting those who work with injured athletes to look for additional strategies to improve the overall rehabilitation process (Hamson-Utley, Martin, & Walters, 2008). Hamson-Utley et al. (2008) also noted that psychological skills can be used during sport injury rehabilitation to motivate athletes to adhere to rehabilitation, to increase speed of recovery, to control anxiety levels, and to enhance self-confidence. However, those who hold negative attitudes toward certain psychological skills are less likely to implement them during rehabilitation. It is important, then, for practitioners, coaches, and training staff to be aware of potential factors influencing athletes' approaches towards the rehabilitation process. Research on the knowledge and skills that contribute to the successful rehabilitation of injured athletes indicates that the athletes should be willing to listen, to maintain a positive attitude, and to be intrinsically motivated and willing to learn about the injury and rehabilitation techniques (Wiese, Weiss, & Yukelson, 1991). In addition to athletic attitudes impacting injury and pain tolerance, research has also shown relationships between sport-related attitudes and athletic performance.

Sport Attitudinal Measures

Vealey (1986, 1988) developed an instrument called the Competitive Orientation Inventory (COI) that measures an athlete's self-confidence and competitive orientation, with self-confidence consisting of two main components: (1) trait and (2) state, while competitive orientation was designed to assess whether the satisfaction an athlete holds from a particular performance is attributable more to winning the contest or more to simply performing well. Vealey (1986) found that trait self-confidence and both performance and outcome orientations were related to athlete performance.

Gill and Deeter (1988) also developed a survey to measure attitudes toward sport, which they called the Sport Orientation Questionnaire (SOQ). The SOQ consists of three attitudinal subscales: Competitiveness, Goal Orientation, and Win Orientation. The 13-item instrument assesses the desire to win in sports competition using a 5-point Likert-type scale to measure the participant's agreement to items such as "I am a competitive person" and "I try my hardest to win." Results from the original study indicated that the Competitiveness subscale was able to differentiate between students who participated in competitive activities from those who participated in noncompetitive activities. Research with the SOQ has suggested that it is a reliable, valid measure of achievement orientation toward competitive sport (Gill, Kelley, Martin, & Caruso, 1991).

Smith, Schutz, Smoll, and Ptacek (1995) developed another sport attitudinal measure: the Athletic Coping Skills Inventory-28 (ACSI). The ACSI is comprised of seven facets: Coping with Adversity, Peaking under Pressure, Goal Setting/Mental Preparation, Concentration, Freedom from Worry, Confidence and Achievement Motivation, and Coachability. Although Smith et al. (1995) did not find direct evidence

of a relationship between the ACSI and performance ratings, they did find an indirect relationship between a predictor sport attitude composite and a discrepancy score between athletes' performance and their athletic potential. The results of this previous research, as well as others, suggest that an athlete's attitudes and beliefs can be important factors to consider when trying to achieve sport success (Jones, Neuman, Altmann, & Dreschler, 2001). However, much of the research addresses only a limited attitudinal domain. While the ACSI does tap into seven different constructs, it falls short in assessing other constructs that could also be important (e.g., mental toughness).

Seeking to expand sport psychology research on athlete attitudes, Jones et al. (2001) developed a more comprehensive athlete attitudinal survey – The Sports Performance Inventory (SPI) – that divided athletic attitudes into six sport-related factors: Competitiveness, Emotional Control, Mental Toughness, Positive Attitude, Safety Consciousness, and Team Orientation.

The authors contend the uniqueness of the instrument lies in the type of sport-related subscales it has to offer, the multidimensional nature of the instrument, and its potential to be used by both advanced and novice athletes (Jones et al., 2001). An advantage of the uniqueness of some of the SPI's subscales is the potential for investigating the importance of a person's attitude toward safety, whereas other measures have just indicated the importance of attitudes relating to an athlete's competitiveness and motivation. The ability of an athlete to recognize potential safety hazards and to be "in touch" with the pings and pangs normally associated with sport participation may be crucial to avoiding more severe or permanent injuries (Jones et al., 2001). As noted earlier, an athlete's identity can negatively influence their reactions to beliefs about

“playing through pain”, which in turn may lead to more serious injury or inadequate rehabilitation time.

