A PRE-TO-POST EVALUATION OF CHANGES IN COLLEGIATE ATHLETES’ LEVELS OF BURNOUT: RELATIONSHIP TO COACHES’ LEADERSHIP STYLES

by Kathleen Therese Mellano

The purpose of this study was to determine if athletes' levels of burnout change from the beginning to the end of a competitive season. The second purpose was to determine if there is a predictive link between athletes' perceptions of their coaches’ leadership styles and behaviors and changes that occur over the season in athletes’ level of burnout. At two points in their competitive season, 126 collegiate female athletes completed burnout and coaching behavior/feedback measures. Results of repeated measures MANOVAs revealed that global burnout did increase across a season, but sub-dimensionally there was difference. Hierarchical regression analyses revealed overall support for all three regression models (early season burnout measures, perceptions of success, and coaching behaviors). Reduced accomplishment was predicted by all three regression models, while exhaustion and devaluation were only predicted by early season burnout measures and coaching behaviors/feedback. Future directions and limitations of the study are also discussed.
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Chapter One: Introduction

Young athletes dream of one day wearing the colors of their favorite team and playing on the same turf as their collegiate heroes. Being able to consider one’s self a collegiate athlete is a rare opportunity that is sought after by many, but achieved by few. The unfortunate truth is that the opportunities for a position on a collegiate team are less common and more difficult to obtain than hopeful student-athletes would like to believe. The magnitude of youth sport participation in the United States overwhelms the number of student-athletes competing at the university level, but the growth of college sports has also been significant in the last few decades.

There are currently over 500,000 collegiate athletes in the United States (NCAA, 2014). The majority of these athletes are students at universities within the three divisions of the National Collegiate Athletic Association (NCAA). Specifically, there are roughly 460,000 NCAA student-athletes competing in 23 sports in over 1,000 institutions (NCAA, 2014). The gap between men and women’s collegiate sport participation is becoming increasingly smaller, but still imbalanced. In a recent student sponsorship and participation report by the NCAA (2014), it was found that over 260,000 male and 200,000 female athletes participated in the 2012 and 2013 seasons for their respective universities (NCAA, 2014). Further, the National Association for Intercollegiate Athletics (NAIA) is made up of over 60,000 student-athletes from 260 colleges (“About the NAIA”, n.d.). Though these numbers are small in comparison to the number of children and adolescents who participate at the youth sport level, intercollegiate athletes and their associated sports programs do hold a significant place in American culture.

The value of physical activity and sport participation has been explored in a number of diverse populations, including collegiate athletes. Being a student-athlete at a university may appear to be a lifestyle of envy from an outside perspective, but in reality there are both positive and negative outcomes that result from having such a title. Research has shown that sport participation in general may have physiological, psychological, social, and educational benefits and consequences (Chen, Snyder, & Magner, 2010).

Exploring the positive outcomes of this type of sport involvement has yielded a number of core benefits. Specifically, the general positive outcomes include: improving health; obeying the competition or societal rules and constraining delinquent behaviors; promoting societal
values, integrity, and building character; enhancing confidence, motivation, sense of empowerment, and self-esteem; offering opportunities for an education and a career in sports; expanding life experiences and one’s social circle; learning how to deal with failure and difficult situations; and developing life skills (Binde, Taub, & Han, 1993; Coakley, 2007; Eitzen & Sage, 2008; Hudson, 2000; Shaffer, & Wittes, 2006; Woods, 2006; Woodruff & Schallert, 2008 as cited in Chen Snyder, & Magner, 2010). Additionally, some would argue student-athletes’ academic experience is multidimensional due to the tendency to engage in activities on campus more often than non-athletes (Wolniak, Pierson, & Pascarella, 2001). Studies have found these positive outcomes and development of life skills in sport to have lasting effects, impacting the student-athletes’ lives beyond their college years (Gould & Carson, 2008; Spreitzer, 1994).

As detailed in the previous paragraph, there are a number of positive outcomes associated with participation in collegiate sport. Unfortunately, there are also some less than positive outcomes. Similar to the positive outcomes, the more negative ones may also be manifested physically, mentally, and/or socially (Chen et al., 2010). Again, these problems present themselves during the athletes’ competitive collegiate years as well as beyond the time they were considered student-athletes. The amount of control a collegiate coach has not only on his or her athletes’ sports lives but also their social and academic lives is often blamed as the source for negative consequences of being a collegiate athlete. Problems with individual identity, athletic injury, and balancing the demands of strenuous physical training and rigid academic requirements can prove to be a challenge for many college athletes. In addition, a number of addictive behaviors are born out of college sport participation (Bacon & Russell, 2004). For example, student-athletes have been found to be more susceptible to alcohol and substance abuse than their non-athlete counterparts (National Collegiate Association Drug Education Committee, 2001). Additionally, weight control behaviors, excessive exercise, and gambling are common problems experienced by student-athletes (Bacon & Russell, 2004). Sport-related violence like hazing and aggressive behaviors outside of the athletic realm are issues a number of current and former college athletes experience (Hinkle, Smith, & Stellino, 2007; Fields, Collins, & Comstock, 2007).

In terms of collegiate athletes’ cognitive learning ability, academic performance, and graduate rates, studies have found that intercollegiate athletes do not have better grade point averages. Rather, they may have lower outcomes in cognitive learning and lower graduation
rates in comparison to non-athletes (Sander, 2007; Wolniak et al., 2001). In a discussion about counseling for student-athletes, Watson and Kissinger (2007) mention the heightened frequency of psychological issues in such individuals, which reaches about 10 to 15 percent. Finally, a culmination of the challenges faced by student-athletes can result in a phenomenon known as “burnout”. Research has suggested that the pressure to succeed might become debilitating for some athletes and result in a reduction in performance, negative affect, a rigid adherence to intense achievement striving, and harmful self-focused thoughts, all of which could potentially lead to burnout for some athletes (Lemyre, Hall, & Roberts, 2008).

The primary aim or focus of the current study was on the development of a greater understanding of the manifestation of burnout in the unique population of college student-athletes. In particular, this study was designed to examine potential changes in burnout levels that may occur across a competitive season. Additionally, however, the current study also aimed to determine if there was a predictive link between collegiate athletes’ perceptions of their coaches’ leadership styles and behaviors and changes that occur over the season in athletes’ level of burnout. It was hypothesized that collegiate athletes who perceive that their coaches exhibit an autonomy-supportive interactional style and who provide higher levels of training, instructional, encouraging, and supportive behaviors would show lower (or no) increases in burnout levels from early to late season. Correspondingly, it was hypothesized that athletes who perceive that their coaches exhibit a more controlling and autocratic interactional style and/or who provide higher levels of punitive and non-informational feedback behaviors would show increases in burnout levels from early to late season.

To investigate these issues, a longitudinal study design was used. Participants completed questionnaire packets at both the beginning and end of their competitive seasons. These questionnaires were completed by collegiate athletes and measured the athletes’ level of burnout and perceptions of their coach’s leadership style and feedback behaviors. This study was based on Self-Determination Theory (Deci & Ryan, 1985; 2000; Ryan & Deci, 2000) as a means for exploring two distinct forms of coaching that might potentially demonstrate predictive links to athlete burnout. To provide a context for the proposed study, the relevant theoretical and empirical research literature is explored in the following chapter.
Chapter Two: Review of Literature

Burnout exists in a number of sport-related settings, including the collegiate level. The presence of burnout in collegiate athletes and the reasons for its manifestation require further research to better understand the phenomena as a whole. The primary purposes of the current study were to examine potential changes in athlete burnout from the first to the final part of the season, and then to determine if these changes in burnout could be related to the type of leadership styles and behaviors that the athletes perceived their coaches to exhibit.

To provide a basis for this study, the relevant research and theory is reviewed in this chapter. This review begins with an examination of the phenomenon of burnout in collegiate athletes. The second section focuses on the exploration of coaches’ influence on athletes’ psychological well-being. The final part of this review discusses potential links between coaches’ behaviors and athletes’ levels of burnout.

Burnout and College Athletes

Definitions of the Phenomenon of Burnout

Burnout in the sport domain is a term that has been modified from earlier definitions stemming from research in the workplace. Maslach and Jackson’s (1984) research with human service providers led to the understanding of burnout as a psychological syndrome depicted by emotional exhaustion, reduced sense of accomplishment, and depersonalization. As previously mentioned, this definition was constructed around the symptoms of burnout exhibited by those in the human service domain specifically, therefore researchers were cautioned when using the term to assess burnout in other contexts (Maslach & Jackson, 1984). Later, Smith (1986) discussed burnout within sport from a stress perspective and described burnout as a psychological, emotional, and physical withdraw from a formerly pursued and enjoyable activity due to chronic stress or dissatisfaction. This definition required further modification, because it does not differentiate between those who stop their involvement in sport due to burnout or other reasons (Raedeke & Smith 2001). Additionally, this definition inaccurately conceptualizes burnout as a withdrawal-based phenomenon, meaning all those understood to be “burned out” will quit or have quit their sport.

Research applied specifically to athletes building off of Maslach and Jackson’s (1984) burnout work and Smith’s (1986) theoretical discussion of the phenomenon led to the construction of more sport specific definitions. Eades (1990) developed a definition much
broader than Maslach and Jackson’s (1984), which included antecedents and defining features of burnout. Additionally, she constructed a measurement that assessed six factors of athlete burnout (emotional and physical exhaustion, psychological withdrawal, devaluation by coach and teammates, negative self-concept of athletic ability, congruent athlete-coach expectations, personal and athletic accomplishment). Consistency between Eades’ (1990) burnout definition and scale was lacking, therefore they were considered unreliable. Eades was not alone in her attempt to develop a better athlete specific understanding of burnout built from Maslach and Jackson’s (1984) work.

Raedeke (1997) modified Maslach and Jackson’s (1984) definition and applied it to the sport context, which resulted in the removal of depersonalization as a burnout feature for athletes. Specifically, Raedeke (1997) suggested that athlete burnout should be viewed as a syndrome characterized by emotional and physical exhaustion, sport devaluation, and a reduced sense of accomplishment. Emotional/physical exhaustion is associated with the intense demands of training that athletes may need to endure (Raedeke & Smith, 2001). In a study investigating the sources of burnout in golfers, the researchers found emotional and physical exhaustion (i.e. difficulty playing up to one’s standards or parental expectations and too much practice or play) as critical sources of stress and burnout (Cohn, 1990). Sport devaluation refers to when athletes develop a loss of interest, a “don’t care” attitude, or resentment toward performance and the sport (Raedeke, Lunney, & Venables, 2002). Silva’s (1990) investigation of burnout in Atlantic Coast Conference athletes revealed a “lack of caring” as one of the most commonly cited symptoms of burnout. Lastly, reduced sense of accomplishment is understood in terms of athletes’ sport skills and ability and when they are unable to achieve personal goals or they perform below expectations (Raedeke & Smith, 2001; Raedeke, Lunney, & Venables, 2002). A study examining burnout in junior tennis players found a link between unmet expectations, inability to meet goals, and a lack of improvement, success, and talent as contributors to levels of burnout (Gould, Tuffey, Udry, & Loehr, 1996). These three dimensions represent the multidimensional nature of burnout and would later lead to the development of a burnout scale (Raedeke & Smith, 2001).