Meyers, Bourgeois, Stewart, and LeUnes (1992) developed the Sports Inventory for Pain (SIP), a 25-item sport-specific measure of how different athletes respond psychologically when in pain. The SIP consists of five subscales: Coping through Direct Action (COP), Cognitively Mediated Coping (COG), Catastrophizing (CAT), Avoidance (AVD), and Somatic Awareness (SOM). The COP subscale measures the extent to which an athlete utilizes "direct coping" strategies. High scorers tend to ignore pain, realize that pain is a part of competition, and in general, tend to "tough it out." The COG subscale measures an individual's ability to use "mental" coping strategies such as imagery in dealing with pain. The CAT subscale detects individuals who tend to despair when injured, who dwell on pain or feel that pain was unbearable, and who tend to give up when in pain. The AVD subscale is designed to assess the extent to which an individual utilizes avoidant strategies to cope with pain. High scorers were thought to be non-competitive when injured. The theoretical rationale of the SOM subscale was based on Handel's Repression-Sensitization scale (1973) and is designed to indicate the extent to which a person is hyposensitive or hypersensitive to stimuli. The SOM subscale was designed to serve as a covariate in pain studies with athletic populations. In summary, the SIP has emerged as a consistent predictor of pain response (Bourgeois et al., 2009).

Athletic Identity and Hypercompetitiveness

One commonly researched factor impacting athletes' response to injury is the competitive attitudes one holds not just in the sporting arena but also in daily life. In a study looking at athletic identity as an important motivator, Tusak et al. (2005) found

that athletic identity correlates with win orientation, competitiveness and positive competitive motivation. They also found a positive correlation between athletic identity and negative achievement motivation (motive to avoid failure). Based on their findings, it is suggested that athletes with a high athletic identity seem to have a strong need to avoid failure (Tusak et al., 2005). When athletes combine this need with competitive attitudes, there exists the potential for psychological and/or physical harm.

Competitive trait anxiety may also be a serious predisposing factor for injury. This phenomenon was described as a general tendency to perceive a situation as threatening and to react to it with apprehension and anxiety (Spielberger, 1966, as cited in Slobounov, 2008). Accordingly, athletes with a high level of trait anxiety may experience a high level of stress and an inability to cope with competitive pressure. As a result, these athletes would have a tendency to avoid tough competitive situations, modify their reaction to threat, perceive a neutral game situation as harmful and/or injury threatening leading ultimately to high risk for injury. In the case of previous injuries, athletes with high scores on competitive trait anxiety most likely will experience fear of reinjury, lack of confidence in the likelihood of gaining pre-injury status and higher risk for the development of chronic psychological trauma. In fact, several studies have supported this notion, indicating that athletes with higher scores on competitive trait anxiety had more injuries in general, and more severe injuries in particular (Blackwell & McCullagh, 1990; Petrie, 1993, as cited in Slobounov, 2008). Specifically, in Petrie's (1993) study, increases in trait anxiety were positively correlated with a higher rate of injury in football starters. Overall, it is logical to consider that a high level of competitive anxiety may facilitate the detrimental effect of

stress on performance, which has been documented in numerous reports; it therefore could be considered a reliable predictor for the development of psychological trauma as a result of injury (Slobounov, 2008).

Although there are clear negative implications of having overly competitive attitudes, the drive to compete may serve a more psychologically healthy purpose. Personal development competitiveness is an attitude in which the primary focus is not on the outcome (i.e., winning), but rather more on enjoyment and mastery of the task (Ryckman, Hammer, Kaczor, & Gold, 1996). Competitors holding these attitudes are concerned more with self-discovery, self-improvement, and task-mastery than with comparisons to others. Unlike overly competitive attitudes, the focus is not on the derogation of others in order to enhance the self. Rather, others are seen as helpers who provide the individual with personal learning and discovery opportunities (Ryckman, Libby, van den Borne, Gold, & Linder, 1997). Positive links have been found between personal development competitiveness and concern for the welfare of others, personal and social self-esteem, and optimal psychological health (Ryckman et al., 1996; Ryckman et al., 1997).

Exaggerated competitive attitudes, however, may have a detrimental impact on an individual's development and personality functioning. Hypercompetitive attitudes have been associated with neuroticism, and with other psychological difficulties such as mistrust, Machiavellianism, dogmatism, narcissism, low self-esteem, and low optimal psychological health (Ryckman, Hammer, Kaczor, & Gold, 1990; Ryckman, Thornton, & Butler, 1994). As mentioned earlier, Horney (1937) noted *hypercompetitiveness* refers to an indiscriminate need by individuals to compete and win—and to avoid