**Measurement of Burnout**

The most common form of assessment found in the burnout literature utilizes self-report measures (Goodger, Gorely, Lavallee, & Harwood, 2007). The measures that accompanied
burnout definitions were developed and modified as these definitions became more refined. Maslach developed a burnout measure specific to those in the workplace called the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981; Maslach, Jackson, & Leiter, 1996), which was later adapted and made applicable to those who exhibit sport-related burnout symptoms. This measure assesses three dimensions of burnout drawn from Maslach’s definition: exhaustion (“I feel burned out from my work”), cynicism (“I have become less enthusiastic about my work”), and professional efficacy (“I feel confident that I am effective at getting things done”) (Schaufeli, Leiter, Maslach, & Jackson, 1996). Once burnout research began to find its way into athletics, researchers used an adapted version of the MBI. The Maslach Burnout Inventory-General Survey (MBI-GS) is made up of 16 items that assess burnout on the three subscales found in the original MBI (exhaustion, cynicism, and professional efficacy). Participant responses are recorded using a 7-point Likert system. Though the measure has been found to be valid and reliable across a variety of samples (Schutte, Toppinen, Kalimo, & Schaufeli, 2000), the majority of the sport research conducted using the MBI-GS has focused on coaches, athletic directors, and athletic trainers (Capel, 1986; Martin, Kelley, & Eklund, 1999; Vealey, Udry, Zimmerman, & Soliday, 1992). This instrument has also been useful when measuring burnout in unique individuals in the sport context, like sports journalists and sport officials (Taylor, Daniel, Leith, & Burke, 1990).

Eades created a second instrument to measure burnout in athletes known as the Eades Athlete Burnout Inventory (EABI; Eades, 1990). The items for this scale were created from burnout theory, previously published burnout scales, and interviews with “burned out” college athletes (Eades, 1990). This measurement is made of 36 items that assess six symptoms and antecedents of athlete burnout (emotional and physical exhaustion, psychological withdrawal, devaluation by coach and teammates, negative self-concept of athletic ability, congruent athlete-coach expectations, personal and athletic accomplishment). These six components of burnout make up the six subscales of the questionnaire. As previously stated, problems existed between Eades’ definition and scale in terms of the symptoms and antecedents of burnout (Raedeke & Smith, 2001). Conceptual and psychometric limitations exist within this measure, and factor analysis found two of the six dimensions of burnout (athlete-coach expectation and personal/athletic accomplishment) were not reliable (Raedeke & Smith, 2001). Research using the EABI (1990) to assess burnout in tennis players found inconsistencies in the measure.
revealing again that the same two components were not reliable (Gould & Udry, 1996). Additionally, Vealey, Armstrong, and Comar (1998) called for further examination of the psychometric properties of the instrument and development of an alternative measure.

The development of the Athlete Burnout Questionnaire (ABQ; Raedeke, 1997; Raedeke & Smith, 2001) was a result of the inadequacies found in the EABI. The ABQ was a way to quantify Raedeke’s (1997) multidimensional description of athlete burnout (Tenenbaum, Eklund, & Kamata, 2012) and is made up of 15 items and three subscales. The three subscales parallel the components of burnout identified in Raedeke (1997) definition: emotional/physical exhaustion (“I am exhausted by the mental and physical demands of my sport”), reduced sense of accomplishment (“It seems that no matter what I do, I don’t perform as well as I should”), and sport devaluation (“I have negative feelings toward sport”). Athletes’ responses are recorded using a 5-point Likert format. Evidence for construct validity, internal consistency, and test-retest reliability was found in a three-study validation conducted by Raedeke & Smith (2001). Additionally, The ABQ was cross-validated using college athletes from a range of sports to assess generalizability. The specificity of the wording depends on the athletes, and those administering the questionnaire are encouraged to make minor word changes when necessary (replacing sport with swimming). This tactic of exchanging words has shown to be helpful, like in Creswell and Eklund’s (2005) study investigating burnout among amateur New Zealand rugby players when they changed the word sport to rugby. The ABQ has demonstrated construct validity across a number of investigative studies (Cresswell & Eklund, 2007) and continues to be widely used and helpful in pushing athlete burnout research forward.

**Symptoms of Burnout**

The majority of the symptoms that have been identified in the burnout research have been related to the existence of the syndrome in the workplace rather than in the sport context. Nonetheless, these findings are relevant to the collective knowledge of burnout both in and out of the sport domain. Schaufeli and Buunk (2003) outlined five categories of burnout symptoms in a 25-year review of burnout literature, including: affective symptoms (e.g., depression, hostility), physical symptoms (fatigue, chronic illness), behavioral symptoms (e.g., absenteeism, reduced performance, reduced work effort), cognitive symptoms (e.g., cynicism, impaired attention and memory), and motivational symptoms (e.g., loss of enthusiasm). Further, Bursich (1993) also reviewed burnout literature and identified over 130 burnout “symptoms”, which were reduced
and grouped into core symptoms. These include: hyper- or hypoactivity: feelings of helplessness, depression, and exhaustion; inner unrest; reduced self-esteem and demoralization; deteriorating or deteriorated social relationships; some active striving to bring about a change (a characteristic that distinguishes burned-out individuals from people mourning some loss).

Smith (1986) suggested that burnout symptoms present in athletics are manifested physically, emotionally, and behaviorally. Specifically, people suffering from burnout experience low energy, chronic fatigue, tension, and an increased susceptibility to illness. Additionally, it is common for burned out individuals to have feelings of depression, helplessness, and anger. And finally Smith explained behavioral symptoms as a decrease in task efficiency, inconsistent performance, and inappropriate behavior or withdrawal. Smith (1986) refers to these symptoms as a “behavioral rut” where the burned out individual does not have the degree of flexibility needed for effective coping, task performance, or interpersonal functioning. Gould, Tuffy, Udry, and Loehr (1996) conducted a series of studies investigating the presence of burnout in junior tennis player. Interviews with tennis players who reported high levels of athlete burnout revealed a series of common physical and mental symptoms or characteristics. Specifically, these athletes reported experiencing mental symptoms like a lack of motivation, negative feelings/affect (e.g. frustration and being moody and irritable), feelings of isolation (e.g. feelings of embarrassment and/or shame), and concentration problems. Discussion of the physical symptoms in the same study led to the identification of these common symptoms among the tennis players: injury, illness, lack of energy, and fatigue. The consequences of burnout appear to be vast, but there is still insufficient research on these symptoms in the sport-related context.

**Frequency of Burnout in College Athletes**

Much controversy has existed in the field of sport psychology regarding the prevalence of burnout in any elite athlete population (Cresswell & Eklund, 2007). The first issue is that some writers and scholars have suggested that measurement and examination of sport burnout within athlete samples is not really possible because those athletes who experience severe burnout symptoms would no longer be participating in their sport (Gould & Whitley, 2009). However, more current conceptualizations of the burnout construct postulate that athletes cannot and should not be categorized into either a “burned out” or “not burned out” group. Rather, each athlete’s level of burnout can lie on a continuum that is anchored by very high levels of burnout.
at one end and very low levels at the other end. Thus, active athletes can vary from each other in where they lie on the continuum at any particular point in time but can also show variability in their levels across a competitive season. In summary, the phenomenon of burnout is now considered a continuous rather than a categorical variable, and it is or can be measured in relation to this continuum.

Another important point regarding the measurement and examination of the phenomenon of burnout in sport contexts is that individual athlete’s scores on each of the sub-dimensions of burnout can also vary. Thus, one athlete could begin the season high in one dimension but not in the other two. This variability across the subscales or sub-dimensions also makes it difficult to obtain an adequate assessment as to the frequency of burnout among any sample of athletes. In a recent and thorough review of the research on burnout, Cresswell and Eklund (2007) concluded that elite athletes tend to report their mean highest score in the exhaustion dimension (subscale), followed by reduced sense of accomplishment as the second highest score. They, then, tend to show the lowest score on the sport devaluation dimension (Cresswell & Eklund, 2007).

Specific to college athletes, the frequency of high levels of burnout has not yet been determined. According to Raedeke (1997), athletes who report high levels of burnout may be considered those who score at or above the median (a score of 3.0 on a 5-point scale) on the Athlete Burnout Questionnaire. Based on previous cluster analyses (Raedeke, 1997) and frequency distribution of more recent data (Cresswell & Eklund, 2005), one can speculate that roughly six to eleven percent of the athletes surveyed can be categorized as in this “high burnout” grouping.

Very few studies to date have been conducted to examine burnout in college athletes. There are studies that have been done with elite athletes who are in the same general age range as college athletes (Cresswell & Eklund, 2005). Gustafsson and colleagues (Gustafsson, Kentta, Hassmen, & Lundqvist, 2007) conducted a burnout study with 980 older adolescent and young adult elite athletes ranging in age from 17 to 21 years. It was found that between one and nine percent of the female athletes and two to six percent of male athletes reported high levels of burnout. Holmberg and Sheridan (2013) conducted a study with 598 college athletes and found that these athletes scored relatively low on burnout scales. Consistent with comments made by Cresswell and Eklund (2007), these college athletes scored highest on the emotional/physical exhaustion component of burnout. Cresswell and Eklund (2005) conducted a study with 392 elite
amateur New Zealand rugby players and measured burnout in the early part of the competitive year. They found that 19 to 25 percent of the rugby players reported experiencing individual symptoms characterized as high. Of this 19 to 25 percent, roughly six percent of the athletes score high (above three) on all three subscales.

In general, then, the research conducted to date has provided limited information regarding the prevalence and/or frequency of high levels of burnout. In particular, the scarcity of the data obtained from college athletes has made it particularly difficult to estimate how much of a problem burnout may be in this population. Thus, one of the primary purposes of the current study was to provide not only a measure of burnout levels in this group but also to determine whether or not such levels change across a competitive season.

**Factors that Affect Burnout**

A series of studies have focused on identifying antecedents and factors that lead to burnout. Like other research investigating the causes of a particular syndrome, the findings are broad but have significant commonalities. Researchers have identified personality factors that could potentially lead to athlete burnout. Specifically, studies have found that individuals are at higher risk for burnout when exhibiting greater levels of perfectionism and trait anxiety (Hodge, Lonsdale, & Ng, 2008; Vealey et al., 1992). In a study investigating the relationship between hope and burnout in sport, Gustafsson and colleagues (Gustafsson, Hassmen, & Podlog, 2010) found that athletes classified as “low hope athletes” (i.e. those experiencing goal blockage, feelings of frustration, and negative affect) have an increased risk of burnout. Athletic identity has also appeared to be a controversial factor contributing to burnout. Higher athletic identity resulted in higher burnout scores in some studies (Gould et al., 1996; Coakley, 1992), but other research revealed a negative correlation with all three burnout dimensions (Raedeke, 1997). Additionally, those better at coping were able to handle the demands and pressures of sport participation better than those with lower coping abilities (Goodger et al., 2007).

A number of physical and psychological factors have been identified in addition to the previously described personality factors. The influence of overtraining is frequently discussed in research as a possible cause for athlete burnout syndrome and often times incorrectly interpreted as burnout. There have been varied results in that some research studies have found that excessive physical training time can cause burnout (Cohn, 1990; Gould et al., 1996), while others have found that training levels do not predict burnout (Vealey et al, 1992). In an extensive
review of the burnout literature, Goodger & Kentta (2012) concluded that overtraining (especially when combined with no to little recovery time) could lead to mood disturbances, which could, in turn, ultimately lead to higher levels of burnout.

One other dimension of athletes’ psychological profiles that may be linked to burnout is their level and type of motivation. Specifically, motivational styles are understood to exist on a continuum, ranging from intrinsic (self-determined) to extrinsic (less self-determined) forms of motivation. Those athletes who are more intrinsically motivated and experiencing more self-determined forms of motivation exhibit greater control over their behavior and have a greater likelihood of adaptive outcomes. Alternatively, those who are more externally regulated and less self-determined exhibit less control over their behavior and have shown a greater likelihood of maladaptive outcomes, like burnout (Deci & Ryan, 2000; Goodger & Kentta, 2012).

Amotivation, or a lack of motivation, has shown to be positively correlated to burnout. Intrinsic motivation and enjoyment research, on the other hand, suggest a negative correlation to athlete burnout. Understanding an athlete’s achievement motivation and the meaning he or she places on success can also be valuable when exploring his or her susceptibility to burnout (Goodger & Kentta, 2012). Lemyre et al (2008) argue that an athlete’s achievement motivation, if maladaptive (i.e. high ego and low task orientation), can make an athlete more vulnerable to burnout.

Finally, research has shown that significant others (teammates, friends, parents, and coaches) can have an influential effect on the degree to which athletes experience burnout in their sport. Research with youth athletes has found that a feeling of dissatisfaction with those involved in the athletes’ sport experience is a main source of burnout. Athletes often cite low social support and constant pressure to perform from their significant others as critical contributors to their perceptions of burnout (Goodger et al., 2007). Further, research with young athletes has shown that difficulties with parents and coaches and interpersonal conflict with peers/teammates contribute to increased burnout levels (Raedeke, 1986). According to Gould and colleagues (1996), coaches can contribute potential stressors like unrealistic expectations, criticism, pressure to perform and negatively influence an athletes’ level of burnout. A negative-coach athlete relationship and particular coaching behaviors puts athletes at a higher risk to experience burnout (Raedeke & Smith, 2001). Specifically, Quested and Duda (2011) suggest that dancers’ burnout risk is exacerbated when teachers do not foster and sustain an autonomy
supportive learning environment. Furthermore, Raedeke (1997) suggests that a rigid and controlling sport context is a determinant of burnout propensity.

In general, then, the research to date has provided information regarding a number of physical, physiological, psychological, and sociocultural factors that may serve as predictors of increasing levels of burnout in athletes. This particular research project focused specifically on the role that coaches may play in the development of burnout levels in their athletes across a competitive season. To provide a basis for the argument that coaches’ behaviors may be an important element, the current theoretical and empirical literature on this topic is reviewed in the following sections.

Coaches' Influence on College Athletes’ Psychological Well-Being

General Overview of Research

Over the past few decades, the research on coaching behaviors has revolved around the identification of particular coaching characteristics, competencies, cognitions, practice strategies, and techniques, leadership styles, and behavioral patterns that are most effective. Within this area of research, successful coaching techniques are commonly identified as those that are the most likely to have positive impacts on athletes' performance and/or psychosocial well-being (Horn, 2008). In her review of the research on coach effectiveness, Horn provides a summary list of coaching behaviors and styles consistently found to be facilitative to athlete psychological growth and development. These effective behaviors and leadership styles include: high frequency of training and instructional behavior, high level of social support and positive feedback, democratic or autonomy-supportive leadership style, creation of a mastery oriented motivational climate, provision of positive, supportive, and informationally based feedback in response to athletes’ performance successes and failures. Ineffective or detrimental coaching behaviors were also identified and include: ignoring athletes’ skill errors, high frequency of punishment-oriented feedback (especially feedback not accompanied by skill-relevant information), autocratic or controlling leadership style, creation of a performance-oriented motivational climate, and failure to recognize or respond to athletes’ performance successes (Horn, 2008, p. 264).

Theories of Coaching Effectiveness

Coaching effectiveness has been defined as the extent to which coaches can implement their knowledge and skills to positively affect the learning and performance of their athletes.
The effective and ineffective behaviors and styles used by coaches and leaders have been studied across domains. Leadership and coaching effectiveness theories have developed and built upon one another as the research continues. Specifically, the Multidimensional Model of Leadership (Chelladurai, 1978, 1990, 2007), Mediational Model of Leadership (Smoll & Smith, 1989), Motivational Model of the Coach-Athlete Relationship (Mageau & Vallerand, 2003), and the Working Model of Coaching Effectiveness (Horn, 2008) are discussed further.

Chelladurai’s multidimensional model of leadership (1978, 1990, 2007) suggests that effective leadership can be measured by performance outcomes and member satisfaction. Three aspects of leadership behavior are broken down within the model: the actual behavior exhibited by the coach (based on his or her personality characteristics), the athlete preferred type of leadership behavior (based on characteristics of athletes themselves and factors within the situation), and the type of leadership behavior appropriate to or required in that situational context (determined by the characteristics of the athlete/team and certain aspects of the particular sport). According to this model, athletes will perform optimally and have maximum satisfaction if the coach behaves in a way that is congruent with the leadership behaviors that the athletes prefer their coaches to exhibit and with the behaviors required by or appropriate to the particular sport situation (Horn, 2008). Research using the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980) states that athlete satisfaction is positively associated with democratic leadership style and high frequencies of social support, positive feedback, and training and instruction. In contrast, lower levels of satisfaction were associated with autocratic leadership style (Chelladurai & Riemer, 1998).

Smoll and Smith’s (1989) mediational model of leadership explains the importance of the relationship among situational, cognitive, behavioral, and individual difference factors when evaluating leadership effectiveness. Smith and Smoll suggest that “a truly comprehensive model of leadership requires that consideration be given not only to situational factors and overt behaviors, but also the cognitive processes and individual difference variables which mediates relationships between antecedents, leader behaviors, and outcomes” (Smoll & Smith, 1989, p. 1532). Application of this model to the sport context would again suggest that athletes’ perceptions of their coaches’ behaviors plays a central role in this theory of coaching effectiveness. More specifically, a coach behaves in a certain manner and the athlete perceives
the behavior a certain way, which results in an individualized interpretation and evaluation of the coach’s behavior on part of the athlete. Personal characteristics of and situational factors influence the coaches’ behaviors as well as how the athletes interpret those behaviors.

Mageau and Vallerand (2003) developed another model of coaching effectiveness concerned specifically with democratic and autocratic behaviors. This model begins with the notion that the degree to which the coach employs or exhibits autonomy-supportive behaviors toward his or her athletes is determined by three factors: coach’s personal orientation, coaching context, and coach’s perceptions of the athletes’ behavior and motivation. Based on this model, coaching behavior that provides both support and structure for the athletes will affect the athletes’ feelings of competence, autonomy, and relatedness. The coach’s personal orientation, the coaching context, and the athletes’ behavior and motivation are the variables found to influence the coach-athlete relationship according to Mageau and Vallerand (2003).

Horn (2008) recently proposed a more comprehensive working model of coaching effectiveness that draws from all the previously described theories. Her model identifies factors contributing to the coach’s behaviors in a particular situation: sociocultural context, organizational climate, and coaches’ personal characteristics. The theory suggests the coaches’ expectancies, values, beliefs, and goals may facilitate the coaching behaviors exhibited. Athletes’ performance and behavior are affected both directly and indirectly by their coaches’ behaviors according to this model. Not only is the athletes’ performance and behavior influenced by the coach, but also his or her self-perceptions, beliefs, attitudes, and level and type of motivation. Again, the athletes’ individualized interpretations of their coach’s actions have a central role when understanding leadership effectiveness. These perceptions are influenced by the athletes’ personal characteristics. The models for coaching or leadership effectiveness presented here collectively indicate that no one method or approach to coaching is best, but rather effective coaching depends on the individual athlete and context.

As noted in several recent reviews of the research on the topic of coaching effectiveness (e.g., Amorose, 2007; Chelladurai, 2012; Langan, Blake, & Lonsdale, 2013; Horn, 2008), there is substantial evidence to show that coaches’ leadership styles, behaviors, and attitudes do have an impact on the psychosocial well-being of their athletes (e.g., self-perceptions, level and type of motivation, goal orientation, competitive anxiety, perceived quality of life). Furthermore, this impact is evident at all levels of play (recreational and competitive) as well as at all
developmental ages/stages. One dimension of athletes’ psychosocial well-being that has received somewhat limited research attention in relation to coaching behavior is burnout. Although previous research (Gould et al., 1996) has shown that athletes do perceive their coaches’ attitudes and behaviors (along with those of other significant individuals such as parents, peers, and teammates) to be related to their levels of burnout, relatively few studies have been focused particularly on the identification of specific coaching leadership styles or behaviors that may be most important in relation to athletes’ burnout levels, especially as those levels may change over the course of a competitive season. The current study was designed to fill that gap. In particular, this study was based on Self-Determination Theory.