losing—at any cost as a means of maintaining or enhancing feelings of self-worth, with an attendant orientation of manipulation, aggressiveness, exploitation, and denigration of others across a myriad of situations. Ryckman and his colleagues created scales that measure contrasting attitudes about competition. Their Hypercompetitive Attitude Scale (HCA) operationalizes the excessive competitiveness that Karen Horney believed to be central to neurotic functioning (Ryckman et al., 1990). In contrast to this measure, the Personal Development Competitive Attitude Scale (PDCA) looks at healthy attitudes in which competition functions as useful in promoting self-development (Ryckman et al., 1996). In a factor analysis of scales measuring competitiveness, Houston, McIntire, Kinnie, and Terry (2002) supported these contrasting competitive attitudes when results showed that the HCA and PDCA scales loaded on different factors. In a study looking at competitive attitudes in relation to disordered eating, it was shown that it is hypercompetitiveness that is positively related to disordered eating and not personal development competitiveness, the latter being a more psychologically healthy kind of competitive attitude (Burckle, Ryckman, Gold, Thornton, & Audesse, 1999). Ryckman et al. (1990) suggested the HCA could be utilized to help identify athletes maintaining unhealthy attitudes of “win-at-any-cost” and disparaging views of their opponents, also noting that changes in athletes’ attitudes could also be assessed following psychoeducational interventions. Considering the emphasis culture and society places on valuing athletes who “fight through the pain” to help their team in competition (e.g., Bret Favre’s celebrated NFL record of 297 consecutive games without missing a start, or Kerri Strug’s heroic vault on an injured ankle to secure the team gold medal at the 1996 Olympic Games), it is important to consider the possible

impact overly competitive attitudes can have on their ability to cope with pain and athletic injury.

Hypercompetitiveness and Individual versus Team Sports

There exists a paucity of research looking at relationships between overly competitive, or exaggerated competitiveness, attitudes and the nature of individual sports compared to team sports. There is a general consensus in the literature, however, that athletes' levels of competitiveness vary according to a multitude of factors. Despite a lack of research comparing competitiveness in athletes competing in individual sports versus team sports, there have been numerous studies looking at other athlete characteristics potentially impacted by levels of competitive attitudes. A few of these contributing factors that have been noted are goal orientations, anxiety experienced while engaging in sport, and characteristics of being "mentally tough."

In a study looking at achievement goal orientations (how people define success) Hanrahan and Cerin (2009) found individual sport athletes to be higher in ego orientation than team athletes. They noted that people with a strong ego orientation define success as being better than competitors. The authors also noted that in individual sports it is usually clear how an athlete's performance compares to others through times (e.g., swimming and track), scores (e.g., golf and gymnastics), or placings (e.g. triathlon or wrestling). Typically, one will see athletes' names on a rank-order list of performance outcome results; however, individual performances within team sports are often difficult to compare (Hanrahan & Cerin, 2009). According to the findings from this study, one could expect to find correlations between ego orientation and hypercompetitiveness.

In a study looking at sport context and birth order on state anxiety, Flowers and Brown (2002) found that athletes participating in individual competition experienced greater cognitive and somatic state-anxiety than athletes participating in team precision competition. Interestingly, findings demonstrated that cognitive anxiety discriminated between males in individual and team competition, whereas somatic anxiety discriminated between individual and team female competitors. They rationalize that individual sports are more anxiety provoking than team sports, noting that because athletes participating in individual competition are judged on their personal performance, the direct responsibility for performance and the perceived pressure of individual evaluation may account for a higher degree of pre-competition cognitive and somatic state-anxiety (Furst & Tenenbaum, 1986; Martin & Hall, 1997; Simon & Martens, 1979; Smith & Smoll, 1990; as cited in Flowers & Brown, 2002). On the contrary, athletes who participate in team competition have the opportunity to diffuse responsibility for performance among their teammates, and the team's performance as a whole is evaluated.

Nicholls, Polman, Levy, and Backhouse (2009) looked at factors contributing to the concept of 'mental toughness' in athletes, with type of sport (individual versus team athletes) as a proposed predictor. Based on previous research, they hypothesized that team sport athletes would report higher mental toughness scores than individual athletes (Bull, Shambrook, James, & Brooks, 2005; Clough, Earle, & Sewell, 2002; Vealey, 1988; as cited in Nicholls et al., 2009). However, results from their study revealed that there were no significant differences among athletes who participate in team or individual sports. The authors noted their study was restricted in its ability to explain

how underlying attributes of mental toughness affect performance. Competitive attitudes were not examined in this study, however, as noted earlier in regard to ego orientation, one might surmise a correlation between competitiveness and mental toughness.

Athletic Identity, Hypercompetitiveness, and Injury Coping

This study does not seek to explore relationships between exaggerated competitive attitudes and factors such as anxiety, mental toughness, or competitive orientations. Its purpose is, however, to examine the potential impact of a strong athletic identity and hypercompetitiveness on an athlete's ability to cope with pain and injury. As mentioned earlier, it is commonly recognized that athletes differ in their ability to function with pain following an injury. Injuries are often traumatic events and can lead to negative emotional and psychological reactions based on the athlete's perceptions of loss (i.e., mobility, playing time, career). The stress and injury model (Andersen & Williams, 1988) suggests that psychosocial variables of personality, history of stressors and coping resources may operate alone or in combination to affect the stress response, and in turn the occurrence and severity of injury. One aspect that has been hypothesized to produce a greater stress response is certain personality dispositions (e.g., high competitiveness), hence placing the athlete at increased risk of injury. Athletes with high-risk profiles will have a greater likelihood of injury than those with the opposite profile (Williams & Andersen, 1998).

Research suggests exaggerated competitive attitudes may have a detrimental impact on an individual's development and personality functioning. Hypercompetitive attitudes have been associated with neuroticism, and with other psychological

difficulties such as mistrust, Machiavellianism, dogmatism, narcissism, low self-esteem, and low optimal psychological health (Ryckman, Hammer, Kaczor, & Gold, 1990; Ryckman, Thornton, & Butler, 1994). Considering that the Hypercompetitive Attitude Scale (HCA) operationalizes the excessive competitiveness that Horney (1937) believed to be central to neurotic functioning (Ryckman et al., 1990), this view of *hypercompetitiveness* serves as a good construct from which to explore the relationship between athletic identity, overly competitive attitudes, and pain coping.

Based on the literature review, the following research questions are proposed: 1) Will athletic identity and hypercompetitive attitudes predict an athlete's pain coping responses? 2) Will scores on measures of athletic identity and pain coping responses differ among sports? 3) Do athletes who compete in sports where individual performance impacts individual national rankings and accolades (i.e., individual national champion in their respective area) hold more competitive attitudes than athletes who compete in sports where team outcome (i.e., winning the game) is the primary recognized goal? 4) Will gender impact athletes' responses on measures of athletic identity, hypercompetitive attitudes, or pain coping response?

More specifically, the following hypotheses are proposed:

1. Athletic identity and hypercompetitive attitudes will significantly predict attitudes toward pain and injury, with hypercompetitive attitudes contributing more to the outcome variance than athletic identity.
2. No significant between-group differences are expected on athletic identity and attitudes towards injury and pain based on sport.

3. Athletes competing in sports where individual performance outcomes impact individual recognition and national accolades will demonstrate higher scores on hypercompetitive attitudes than athletes competing in sports where team outcome is the singular goal (i.e., winning the game).
4. Based on previous research on intercollegiate athletes, no significant differences are expected on athletic identity, hypercompetitive attitudes, or attitudes towards injury and pain based on athlete gender.

Methods

Participants

A convenience sample of male and female college athletes from a Midwestern university will be obtained. The athletes will be competing for an NCAA Division I university in the Midwest. The sample of college athletes will include athletes competing in the following sports: baseball, basketball, cross country, football, golf, gymnastics, rowing, soccer, softball, tennis, track & field, volleyball, wrestling, cheerleading, and dance. The majority of athletes will be between the ages of 18 and 22.

Measures

Demographic Information. Information obtained from athletes will include: race/ethnicity, age, gender, SES, sport, year of athletic eligibility, current sport participation/playing status, time spent training for sport in scheduled team practices, time spent training for sport outside of scheduled practices (i.e., strength and/or cardiovascular training, sport-specific exercises, etc...), and brief injury/pain history. In addition to the demographic questionnaire, three instruments will be used in this study:

the Athletic Identity Measurement Scale (AIMS), the Hypercompetitive Attitude Scale (HCA), and the Sports Inventory for Pain – 15 (SIP-15).

Athletic Identity Measurement Scale (AIMS). Athletic identity has been defined as “the degree to which an individual identifies with the athlete role” (Brewer et al., 1993, p.237). The AIMS consists of 10 statements to which the participants respond based on their agreement or disagreement with each statement. Data reduction for the AIMS involves summation of scores on the ten items and the reporting of a single AIMS score represents the degree to which they identify themselves as athletes (Brewer et al., 1993). Sample items include “I consider myself an athlete,” “Sport is the most important part of my life,” and “I would be very depressed if I were injured.”