**Self-Determination Theory**

Self-Determination Theory (SDT; Deci & Ryan, 1985; 2000; Ryan & Deci, 2000) can be used as a psychological lens to examine the antecedents and predictors of athlete burnout. SDT is an “empirically derived theory of human motivation and personality in social contexts that differentiates motivation in terms of being autonomous and controlled” (Deci & Ryan, 2011, p. 416). According to the SDT, there are three basic or universal psychological needs that must be fulfilled in order for individuals to experience optimal well-being (Ryan & Deci, 2002), including feelings of competence, autonomy, and relatedness. In the athletic context, competence refers to a feeling that one has the ability and the opportunity to be effective in one’s sport (Isoard-Gautheur Guillet-Descas & Lemyre, 2012). Autonomy is a perception of choice and self-directedness one has when making decisions and performing actions (Isoard-Gautheur et al., 2012; Decharms, 1968). Relatedness is simply defined by a sense of belonging to a group and the feeling of being connected to significant others, like teammates and coaches (Baumeister & Leary, 1995). Individuals’ motivations and behaviors can be controlled based on the satisfaction or dissatisfaction of these three inherent needs. Deci and Ryan (2011) explain intrinsic motivation as an inherent characteristic, which can be undermined or enhanced whether the social context supports or stifles an individual’s basic human needs.

The previously described definition of Self-Determination Theory mentions motivation as autonomous and/or controlled (Deci & Ryan, 2011). Applying this understanding to the sport context specifically suggests two distinct forms of coaching that could potentially influence the athletes’ motivation and fulfillment of their basic psychological needs. First, coaches are believed to be “autonomy-supportive” when they are perceived as explaining and justifying their
decisions, encouraging individuals to participate in decisions, providing appropriate information, and minimizing external pressures and demands (Bartholomew, Ntoumanis, & Thogersen-Ntoumani, 2010). Additionally, they provide opportunities for choice by the athletes, recognize the feelings and experiences of their athletes, and minimize the use of pressures and demands (Black & Deci, 2000). The second coaching style is known as a “controlling interpersonal style”. These coaches behave in a coercive, pressuring, and authoritarian way to impose a specific and preconceived way of thinking and behaving upon their athletes (Deci & Ryan, 1985). Under the guidance of a “controlling” coach, athletes do not feel autonomous toward making sport related choices (Bartholomew et al., 2010).

Self-Determination Theory (Deci & Ryan, 1985; 2000; Ryan & Deci, 2000) has been used to examine the impact of autonomy-supportive versus controlling coaching interactional styles and behaviors on various dimensions of athletes’ psychosocial well-being (see recent reviews by Amorose, 2007 and Bartholomew et al., 2009). Because the current project focused on the link between SDT-related coaching behaviors and athletes’ levels of burnout, the relatively few studies that have been conducted on this topic are reviewed in the following section.

The Relationship Between Coaches’ Behaviors and Athletes’ Level of Burnout

Although most of the studies that have been conducted on this topic were descriptive in nature, a few have examined the relationship between coaches’ behaviors and athletes’ levels of burnout using a more longitudinal approach. The descriptive studies are reviewed first, followed by the longitudinal ones.

One of the earliest studies in this area was conducted by Vealey, Armstrong, & Comar (1998) to explore athlete burnout, competitive anxiety, and coaching behaviors. Specifically, the researchers had two purposes. The first aim of the study was to examine the relationship between levels of burnout and anxiety in collegiate athletes and the athletes’ perception of the coaching behavior of their respective coaches. The secondary purposes of the study included: a) investigating how coaches’ level of burnout is related to perceived coaching behaviors; and b) examining the link between athletes’ levels of burnout and competitive anxiety. The participants included 149 female collegiate athletes and 12 college coaches from basketball and softball teams (64 basketball players/7 basketball coaches and 85 softball players/5 softball coaches). These athletes and coaches represented Division I, Division II, and Division III universities.
Vealey and her colleagues (1998) administered surveys to coaches and athletes to assess the psychological constructs of interest. The athletes in the study completed four inventories. The Eades Athlete Burnout Inventory (EABI; Eades, 1992) measured six dimensions of burnout including: negative self-concept of athletic ability, emotional and physical exhaustion, psychological withdrawal, devaluation by coach and teammates, congruent athlete-coach expectations, and accomplishment. The Sport Anxiety Scale (SAS; Smith, Smoll, & Schutz, 1990) was used to measure multidimensional competitive trait anxiety. The SAS is made up of three subscales, including: worry, somatic anxiety, and concentration disruption. The third scale, the Relationship Inventory (RI; Barrett-Lennard, 1962), measured the athletes’ perceptions of the amount of empathy they received from their coaches. Lastly, the Coaching Behavior Inventory (CBHI; Vealey, Chabot, Walter, & Strait, 1996) was used to examine the athletes’ perceptions of five coaching behaviors, including: use of praise, use of dispraise, emphasis on winning, autocratic style, and empathy. The coaches in the study only completed two inventories, the Interpersonal Communication Inventory (ICI; Bienvenue, 1971) and the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981). The ICI is a 40-item scale used to measure the coaches’ perceptions of their interpersonal communication ability. The coaches’ level of burnout was measured using the MBI with altered wording to make the inventory appropriate for coaches.

Although Vealey et al. (1998) addressed a number of questions in their study, only the results relevant to the current study are presented here. First of all, their results indicated that athlete' level of burnout was best predicted by the degree to which they perceived their coaches to exhibit empathy toward them. However, other dimensions of perceived coaching behavior were also significant predictors of athletes' burnout levels. These coaching behaviors included praise and use of an autocratic coaching style. The second relationship examined was the influence of coach burnout on athletes’ perceptions of coaching behavior. Personal accomplishment was most highly related to perceived coaching behaviors. Furthermore, a positive relationship was found between coaches’ personal accomplishment and effective communication, use of praise, and empathy. In contrast, a negative relationship between personal accomplishment and dispraise and autocratic coaching style was found. These two coaching behaviors, dispraise and autocratic coaching style, were positively related to coaches’ emotional exhaustion and depersonalization. The relationship between athlete anxiety and athlete burnout
was also explored, and it was found that all three dimensions of competitive trait anxiety predicted athlete burnout. Overall, then, the results of the Vealey et al. (1998) study revealed that athletes’ perceptions of their coaches’ behaviors did predict the athletes’ level of burnout.

Price and Weiss also conducted a study within this area (2000), with the purpose of examining the relationship among coach burnout, coach behaviors, and athletes’ psychological well-being. Chelladurai’s (1980, 1990) model of leadership was used as a framework for the study design. Study participants included 193 female high school soccer players and 15 head coaches. The athletes ranged in age from 14 to 18 years, and had an average of two years experience playing soccer at the varsity level and one to two years playing under their current head coach. Ten male coaches and five female coaches who ranged in experience from 2 to 25 years served as study participants. The range of winning percentage for these coaches was 0% to 95%.

Price and Weiss (2000) administered a number of self-report questionnaires to the athletes at the end of the season to measure their levels of enjoyment, anxiety, perceived competence and burnout but also to measure their perceptions of their coaches’ behaviors. Coaches’ completed burnout questionnaires. Player questionnaires included: (a) a 3-item scale measuring athlete level of enjoyment; (b) the Sport Anxiety Scale (SAS; Smith et al., 1990); (c) a 5-item scale that was adapted from the athletic subscale of the Adolescent Self Perception Profile (Harter, 1988), to measure perceived soccer competence; (d) a three-subscale questionnaire to measure the three dimensions of burnout: emotional/physical exhaustion, sport devaluation, and reduced athletic accomplishment; and (e) the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980) which measured the athletes’ perceptions of their coach’s behaviors along five dimensions: training and instruction, positive feedback, social support, democratic decisions, and autocratic decisions. Finally, the coaches’ levels of burnout and behaviors were also measured using the Maslach Burnout Inventory for educational populations (MBI; Maslach & Jackson, 1986)

To analyze the obtained data, Price and Weiss (2000) used three separate one-way multivariate analyses of variance (MANOVAs) to determine whether coaches with varying levels of burnout exhibit different behaviors as perceived by their athletes. Of the five dimensions previously mentioned, only emotional exhaustion appeared to have a significant relationship to coaching behaviors. Coaches who reported high levels of emotional exhaustion
were found to make more democratic decisions, but less training and instruction, autocratic decisions, and social support. The next phase of analysis used athletes' perceptions of their coaches’ behaviors as predictor variables and athletes’ psychological outcomes as dependent variables in order to explore the predictive relationship between coach behaviors and their athletes’ psychological responses. The findings suggest that coaches who exhibit high levels of an autocratic style (and lower levels of a democratic style) and who give less training and instructional behavior, provide less social support, and less positive feedback are more apt to have athletes who reported higher levels of negative psychological responses, including anxiety, burnout, lower levels of enjoyment, and perceived confidence.

In general, then, the results of this study (Price & Weiss, 2000) showed that coaches who are experiencing higher levels of burnout are likely providing less training and instruction, less structure to practice overall, and lower levels of difficulty. Additionally, they appeared to show less concern for their athletes. The second main finding of the study showed that coaches’ leadership styles and behaviors did impact on their athletes' self-perceptions and level of burnout. Specifically, athletes who played for coaches that were high in training and instructional behaviors, gave positively-oriented feedback, exhibited a democratic leadership style and were high in social support showed lower levels of burnout than did athletes who played for coaches that used an autocratic leadership style and did not provide high levels of training, instructional, and positive behaviors.

A study conducted by Reinboth and Duda (2004) examined the relationship between perceived motivational climate and perceptions of competence in male athletes. A total of 265 adolescent male soccer and cricket players participated in the study. These participants were recruited from regional club and school teams. The mean age of the participants was 16.44 years and 70 percent claimed to have at least five years of experience in their respective sports. Additionally, over half of the participants had played for their current coach for more than one year.

Self-report questionnaires were used in this study (Reinboth & Duda, 2004) to measure athletes' perceptions of their team's motivational climate as well as their own perceptions of competence, self-esteem, and self worth. Additional questions assessed the degree of emotional/physical exhaustion, and signs of physical symptoms that athletes may have experienced in the last two weeks. The first instrument used in the study was the Perceived
Motivational Climate in Sport Questionnaire-2 (PMCSQ-2; Newton, Duda, & Yin, 2000). This measured the athletes’ perception of their team’s motivational climate and to what degree it is classified as either task or ego oriented. Perceived soccer ability was measured using the perceived competence 5-item subscale of the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989). The athletes’ well-being/ill-being was measured using instruments that measured self-esteem, contingent self-worth, emotional/physical exhaustion, and physical symptoms. Ten items were drawn from the General Self subscale from the SDQ II (Marsh, Parker, & Barnes, 1985). The six-item Contingent Self-worth in Sport Scale (Reinboth & Duda, 2003) was used to measure the degree to which athletes base their self worth in their performance. Emotional/physical exhaustion was measured using 5-items from the emotional/physical exhaustion subscale of the Athlete Burnout Measure (ABM; Raedeke & Smith, 2001). Lastly, the athletes’ physical symptoms from the past two weeks were measured using a checklist with nine symptom categories (Emmons, 1991).