During development of the instrument (Brewer et al., 1993), a principal factor analysis was performed on AIMS responses. A single athletic identity factor (*eigenvalue* = 6.03) emerged. Corrected item-local correlations were above .45 for all items and were generally above .70. This suggests that each of the items contributed effectively to the total AIMS score. A coefficient alpha of .93 was obtained, providing support for the internal consistency of the AIMS. The test-retest reliability coefficient of the AIMS was .89, indicating that AIMS scores are stable over a 14-day period. Construct validity of the AIMS was demonstrated by high correlations with scores on the Perceived Importance Profile (PIP) and the Importance of Sports Competence scale, $r(225) = .83, p < .0005$. Weaker, but still significant, correlations with the other PIP factors were obtained (importance of physical conditioning, $r = .56, p < .0005$; importance of attractive body, $r = .35, p < .0005$; importance of physical strength, $r = .53, p < .0005$). A two-factor (sex X level of athletic involvement) ANOVA provided

further support for the validity of the AIMS. There was a significant main effect for the level of athletic involvement, $F(3,242) = 91.89, p < .005$, and males scored significantly higher on the AIMS than females, $F(1,242) = 9.46, p < .003$. Follow up studies demonstrated high internal consistency ($\alpha = .87$), and males ($M = 35.96, SD = 11.86$) had significantly higher AIMS scores than females ($M = 26.22, SD = 11.87$), $t(437) = 8.60, p < .0005$ (Brewer et al., 1993).

Hypercompetitive Attitude Scale (HCA). Ryckman et al. (1990) derived the construct of hypercompetitiveness from Horney (1937), interpreting hypercompetitiveness as “an indiscriminate need by individuals to compete and win (and avoid losing) at any cost as a means of maintaining or enhancing feelings of self-worth” (Ryckman et al., 1990, p. 632). Respondents to the 26-item HCA use a 5-point continuum ranging from 1 (never true of me) to 5 (always true of me). Sample items include “It’s a dog eat dog world,” “If you don’t get the better of others, they will surely get the better of you,” and “Failure or loss in competition makes me feel less worthy as a person.”

Initial construction of the HCA (Ryckman et al., 1990) demonstrated strong internal consistency, with an alpha of .91. Item-total correlations ranged from .35 to .70, with an average r of .49. A follow-up study to determine test-retest reliability was satisfactory, $r(99) = .81, p < .001$. The means and standard deviations for the first and second administrations were $M = 72.07 (SD = 14.12)$ and $M = 71.87 (SD = 12.18)$, respectively. To establish validity of the scale, the authors administered the HCA along with a battery of personality tests to two separate samples of male and female undergraduate students. In the first sample, there was a positive correlation between the

HCA scale and the Win-at-any-Cost Sports Competition Scale (Lakie, 1964), $r(68) = .24, p < .05$, providing preliminary support for the HCA scale's convergent validity. In the second sample, the HCA scale showed strong convergent validity, $r(47) = .48, p < .001$, with the Competitive-Cooperative Attitude Scale (Martin & Larsen, 1976). The HCA scale's validity was further bolstered by a lack of correlation with social desirability bias, $r(47) = p < .01$.

Sports Inventory for Pain – 15 (SIP-15). This instrument was developed to measure how athletes respond to pain resulting from injury or rehabilitative efforts. The original 25-item sport-specific measure (Myers et al., 1992) was revised using a principal components factor analysis ($N = 221$) that yielded a 15-item inventory with three factors: Coping by Direct Action (COP; $ev = 4.32$; 7 items), Catastrophizing (CAT; $ev = 1.84$; 5 items), and Somatic Awareness (SOM; $ev = 1.40$; 3 items). Confirmatory factor analyses ($N = 387$), MANOVAs and Multiple Regression Analyses ($N = 780$) confirmed the factorial and empirical validity of the revised SIP (Bourgeois et al., 2009). Internal Consistency reliabilities ($N = 387$) were as follows: COP ($\alpha = .89$), CAT ($\alpha = .76$), and SOM ($\alpha = .54$). A Personal Coping Resources (PCR) composite (COP – CAT) provides an overall index of ability to deal with pain. Sample items include “When in pain, I tell myself it doesn't hurt,” “When injured, I just ignore the pain,” and “I do not allow pain to interfere with my performance.”

Bourgeois et al. (2009) note that subsequent research yielded support for the empirical (criterion related) validity of the SIP. They found that, in studies involving high contact, high injury-potential sports, the SIP indices of pain coping significantly differentiated between gender, injury potential, type of sport athlete, and type of sport

(Encarnacion, Meyers, Ryan, & Pease, 2000; Meyers, Bourgeois, & LeUnes, 2001a; Meyers, Bourgeois, & LeUnes, 2001 b.; as cited in Bourgeois et. al, 2009). The SIP has also shown significantly greater coping and somatic awareness, and lower catastrophizing scores in nontraditional/extreme competitors as compared to traditional athletes (Encarnacion, et al., 2000; Meyers, Bourgeois, Murray, & LeUnes, 1993; as cited in Bourgeois et al. 2009). The efficacy of the SIP in delineating pain coping styles has also been documented among high school athletes and other adolescent populations, emerging as a compelling predictor of pain response and athletic performance (Meyers et al., 2001a; Meyers et al., 2001b). The SIP has also been shown to be correlated with mental toughness in that mentally tough individuals were better able to cope with pain, as indexed by the SIP scales, than were less mentally tough individuals (Levy, Polman, Clough, Marchant, & Earle, 2006). Additionally, the SIP, used in clinical sports medicine settings (Wooten, Myers, Fincher, O'Conner, & Woods, 2002), has documented significantly higher total pain coping scores among male versus female patients undergoing knee reconstruction and rehabilitation as well as higher coping skills among young athletes when compared to older patients (cited in Bourgeois et al., 2009).

Bourgeois, Meyers, and LeUnes (2009) revised the original SIP instrument using principal components analysis, resulting in a 15-item instrument that measured three factors: Coping by Direct Action (COP), Catastrophizing (CAT), and Somatic Awareness (SOM). Reliability estimates for the three factors indicated excellent to moderate internal consistency reliability, and it would seem that the SIP-15 subscales are relatively independent as indicated by the subscale inter-correlations (Bourgeois et

al., 2009). Strong support for the empirical validity of the SIP-15 was demonstrated by the findings that participants receiving collegiate athletic scholarships scored significantly higher than those participants not receiving such scholarships on the COP, SOM scales and the PCR composite scores. Additionally, inspection of gender differences among athletic scholarship recipients revealed that gender differences in SIP-15 scores were not evident among scholarship recipients in the study (Bourgeois et al., 2009). This supports previous findings (Meyers et al., 2001a; Meyers, LeUnes, & Bourgeois, 1996; Meyers, Wilkinson, Elledge, Toison, Sterling, & Coast, 1992; Meyers, Elledge, Sterling, & Toison, 1990; Meyers, Sterling, & LeUnes, 1988) that while gender differences in psychological characteristics may exist for the general population, gender differences are not apparent within elite athletic populations (as cited in Bourgeois et al., 2009). The SIP-15 also demonstrated relative resistance to the effects of impression management, as Bourgeois et al. (2009) looked at the relationship between the SIP-15 subscales and the Balanced Inventory of Desirable Responding (BIDR), finding low to moderate correlations. The SIP-15 scales were found to be strong predictors of self-reports of sport participation and the extent to which pain interferes with performance and rehabilitation persistence.

Procedures

Data for this study will be collected from male and female athletes at an NCAA Division I Midwestern university. Permission to recruit athlete participants will be obtained from the head coach and/or athletic training personnel for each athletic team prior to the recruitment of participants for this study. To recruit athlete participants, the researcher will contact the coaches and/or athletic training staff to schedule times to

come to a practice meeting to provide a brief oral description of the study.

During the brief oral description of the study, all prospective athlete participants will be notified that their participation will be strictly voluntary and confidentiality of responses will be maintained. There will be no physical risks present and only minimal potential psychological risk may result from the athlete participants' recollections of their attitudes and responses to physical pains and injuries. Athlete participants will be informed that the surveys will be conducted on-line and will consist of questions pertaining to sport-related attitudes, as well as attitudes toward injury and pain. They will be instructed to answer the questions while reflecting on their respective sport as a reference point. The researcher will answer any questions the athlete participants have during the oral description. Following all face-to-face recruitment speeches for the athlete participants, a listserv of athletes enrolled at the university will be obtained from the athletic department for on-line dissemination of the surveys via an email link.

Prior to administration of the on-line surveys and data collection, athlete participants will read and electronically sign an informed consent form. Athlete participants will be reminded that their consent to volunteer for the study is optional, and there will be no penalty for choosing not to complete the surveys. Data collection will involve completion of a demographic form and a brief questionnaire about pain and/or injury experienced during their participation in sport. A one-time administration of the battery of instruments will take approximately between 10 and 15 minutes to complete. Upon completion, all responses will be stored electronically in a secure SPSS file for data analysis, and athlete participant confidentiality will be maintained. Upon written request, the researcher agrees to forward a general report of the completed

research study to the participants.