Analysis of the coach-initiated climate data collected from this survey study (Reinboth & Duda, 2004) revealed that a task-involving climate was significantly and positively correlated with perceived competence, self-esteem, and negatively correlated with physical symptoms. In contrast, an ego-involving climate was found to be significantly and positively correlated with emotional/physical exhaustion, and physical symptoms. Though these correlations were significant, they do not infer causation. As a follow-up analyses, hierarchical regression analyses were used, and the results showed that athletes who perceived that their coaches created an ego-involving climate scored higher on physical exhaustion and indicated more negative physical symptoms. Although this study did not directly assess athletes' level of burnout, both of the physical exhaustion and physical symptoms outcome variables are part of the syndrome known as sport burnout. Thus, the results of this study do lend support to the idea that coaches' behaviors and leadership styles may have a significant impact on athletes' levels of burnout.

Perrault and colleagues (Perrault, Gaudreau, Lapointe, & Lacroix, 2007) conducted a study that examined athlete need satisfaction and burnout in high school athletes. First, Perrault tested the prediction that needs satisfaction would be significantly and negatively associated with ill-being. The second purpose was to determine if the balance of needs satisfaction would be associated with burnout over and above the level of satisfaction on autonomy, relatedness, and competence. The student-athletes who participated in the current study were recruited from a
high school in Quebec, Canada. A total of 259 (190 males and 69 females) individuals from a variety of individual and team sports participated in the study. The average age of the participants was 14.8 years old, and the average playing experience in their respective sports was 7.2 years.

Self-report instruments were used in this study to measure basic needs satisfaction and burnout. To assess the degree to which athletes perceived that their basic needs were being met, three separate scales were used. Autonomy was measured by using a four-item scale. Competence, like autonomy, was tested on a four-item scale as well. Five items from the acceptance subscale of the Need for Relatedness Scale (Richer & Vallerand, 1998) were used to test the athlete’s perceived relatedness to their coach. All three basic needs scales required the participants to record their responses on a 7-point Likert Scale. In order to measure the athlete’s burnout levels, the researchers used a French version of the Athlete Burnout Questionnaire (ABQ). This 15-item scale is made up of three subscales measuring reduced sense of accomplishment, sport devaluation, and emotional and physical exhaustion. Responses were recorded on a 5-point Likert Scale.

The results of the Perrault et al. (2007) study revealed significant correlations between athletes' levels of burnout and their perception that their basic needs (perceptions of autonomy, competence, and relatedness) were being satisfied in their sport setting. Consistent with previous research, needs satisfaction was negatively correlated with total burnout and with all three sub-components of burnout. Thus, these results support the idea that athletes' burnout levels are lower if their sport environment is structured in such a way that their basic needs for autonomy, competence, and relatedness are being met. Interestingly, when the three basic needs were analyzed separately, the results indicated that burnout was most highly predicted by the athletes’ perceptions of relatedness to their coaches. Thus, for athletes from this sport and this age group, it appears that the coach-athlete relationship may be particularly important for prevention of burnout.

In 2008, Hodge and colleagues (Hodge et al., 2008) conducted a study that was designed to gain an understanding of the antecedents of burnout in junior elite rugby players using self-determination theory (Deci & Ryan, 2002) as a framework. The participants included 133 male rugby players from 11 New Zealand Rugby Union player development academies. The mean age
of the participants was 19.7 years, and over half of the players (59.5%) had represented New Zealand’s national team at their respective age-level and/or their province at the senior level.

The researchers (Hodge et al., 2008) administered questionnaires measuring athletes' levels of burnout as well as their perceptions as to whether their basic psychological needs were being met within their sport environment. Specifically, Hodge and colleagues used the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) as well as a modified basic needs measure.

To analyze their data, Hodge et al. (2008) used a variety of multivariate procedures. Their overall results indicated that the elite rugby players exhibited low to moderate levels of exhaustion, devaluation, and reduced sense of accomplishment as well as moderate to high levels of autonomy, competence, and relatedness. However, further analysis revealed that players who perceived a lack of basic needs fulfillment within their sport environment also reported higher levels of sport devaluation and a reduced sense of accomplishment. In a separate analysis, players were grouped into high or low burnout groups as based on their scores from the burnout scale. Comparison of these two groups indicated that the high burnout athletes scored lower on both the autonomy and competence scores than did the low burnout athletes. No group differences were found on the relatedness scale. These results, then, verify that the sport environment created by a team coach is important to (or predictive of) athletes' levels of burnout. Specifically, if athletes do not perceive that their basic needs for competence and autonomy are being met, then they may be at risk of higher levels of burnout.

More recently, Altahayneh (2013) conducted a study that explored the relationship between coaches’ leadership behaviors and level of burnout experienced by college athletes in Jordan. A total of 162 participants (93 males and 69 females) were used in the current study. All of the participants were collegiate athletes who spent a minimum of 11 hours a week participating in their respective sports. Data collection processes involved the distribution of self-report questionnaire packets to the athletes. Both the Leadership Scale for Sports (LSS; Chelladuri & Saleh, 1980) and the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) were translated from English to Arabic for this study.

Altahayneh (2013)'s analysis of the data revealed a significant relationship between the coaches’ leadership styles and behaviors and the athletes’ level of burnout. More specifically, a negative and moderate to high relationship between all athlete burnout variables and coaches’
leadership behavior of training and instruction, democratic behavior, social support, and positive feedback was found. Alternatively, a significant positive relationship was identified between coaches’ autocratic behavior and the three variables of athlete burnout. Further analysis of these significant relationships was completed using the five dimensions of coaching leadership behavior as predictor variables. The three components of burnout were used as dependent variables in separate linear regression analyses. The findings indicate that athlete burnout was most significantly predicted by the training and instruction behavior. Additionally, coaches’ autocratic behaviors significantly predicted the athlete burnout variables of devaluation and emotional/physical exhaustion.

The overall findings (Altahayneh, 2013), then, clearly support the idea that athletes who recorded higher scores on burnout dimensions appeared to view their coaches as more autocratic, providing less training and instruction, less social support, and less feedback. The training and instruction behavior as well as the autocratic behavior demonstrated the greatest relationship and impact on athlete burnout variables.

As is evident from the results of the six studies reviewed in the previous paragraphs, coaches’ behaviors are linked to their athletes’ well-being. In particular, a coaching style that is autonomy-supportive seems to be correlated with, or linked to, fulfillment of athletes’ basic psychological needs. Furthermore, coaches who create an environment in which athletes' basic psychological needs for autonomy, competence, and relatedness are met may be preventing the development of high levels of burnout in their athletes. In contrast, an autocratic leadership style has been linked to higher levels of athlete burnout.

The six studies that were described in the previous paragraphs were all conducted using descriptive research approach. Thus, they provide correlational support for the connection between coaches' behaviors and athletes' levels of burnout. Within the past few years, some longitudinal studies have been conducted to examine the effects of different types of coaching behaviors on changes that may occur over the season in athletes’ levels of burnout. These studies are described in the following paragraphs.

Isoard-Gautheur and colleagues (Isoard-Gautheur, Guillet-Descas, & Lemyre, 2012) investigated the antecedents of athlete burnout by conducting a longitudinal investigation of the relationships between coaching style, fundamental needs, and self-determination motivation. Five hundred and fourteen French youth handball players from elite training centers were
initially approached for the study and completed a first set of questionnaires two months into their season. A corresponding second set of questionnaires was collected at the end of the season. Only 309 (152 males and 157 females) participated in this second collection phase, and thus the final study sample included only these individuals. The mean age was 15.4 years old, and on average they had 6.8 years of handball playing experience. The majority of the players (62%) were competing at a national level and the remaining 38% competed at the regional level.

Isoard-Gautheur et al. (2012) used a series of French-validated questionnaires to measure athletes' perceptions of their coaches' leadership style as well as the athletes' own perceptions of competence, autonomy, relatedness, motivation, and burnout. As noted previously, the athletes completed their questionnaires at two timepoints. The first occurred two months into their season (November), and the second took place toward the end of their competitive season (six months following the first collection). Perceived coaching style was measured using the Interpersonal Behavior Scale (Otis & Pelletier, 2000). This 8-item scale measures both autonomy supportive and controlling coaching style. Investigating the athletes’ competence involved the use of the Perceived Competence in Life Domains Scale (PCLDS; Losier, Vallerand, & Blais, 1993). Three items adapted from the Perceived Autonomy Toward Life Domains Scale (PALDS; Blais, Vallerand, & Lachance, 1990) were used to measure the handball players’ perceived level of autonomy. Questions adapted from the Feelings of Relatedness Scale (FRS; Richer & Vallerand, 1998) measured the players’ perceived relatedness. French version of the Sport Motivation Scale (EMS; Briere, Vallerand, Blais & Pelletier, 1995) measured the participants’ motivation toward handball. The 28-item scale measured amotivation, intrinsic, and extrinsic motivation types. The final questionnaire measured the athletes’ burnout using the French version of the Athlete Burnout Questionnaire (Questionnaire du Burnout Sportif; QBS; Isoard-Gautheur, Oger, Guillet & Martin-Krumm, 2010).

The researchers (Isoard-Gautheur et al., 2012) used structural equation modeling procedures to examine the relationships between perceived coaching style, need satisfaction, motivation, and burnout. As expected, the results revealed that a controlling coaching style was negatively related to athletes' perceptions of autonomy while an autonomy-supportive coaching style was positively linked to athletes' feelings of autonomy and competence. The relationship between motivation and burnout showed a positive relationship between amotivation and devaluation of sport and a negative relationship between intrinsic motivation and a reduced sense
of accomplishment. Tests of mediation revealed that autonomy, competence, and intrinsic motivation partially mediated the relationship between autonomy supportive coaching style and reduced sense of accomplishment. In short, an autonomy-supportive coaching style was linked to higher levels of perceived autonomy, competence, and intrinsic motivation in athletes. These positive self-perceptions, in turn, predicted lower levels of burnout.