Data Analysis

A hierarchical multiple regression will be used to predict scores on the Sports Inventory for Pain (SIP-15) from a set of predictors: scores on the Athletic Identity Measurement Scale (AIMS) and the Hypercompetitive Attitude Scale (HCA). Specifically, relevant demographic variables will be entered in the first block, AIMS scores in the second block, and scores on the HCA in the last block. Also, between group analyses will be performed to examine the following: (a) the extent to which type of sport and gender predict scores on the AIMS, HCA, and SIP-15, and (b) the impact to which sport orientation (individual orientation outcome vs. team orientation outcome) influences scores on the HCA. Specifically, a 2 x 2 MANOVA will be conducted with type of sport and gender as independent variables and scores on the AIMS, HCA, and SIP-15 as dependent variables. In addition, a two-way ANOVA will be performed, with type of sport orientation and gender as the independent variables, and the HCA as the dependent variable. Overall significant multivariate effects will be investigated via post-hoc testing to determine specifically where any significant differences occur (Stevens, 2007).

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Demographics

*Please mark an X by your responses

A. Sport:

- | | |
|---|---|
| <input type="checkbox"/> Baseball
<input type="checkbox"/> Basketball
<input type="checkbox"/> Cross Country
<input type="checkbox"/> Football
<input type="checkbox"/> Golf
<input type="checkbox"/> Gymnastics
<input type="checkbox"/> Rowing
<input type="checkbox"/> Soccer
<input type="checkbox"/> Softball
<input type="checkbox"/> Tennis | <input type="checkbox"/> Volleyball
<input type="checkbox"/> Wrestling
<input type="checkbox"/> Cheerleading
<input type="checkbox"/> Pom Pon
<input type="checkbox"/> Studio Dance
Track & Field (please indicate which)
<input type="checkbox"/> Runner
<input type="checkbox"/> Jumper
<input type="checkbox"/> Pole Vaulter
<input type="checkbox"/> Thrower |
|---|---|

B. Year of Athletic Eligibility: season?

- Freshmen
 Sophomore
 Junior
 Senior
 5th Year Senior

C. Are you currently in your playing/competition

- Yes
 No

D. How would you describe your current playing status?

- Rarely play in games/participate in competitions
 Sometimes play in games/participate in competitions
 Often play in games/participate in competitions
 Starter

E. How many hours per week do you spend in **scheduled** team practices?

- 1-3
 4-7
 8-10
 10+

F. How many **additional** hours do you spend in physical exercise outside of team practices? (e.g., strength and/or cardiovascular training, sport-specific exercises, etc...)

- 1-3
 4-6
 6+

G. How long has your **most severe** athletic injury kept you from participation in your sport?

- < 2 weeks
 2 weeks to 1 month
 1 month to 3 months

_____ 3 months to 6 months
 _____ > 6 months

H. How long ago was your **most recent** athletic injury that kept you from participation in your sport?

_____ < 2 weeks
 _____ 2 weeks to 1 month
 _____ 1 month to 3 months
 _____ 3 months to 6 months
 _____ > 6 months

I. Have you experienced pain or injury during your participation in sport for which you did **NOT** immediately seek assistance? (i.e., You played with it or attempted to “walk it off.”)

_____ Yes
 _____ No

If you checked yes, why did you not report the injury immediately?

J. On a scale of 1 to 10, with 10 being the worst pain you have ever felt in your entire life (or can imagine feeling), how bad does the pain have to get before you seek help for pains and injuries?

(Please circle one number only)

Pain	1	2	3	4	5	6	7	8	9	10	Worst
Free											Pain

K. On a scale of 1 to 10, how high would you rate your pain tolerance?

(Please circle one number only)

Little	1	2	3	4	5	6	7	8	9	10	Extremely
to No											High

L. On a scale of 1 to 10, how likely are you to play through the pain and injury in your sport?

(Please circle one number only)

Never	1	2	3	4	5	6	7	8	9	10	Always
-------	---	---	---	---	---	---	---	---	---	----	--------

M. Rate how strongly you believe others in your sport should play through the pain and injury.

(Please circle one number only)

Never	1	2	3	4	5	6	7	8	9	10	Always
-------	---	---	---	---	---	---	---	---	---	----	--------

N. Please write in your current age: _____

O. Gender:

 Female Male Other: (e.g., trans, genderqueer, etc...) _____

P. Race/Ethnicity:

 African American/Black Asian Native Hawaiian or Pacific Islander Multiracial and/or multiethnic American Indian or Alaskan Native Hispanic/Latino Caucasian/White Other: _____

Q. Family Income:

 < \$20,000 \$20,000-\$40,000 \$40,000-\$60,000 \$60,000-\$80,000 \$80,000-\$100,000 > \$100,000

AIMS

Directions: In the following questions, please circle the answer that best fits for you. Please answer every item, and clearly circle ONE response per statement.