In general, then, this study (Isoard-Gautheur et al., 2012) showed that coaching style is significantly related to athletes’ psychological needs satisfaction. Additional results concerning athletes’ burnout levels revealed an increase throughout the season. More specifically, 47.25% of the athletes’ burnout scores in all three dimensions increased. The research findings suggest coaches should pay closer attention to both their individual coaching style and the satisfaction of their athletes psychological needs. In fact, gearing their coaching style toward more autonomy supportive, will likely result in a more positive athlete well-being and a greater chance of their players’ basic needs being satisfied. This, will, in turn, potentially reduce the risk of burnout.

Lemyre and colleagues (2008) also conducted a longitudinal study that investigated the relationship between athlete burnout and social cognitive motivational variables at the start and finish of an athletic season. One hundred and forty one Olympic and junior elite athletes from national sport academies in Norway served as the participants in the current study. Eighty-one males and 60 females, who averaged 20.1 years of age, represented the group of participants. More than 50 percent of the athletes had previous World Cup or World Championship experience. The athletes were selected from five popular winter sports, including: Nordic skiing, alpine skiing, biathlon, speed skating, and the combined.

Lemyre et al. (2008) used a longitudinal approach involving the administration of questionnaires at two timepoints to measure athletes’ achievement goals, perceived motivational climate, perceived ability, perfectionism, burnout, and cognitive appraisal. The first collection phase occurred over a three week time period where the researchers traveled to training centers to discuss the project and administer pre-season questionnaires. The second phase of collection differed from the first in that the researchers did not distribute the questionnaire packets in person, rather they were sent by mail to the athletes’ homes during the last two weeks of the training season. The mailed questionnaires investigated the athletes’ cognitive appraisal of goal attainment and success, as well as symptoms of overtraining and signs of burnout. A total of 141 of the 211 questionnaires were returned to the researchers.
All of the measures for the current study (Lemyre et al., 2008) were translated to Norwegian versions. In order to measure achievement goals, the 12-item Perception of Success Questionnaire (POSQ; Roberts et al., 1998) was used. It classified the athletes’ tendency toward either task or ego-oriented goals. The 21-item Perceived Motivational Climate in Sport Questionnaire (PMCSQ; Seifriz et al., 1992) measured the performance and mastery-oriented climates. The participants’ perceptions of ability were measured using the perception of ability subscale of the Intrinsic Motivation Inventory (IMI; McAuley et al., 1989). The Multidimensional Perfectionism Scale (MPS; Frost et al., 1990) measured athletes’ perfectionism dispositions. This 29-item scale measures five dimensions of perfectionism including: personal standards, concern over mistakes, doubts about actions, parental expectations, and parental criticism. Athlete level of burnout was measured using Raedeke & Smith’s (2001) Athlete Burnout Questionnaire. Finally, cognitive appraisal was assessed by asking participants to reflect on their goal attainment and personal performance satisfaction at the end of the season. All measures utilized a 5-point Likert scale participant response recording system.

The results from this study (Lemyre et al., 2008) revealed that the participants reported high levels of task orientation, high levels of ego orientation, moderate to high levels of a perceived mastery climate, moderate levels of a perceived performance-oriented climate and moderate to high levels of perceived ability. Perfectionism and burnout means were categorized as moderate. Goal attainment and performance satisfaction demonstrated moderate negative relationships with all three dimensions of burnout. The three dimensions of burnout were positively associated with a performance climate, concern about mistakes, doubts about action and parental criticism, and negatively associated with a task orientation, a mastery climate and perceived ability. Cluster analysis found that two distinct groups existed among the participants, adaptive and maladaptive motivation profiles. Specifically, those classified as having a maladaptive profile scored higher on all three dimensions of burnout.

The overall findings of this study (Lemyre et al., 2008) showed that burnout was consistently associated with achievement climate, perceived ability, and perfectionism. Specifically, risk of burnout increases when athletes’ dispositional perfectionism encourages evaluation of self worth through achievement. Additionally, burnout risk rises when the athletes perceive that their coach creates a climate that places high emphasis on demonstration of ability rather than an emphasis on mastery and improvement.
Isoard-Gautheur, Guillet-Descas, and Duda (2013) conducted a study to explore how athletes achieve at the elite level without experience burnout. The primary purpose of the study was to examine the relationship between athletes' perceptions of the coach-created climate and athletes' own levels of perceived competence, achievement goals (approach/avoidance mastery/performance), and burnout. The secondary purpose of the study was to explore links between burnout profiles and motivational constructs embedded in achievement goal theory. A total of 309 elite youth French handball players participated in the study (152 males and 157 females). The average age of these athletes was 15.4 years and the mean handball experience was 6.8 years. Training at the elite centers averaged 11 hours per week for the athletes in the study.

Participants in this study (Isoard-Gautheur et al., 2013) completed questionnaire packets twice. Collection was initially done during the earlier part of the season (November) and again toward the end of the season (April). Data analysis involved the clustering of groups based on their burnout profile. The four groups included those who were “lower burnout” (Cluster 1), “higher exhaustion (Cluster 2), “higher sense of reduced accomplishment” (Cluster 3), and “higher devaluation and reduced sense of accomplishment” (Cluster 4).

The researchers (Isoard-Gautheur et al., 2013) used valid French versions of English inventories or already existing French inventories. A 5-point Likert Scale was used to record participants’ responses to the following inventories. The first scale made up of 8 items was an adaption of the Questionnaire of the Roles of Significant Others (LeBars et al., 2006), which measured perceptions of an ego involving coach climate and perceptions of a task involving coach climate. The second inventory was an adapted 4-item version of the Perceived Competence in Life Domains Scale (PCLDS; Losier et al., 1993). In order measure the athletes’ achievement goals, the Approach and Avoidance Questionnaire for Sport and Physical Education Setting (AAQSPE; Schiano-Lomoriello, Cury, & Da Fonséca, 2005) was used. Twelve items in total measured four categories of the achievement goals: mastery approach goals (MApG), mastery avoidance goals (MAvG), performance approach goals (PApG), and performance avoidance goals (PAvG). The final scale was the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001).

Results from the data analyses (Isoard-Gautheur et al., 2013) revealed high scores for perceptions of task-involving coach climate and MApG emphasis. Perceived ego-involving
coach climate, competence, MAvG, PAvG, PApG, reduced sense of accomplishment, exhaustion, and sport devaluation received moderate scores from the athletes. Athletes in Cluster 4 ("higher devaluation and reduced sense of accomplishment") perceived the climate created by the coaches as more ego-involving than athletes in Clusters 1 and 2. Cluster 1 ("lower burnout") scored higher on perceived competence, PApG, and had lower scores on MAvG than the other groups. Analysis from the initial collection showed climate and competence and athlete burnout as not linked. However, the second collection phase did show a link between the three.

The main finding of this study (Isoard-Gautheur et al., 2013) indicated that perceptions of coach climate and perceived competence predicted achievement goals. The achievement goals predicted burnout characteristics exhibited by the handball players at the second collection phase. The researchers suggest using the Self-Determination Theory perspective to understand motivational climate and potentially study autonomous versus non-autonomous coaching behaviors. The specificity of the student-athlete population used in the current study was a limitation. Replicating the study using a different population of performers is suggested in order to obtain more diverse achievement structure across participants. An additional idea for future research should examine the role of competence and achievement goals as moderators for the relationships investigated in the study. Overall, the findings imply that coaches likely play a role in their athletes’ levels of burnout and can contribute to the development of burnout and feelings of competence through the climates they create. In support of this idea, the researchers suggest utilizing intervention studies where coaches are taught how to create a more task-oriented climate and examine athlete burnout during and after the intervention.

Balaguer and colleagues (Balaguer, González, Fabra, Castillo, Mercé, & Duda, 2012) conducted a longitudinal study that examined coaching behavior and athletes’ psychological needs and wellbeing. Specifically, the study had two purposes. The first purpose of the current study was to determine whether changes in players’ perception of their coach’s interpersonal style served as a predictor for changes in the players’ need satisfaction and need thwarting. The second purpose of the study was to examine the degree to which a player’s needs satisfaction and needs thwarting served as mediators in the relationship between coach interpersonal style and a player’s energy and aliveness and perceived level of burnout throughout the course of their season. Study participants were selected from soccer teams within the Valencian community. Initially 725 male soccer players between the ages of 11 and 14 from soccer schools in Spain
served as participants. The second collection resulted in 597 of the initial participants completing the questionnaires a second time.

To investigate the hypothesized links, Balaguer et al., (2012) utilized a variety of questionnaires to measure coach autonomy support, psychological needs satisfaction, and psychological needs thwarting, subjective vitality, and burnout. The first data collection occurred two months into the season, and the second occurred at the end of the season. All six of the instruments used for this study were the Spanish versions of English measurements. This included the 15-item Sport Climate Questionnaire, which measured the degree of autonomy support provided by their coach. In order to measure the coach’s controlling style the Control Coach Behavior Scale (Bartholomew et al., 2010). This 15-item scale has four subscales, including: controlling use of rewards, conditional regard, intimidation, and excessive personal control. In order to measure need satisfaction, three different smaller scales were used. First, the 5-item Perceived Competence subscale from the Intrinsic Motivation Questionnaire (McAuley et al., 1989) was used to measure the participants’ level of competence. Autonomy was measured using 10-items used by Reinboth and Duda (2006). Perceived levels of relatedness were measured using a 5-item Acceptance subscale of the Need for Relatedness Scale (Richer & Vallerand, 1998). Psychological needs thwarting was measured using the 12-item Psychology Need Thwarting Scale made up of relatedness, autonomy, and competence subscales. The Subjective Vitality Scale (Ryan & Frederick, 1997), Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) as well as a modified basic needs measure were also used.

After analyzing the data, Balaguer and colleagues (2012) found that on average the participants reported relatively high coach autonomy support, high psychological needs satisfaction, and subjective vitality at the initial collection phase. Also, these participants indicated greater needs satisfaction than needs thwarting and higher ratings of well-being than ill-being. When comparing the scores with the second collection the researchers found less autonomy support from the coaches was reported as well as a decrease in psychological needs satisfaction. Higher reports of global burnout were also found at the second collection. A negative relationship was found to exist between burnout and three predictor variables: autonomy support, needs satisfaction, and subjective vitality. A positive relationship between a perceived controlling coaching style and needs thwarting was also identified. In particular, as a player’s perception of autonomy support increases, that player reports higher psychological need
satisfaction and lower needs thwarting. This change in needs satisfaction significantly predicted subjective vitality (positively) and burnout (negatively). The findings also indicate that changes in the participants’ perception of controlling style positively predicted changes in needs thwarting, which then predicted changes in perceived level of global burnout.

Overall, Balaguer et al. (2012) found that if at the end of a season a coach’s behavior was perceived as less autonomy supportive, then lower levels of psychological needs satisfaction, lower subjective vitality, higher levels of needs thwarting, higher, and higher global burnout levels are reported. Though the sample size of participants was large, the participants represent only one sport as well as a small age and skill range. This is not necessarily a limitation, but it does imply that the results do not apply across sports. This is why this same study should be replicated across sports and using athletes are various skill level and age. The researchers mention the importance of looking into both autonomy supportive and non-autonomy supportive behaviors of coaches when exploring how the social climate created by the coach might shape positive and negative athlete experiences. Due to what was found in this particular study, the researchers suggest exploring the reasons behind these changes. More specifically, they question whether it is the length of the season or certain demands placed on the athletes that influence their perception of the coach’s interpersonal style and the change in their perceived levels of autonomy, relatedness, competence, and burnout. The idea of having the players participate in teams to explore the same relationships could potentially provide new information.

Quested and Duda (2011) examined the changes in dancers’ levels of autonomy, relatedness, and competence and how these changes influence their perceived autonomy support and burnout over the course of one school year (36 weeks). The participants were recruited from a full time vocational dance school, where they dance five to six days a week. Due to the nature of the study’s longitudinal design, participant numbers declined with each collection of data. At the initial collection phase (T1), 614 dancers participated by completing three questionnaires. The second data collection (T2) resulted in participation by 425 dancers, and the final stage of collection (T3) involved 325 participants. Overall, 219 dancers from this vocational school participated in all parts of the study and completed all three questionnaire without any missing data. The mean age of the study participants was 18.44 years old, and on average they had started dancing at 6.34 years old. Additionally, these individuals had been part of their dance school for
an average of 12.17 months. The collection phases were completed at the onset of the school year, six weeks into the school year, and eight months after the first collection.

The self-report questionnaire packet chosen by Quested and Duda (2011) for use in this study included the Care Climate Questionnaire, items from the Intrinsic Motivation Inventory and other sources, and the Athlete Burnout Inventory. The 7-item Care Climate Questionnaire was used to measure the dancers’ perceived level of autonomy support. Measuring the participants’ basic psychological needs satisfaction (BPNS) consisted of 13 items from different sources. Five items came from the Intrinsic Motivation Inventory and measured the individual’s feelings of competence. Relatedness feelings made up the remaining five items of the 13-item BPNS measure. The final inventory used for this study was the 15-item Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001), which measured the dancers’ global burnout levels.

The results from this study (Quested & Duda, 2011) were similar to that found by others. First, at the initial timepoint (T1), the dancers responses to the ABQ indicated low scores on all three of the burnout subscales. At the second measurement (T2) relatively high levels of autonomy support and moderate levels of BPNS were found. Autonomy support and the three basic needs were positively correlated at T2 and T3. At T1 and T3, BPNS and levels of global burnout were negatively related. Global burnout levels increased over the course of the year and perceived levels of an autonomy supportive environment decreased. In fact, the decrease in perceived levels of autonomy support as the year progressed predicted 33% of the change in burnout throughout the year.

The findings from this longitudinal study (Quested & Duda, 2011) suggest that an autonomy supportive environment might be a central determinant of a dancer’s feelings of autonomy, relatedness, and competence. This is supported further by the findings that indicate levels of autonomy support and BPNS decrease throughout the year as burnout levels increase. One suggestion for future studies includes looking at perceptions of individuals’ perceptions of their instructors controlling behavior and variability in provided autonomy support in order to determine what contributes to dancer’s experiences of ill-being or high levels of burnout. Additionally, future research measuring athletes’ and/or dancers’ needs satisfaction, needs thwarting, emotional and physical health would be beneficial in clarifying the relationship between relatedness and athletes’/dancers’ welfare. Finally, the researchers suggest studying the
antecedents of burnout could significantly contribute to evidence-based practice. Based on what was found in the current study, understanding how teachers and coaches should develop and maintain an autonomy supportive environment appears to be the next logical and practical step to burnout prevention and high levels of BPNS.

**Summary and Critique of Research to Date**

In general, the results of the studies reviewed in the previous section clearly support the idea that coaches’ interactional styles and behaviors do have an impact on their athletes’ levels of burnout. In particular, the studies that examined athletes’ burnout from an SDT (Deci & Ryan, 1985; 2000; Ryan & Deci, 2000) perspective have suggested that athletes who perceive that their coaches use an autonomy-supportive style have lower levels of burnout and higher levels of perceived needs satisfaction.

As noted earlier, the growth in burnout research over the last few decades has helped develop an understanding of the phenomena as a whole and of the specific role that coaches can play. Nevertheless, gaps remain in the knowledge base. In particular, the relative popularity of cross-sectional and correlational studies has undoubtedly contributed much knowledge to the literature on burnout, but there is a need for more longitudinal studies. In a systematic review of burnout research, Goodger and colleagues (2007) found that 72.7 percent of burnout research utilized a cross-sectional design. This type of design certainly limits the ability of the researchers to examine the connection between coaching behaviors and athletes' burnout levels using a more causal perspective. Hodge and colleagues (2008) also call for clarification regarding the causal relationship between burnout antecedents and the burnout syndrome via the use of more longitudinal studies. They explain that the cross-sectional design of the majority of studies makes it difficult to identify truth in the causal relationships that have been identified. Kelley (1994) describes burnout as cyclical in nature because of the structure of a sport season, which further stresses the importance of longitudinal studies and understanding burnout as a chronic process that potentially changes over time (Goodger et al., 2007). Vealey and colleagues (1998) suggest replicating their study investigating coaching behaviors and burnout but using a longitudinal design to understand how burnout levels change over the course of the season. Thus, one of the primary purposes of the current project was to utilize such a design so that changes in athletes' levels of burnout over a season can be more thoroughly examined.
As previously mentioned, it is unclear how many college athletes are affected by burnout (Smith, 1986; Gould & Whitley, 2009). Only a few researchers have actually focused on burnout levels in college athletes (e.g., Altahayneh, 2013; Holmberg & Sheridan, 2013; Vealey et al., 1998; Silva, 1990). A number of studies have used elite athletes within the same age range as college athletes (Cresswell & Eklund, 2005; Hodge et al., 2008; Lemyre et al., 2008). The importance of expanding current burnout knowledge within particular populations could play an important role in the identification of those at risk and the development of prevention and management strategies (Goodger et al., 2007). There has been great width to the types of participants found in burnout research, but now future studies must add depth.

The research work to date has assessed the relationship between coaching behavior and burnout levels in their athletes through a number of theoretical lenses. Given the strength of Self-Determination Theory as a framework for understanding many positive psychosocial outcomes within sport, some researchers suggest further exploration of burnout levels using a Self-Determination Theory framework. Previous research has demonstrated the value of SDT as a theoretical framework for understanding motivational antecedents of athlete burnout (Hodge et al., 2008; Holmberg & Sheridan, 2013). Specifically researchers suggest studying the influence of autonomy supportive and non-autonomy supportive coaches in athlete burnout (Balaguer et al., 2012; Isoard-Gautheur et al., 2013). Studying these classifications of coaching behaviors may help to clarify how a coach might shape positive and negative athlete experiences.

**Overview of Current Study**

The current study employed a longitudinal design to assess college athlete burnout over the course of a competitive season. The participants for this study included NCAA Division I and Division III athletes from a range of sports. Recruitment of participants occurred through direct contact with the team’s coaches, and they were informed of the study’s purpose, methods for data collection, and importance of confidentiality in the study. In order to measure the appropriate variables, a series of self-report questionnaires were administered to the athletes by the researchers at two different points in their seasons. The first collection phase occurred within the first few weeks of the team’s competitive season (Wave 1). This collection provided a baseline measure of the athletes’ level of burnout. It allowed for a comparison to the athlete’s burnout levels at the end of the season and the identification of any changes in these perceived levels. The second data collection phase occurred toward the final part of the season or the last
weeks of competition prior to playoffs (Wave 2). The questionnaire packet administered during the second collection included an assessment of athletes' levels of burnout but other questionnaires were added to obtain measures of athletes' perceptions of their coaches' leadership styles and behaviors.

**Study Purpose and Hypothesis**

The overall aim of the current study was to examine levels of burnout in collegiate athletes. In particular, two more specific sub-purposes were identified. The first was to determine if athletes' levels of burnout (as measured both globally and more sub-dimensionally) change from the beginning to the end of a collegiate competitive season. The second purpose was to determine if there is a predictive link between collegiate athletes' perceptions of their coaches’ leadership styles and behaviors and changes that occur over the season in athletes’ level of burnout. It was hypothesized that collegiate athletes who perceive that their coaches exhibit an autonomy-supportive interactional style and who provide higher levels of training, instructional, encouraging, and supportive behaviors would show lower (or no) increases in burnout levels from early to late season. Correspondingly, it was hypothesized that athletes who perceive that their coaches exhibit a more controlling and autocratic interactional style and/or who provide higher levels of punitive and non-informational feedback behaviors would show increases in burnout levels from early to late season.
Chapter Three: Methods

The current study used a longitudinal design to assess changes that may occur in athletes’ perceived levels of burnout across a competitive season. Additionally, this study aimed to determine if a predictive link exists between coaches’ leadership style and behaviors and changes in athlete burnout across a competitive season. Collegiate athletes participating in their competitive sport season during the time of data collection served as participants in the study. The methodological procedures are explained in more detail in the following sections of this chapter.

Participants

The study sample includes data for 228 female collegiate athletes. However, it was not possible to obtain data from all teams at Wave 2. In particular, two teams were unable to schedule a data collection session at the end of the season. In addition, some athletes on teams were not present either for the first or for the second data collection session. Complete data was obtained from 126 athletes ranging in age from 18 to 22 (M = 19.78; SD = 1.28). Thus, this represents the final sample (N = 126). The majority of the athletes represented the freshman (n = 39) and sophomore (n = 32) classes, but juniors (n = 29), seniors (n = 24), and even fifth year (n = 2) student-athletes were also included in the sample. Athletes identified a variety of sports including field hockey (n = 13), swimming and diving (n = 10), basketball (n = 25), track and field (n = 47), softball (n = 21), and lacrosse (n = 10). This sample included athletes from NCAA Division I (n = 81) and Division III (n = 45) universities located in the Midwestern part of the United States. Scholarship status varied within the sample with nearly half of the participants receiving no athletic scholarship (n = 62), while those receiving full funding were the minority (n = 16). Other athletic scholarship status was recorded as less than half (n = 12), half (n = 10), or more than half (n = 26).