Response Scale: SD = Strongly Disagree
 D = Disagree
 N = Neutral
 A = Agree
 SA = Strongly Agree

	Strongly Disagree				Strongly Agree
1. I consider myself an athlete.	SD	D	N	A	SA
2. I have many goals related to sport.	SD	D	N	A	SA
3. Most of my friends are athletes.	SD	D	N	A	SA
4. Sport is the most important part of my life.	SD	D	N	A	SA
5. I spend more time thinking about sport than anything else.	SD	D	N	A	SA
6. I need to participate in sport to feel good about myself.	SD	D	N	A	SA
7. Other people see me mainly as an athlete.	SD	D	N	A	SA
8. I feel bad about myself when I do poorly in sport.	SD	D	N	A	SA
9. Sport is the only important thing in my life.	SD	D	N	A	SA
10. I would be very depressed if I were injured.	SD	D	N	A	SA

HCA

Directions: In the following questions, please mark the answer that best fits for you. Please answer every item, and clearly mark ONE response per statement.

Response Scale: 1 = Never true of me
 2 = Seldom true of me
 3 = Sometimes true of me
 4 = Often true of me
 5 = Always true of me

- _____ 1. Winning in competition makes me feel more powerful as a person.
- _____ 2. I find myself being competitive in situations that do not call for competition.
- _____ 3. I do not see my opponents in competition as my enemies.
- _____ 4. I compete with others even if they are not competing with me.
- _____ 5. Success in athletic competition does not make me feel superior to others.
- _____ 6. Winning in competition does not give me a greater sense of self-worth.
- _____ 7. When my competitors receive awards for their accomplishments, I feel envy.
- _____ 8. I find myself turning a friendly game or activity into a serious contest or conflict.
- _____ 9. It's a dog-eat-dog world. If you don't get the better of others, they will surely get the better of you.
- _____ 10. I do not mind giving credit to someone for doing something that I could have done just as well or better.
- _____ 11. If I can disturb my opponent in some way in order to get the edge in competition, I will do so.
- _____ 12. I really feel down when I lose in athletic competition.
- _____ 13. Gaining praise from others is not an important reason why I enter competitive situations.
- _____ 14. I like the challenge of getting someone to like me who is already involved with someone else.
- _____ 15. I do not view my relationships in competitive terms.
- _____ 16. It does not bother me to be passed by someone while I am driving on the roads.
- _____ 17. I cannot stand to lose an argument.
- _____ 18. In school, I do not feel superior whenever I do better on tests than other students.
- _____ 19. I feel no need to get even with a person who criticizes or makes me look bad in front of others.
- _____ 20. Losing in competition has little effect on me.
- _____ 21. Failure or loss in competition makes me feel less worthy as a person.
- _____ 22. People who quit during competition are weak.
- _____ 23. Competition inspires me to excel.
- _____ 24. I do not try to win arguments with members of my family.
- _____ 25. I believe that you can be a nice person and still win or be successful in competition.
- _____ 26. I do not find it difficult to be fully satisfied with my performance in a competitive situation.

SIP-15

Directions: In the following questions, please circle the answer that best fits for you. Please answer every item, and clearly circle ONE response per statement.

Response Scale: SD = Strongly Disagree
 D = Disagree
 N = Neutral
 A = Agree
 SA = Strongly Agree

	Strongly Disagree			Strongly Agree	
1. I owe it to myself and those around me to perform even when my pain is bad.	SD	D	N	A	SA
2. When injured, I feel that it's never going to get better.	SD	D	N	A	SA
3. When in pain, I tell myself it doesn't hurt.	SD	D	N	A	SA
4. I seldom or never have dizzy spells or headaches.	SD	D	N	A	SA
5. When I am hurt, I just go on as if nothing happened.	SD	D	N	A	SA
6. When hurt, I worry all the time about whether it will end.	SD	D	N	A	SA
7. When injured, I tell myself to be tough and carry on.	SD	D	N	A	SA
8. Pain from my injuries is awful and I feel overwhelmed.	SD	D	N	A	SA
9. When hurt, I tell myself I can't let the pain stand in the way of what I want to do.	SD	D	N	A	SA
10. I hardly ever notice my heart pounding and I am seldom short of breath.	SD	D	N	A	SA
11. When injured, I just ignore the pain.	SD	D	N	A	SA
12. I can't seem to keep pain out of my mind.	SD	D	N	A	SA
13. I do not allow pain to interfere with my performance.	SD	D	N	A	SA
14. I often worry about being injured.	SD	D	N	A	SA
15. I very seldom have spells of the blues.	SD	D	N	A	SA

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