Data Collection Procedures

Recruitment of the participants for the proposed study was done through direct communication with the athletes’ coaches. These coaches were contacted via phone or email. They were informed of the overall purposes of the current research project and were asked permission to approach their athletes for possible participation. When explaining to the coaches what was needed of their athletes, the principal researcher used a script written specifically to describe participation expectations. Any questions or concerns on the part of the coach were
addressed at this point of the recruitment process. A specific day and time for the first data collection were identified after permission to have access to the coaches’ athletes was obtained. After the first collection had taken place and the teams had entered the final part of their season, the coaches were contacted again to set a date and time for the second and final data collection.

A longitudinal design was used to assess possible changes in athletes’ perceived burnout levels. Therefore, data was collected at two different points during the competitive seasons. The first collection phase (Wave 1) occurred within the first two to three weeks of the competitive season, and the second collection phase (Wave 2) happened during the final part of the season just prior to playoffs. A member of the research team distributed the study questionnaires in person just prior to or after training, before or after a video session, during study table hours, or in the locker room. The participants were provided with a description of the proposed research project. Confidentiality was addressed, and athletes were assured their responses would be collected in an anonymous format, and their names, the names of their universities and their coaches would not be collected. They were asked to read the consent form given to them and return it if they chose to participate. The questionnaire packet was distributed to the participants, and they were told that they could take the Athlete Information Sheet on the cover of the packet home with them. Coaches were not present during the time the athletes completed the packet.

The completed measures were returned to the member of the research team collecting data. The second collection phase (Wave 2) followed the same procedures as the first collection phase, but additional questionnaires were added to the packet. Specifically, Wave 1 materials included the demographics page and the Athlete Burnout Questionnaire. The Leadership Scale for Sports, Sport Climate Questionnaire, and Coaching Feedback Questionnaire were added to the questionnaire packet along with the Athlete Burnout Questionnaire for the second collection at the end of the athletes’ competitive season.

Instrumentation

Demographics Page

The demographics page included questions assessing the participant’s age, gender, class standing, collegiate sport, and scholarship status. The participants were not asked to include their names or any other identifying information on the demographics page. To ensure the connection between each participant’s Wave 1 and Wave 2 questionnaires, all participants were asked to select a two-word code name (name of childhood pet and name of elementary school) that was
written at the top of their questionnaire packet at both the Wave 1 and 2 timepoints. This ensured confidentiality of each participant’s identity but allowed for the researchers to connect the early and late season responses.

Performance Outcome Measures

It was anticipated that changes in athletes’ levels of burnout across their competitive season might be affected by their level of performance success, a series of measures were used to assess this possibly confounding variable. In particular, seasonal performance success was measured at the end of the season using both objective and subjective assessments. To measure objective or actual performance success, six measures were used. First, the team’s win/loss percentage for the current season and previous season were calculated. Second, each team’s conference finish was also coded for the current season and for the previous season. These four objective scores were used to calculate two additional change scores (conference finish last year minus conference finish this year and win percentage last year minus win percentage this year).

Subjective measures of performance success were obtained through athletes’ perceptions of their own individual performance success as well as their perceptions of their team’s success. These data were collected as part of the Wave 2 questionnaire packet as participants were asked two questions. Specifically, they were asked to rate how successful they were at meeting their individual goals over the season and also how successful they believed their team to have been at achieving their collective goals. Responses were recorded using a 10-point Likert scale ranging from very unsuccessful (1) to very successful (10).

Athlete Burnout Questionnaire

Burnout levels were measured using the Athlete Burnout Questionnaire (ABQ; Raedeke, 1997; Raedeke & Smith, 2001). The ABQ is a sport-specific scale with a total of 15 items separated into three subscales. The three subscales include: emotional/physical exhaustion, reduced sense of accomplishment, and sport devaluation. A sample item of emotional/physical exhaustion subscale is “I feel so tired from my training that I have trouble finding energy to do other things”. The reduced sense of accomplishment subscale includes items like, “I am not achieving much in my sport”. And finally, an example of an item from the sport devaluation subscale is “The effort I spend in my sport would be better spent doing other things.” Athletes are asked to rate the extent to which they experience each item using a 5-point Likert scale: (1) almost never, (2) rarely, (3) sometimes, (4) frequently, and (5) almost always. An athlete’s score
is found by averaging all three subscale scores. Psychometric support for the reliability and validity of the ABQ relative to college-aged athletes has been demonstrated across several studies (see review by Eklund & Cresswell, 2007). The ABQ was given to the participants during collection at the beginning of the season and during the second collection point at the end of the season.

In the current study, all three subscales showed acceptable levels of internal consistency at both collection points (i.e., at or above a .70 criterion level as recommended by Nunnally and Bernstein, 1994). This was indicated by Cronbach’s alphas of .88 and .93 (exhaustion – Wave 1 and Wave 2), .85 and .90 (sport devaluation – Wave 1 and Wave 2), and .82 and .85 (reduced sense of accomplishment – Wave 1 and Wave 2).

Leadership Scale for Sports

The second instrument used in the current proposed study was the Leadership Scale for Sports (LSS; Chelladurai & Saleh, 1980). This 40 item questionnaire measures five dimensions of leadership behavior (training and instruction, democratic behavior, autocratic behaviors, social support, and positive feedback), and athletes are asked to indicate the degree to which their coach exhibits these particular behaviors. The first dimension or subscale of the LSS is training and instruction, which includes thirteen items. An example of one of these items is “My coach explains to each athlete the techniques and tactics of sport.” Democratic behavior is the second dimension of leadership behaviors measured. One example of the nine democratic behavior items on the questionnaire is “My coach gets group approval on important matters before moving ahead.” The third subscale is comprised of five items and measures autocratic behavior. An example item is “My coach refuses to compromise a point.” Eight items make up the social support subscale of this instrument, and a sample item is “My coach looks out for the personal welfare of the athletes.” Positive feedback is the final dimension of coaching behavior measured in the scale by five items like the following, “My coach gives credit when credit is due.” Athletes’ responses about their coaches’ leadership behaviors are recorded using a 5-point Likert scale ranging from almost never (1) to almost always (2). Average scores for each dimension indicate the level the coach exhibits that particular type of behavior according to his or her athletes’ perceptions.

Although the LSS has been shown to be reliable and valid for college-aged samples (Chelladurai & Reimer, 1998), some internal consistency issues have been noted for the
autocratic subscale. Thus, for the current study, three items were added to this particular subscale. These three additional items were first identified and tested by Price and Weiss (2000) and were found to increase the internal consistency of the autocratic subscale. This 43-item scale was a part of the Wave 2 questionnaire packet and was administered only at the final part of the season.

In this particular study, it was found that all five subscales of the LSS had acceptable levels of internal consistency as indicated by Cronbach’s alpha values above .70. The five subscales’ Cronbach’s alphas included .92 (training and instructional behavior style), .88 (democratic behavior style), .82 (autocratic behavior style), .84 (social supportive style), and .92 (positive feedback style).

**Sport Climate Questionnaire**

In addition to the Leadership Scale for Sports, the Sport Climate Questionnaire (SCQ) was used to measure the athletes’ perceptions as to whether or not their coaches use an autonomy-supportive leadership style. The SCQ was developed by Ryan and his colleagues at the University of Rochester and has been used to assess perceived coaching style in previous studies (e.g., Amorose & Anderson-Butcher, 2007). A long form and a short form version of this instrument exist, but for this study the long form version will be used. This 15-item questionnaire will help determine whether the athletes perceive their coaches’ leadership style as more autonomy supportive or controlling. The SCQ asks the athletes to respond according to the extent to which they agree with the items all of which begin with the stem, “My coach…” A sample item from the SCQ reads “My coach conveys confidence in my ability to do well at athletics.” Responses are recorded on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). Scoring this questionnaire involves calculating the average individual item scores. The higher average scores indicate a higher level of perceived autonomy support. Like the LSS, the SCQ was only a part of the end of season questionnaire packet.

Internal consistency for this measure was found to be acceptable with a Cronbach’s alpha score of .97. This value is above the recommended criterion of .70 (Nunnally & Bernstein, 1994).

**Coaching Feedback Questionnaire**

The Coaching Feedback Questionnaire (CFQ: Amorose & Horn, 2001) was used to determine the athletes’ perceptions of their coaches’ feedback in response to their performance
successes and failures. Specifically, this instrument allowed the respondent to indicate what type of feedback is received from his or her coach in practice and games. This self-report questionnaire was constructed from the Coaching Behavior Assessment Scale (CBAS; Smith, Smoll, & Hunt, 1977), and some of the items were drawn directly from the observational tool. The CFQ has 16 items representing eight feedback patterns. These types of feedback fall within three feedback styles including positive and informational, punitive, and non-reinforcement and ignoring mistakes feedback. These are further broken down into the following 8 feedback patterns: reinforcement (“Good play!”); reinforcement plus technical instruction (“Way to go! You really extended your elbow that time”); nonreinforcement (“Coach ignores your good performance or play”); ignoring mistakes (“Coach ignores your error or poor performance”); mistake-contingent encouragement (“That’s O.K. Keep working at it!”); mistake-contingent technical or corrective instruction (“No that’s not right, you need to work on a faster release”); punishment (“That was a really stupid play”); and mistake-contingent technical or corrective instruction combined with punishment (“Your technique looks lousy! Keep your head up”). Three of the eight feedback patterns found in the CFQ pertain to a coach’s response to a successful performance by an individual or group (reinforcement, reinforcement plus technical instruction, and non-reinforcement). The remaining five feedback patterns describe a coach’s response to an unsuccessful performance by an individual or group of athletes (ignore mistake, mistake contingent encouragement, mistake-contingent technical or corrective instruction, punishment, mistake-contingent technical or corrective instruction combined with punishment). Athletes record their responses to the 16 items using a 5-point Likert scale ranging from not typical at all (1) to very typical (5). Scoring the CFQ involves identifying average scores for the items in each subscale. The higher the average score indicates the higher level of that particular feedback pattern exhibited by the respondent’s coach. The CFQ has been used in previous studies with college athletes (e.g., Amorose & Horn, 2000; Price & Weiss, 2007) with demonstrated support for its reliability and validity. Along with the LSS, SCQ, and the ABQ, the CFQ was included in the packet distributed to participants in Wave 2 during the last par of the competitive season.

The current study used three overall CFQ subscales as a result of the principal axis factor analysis performed by Amorose and Horn (2000). The statistical results from the Amorose and Horn study indicated that items loading highly on Factor 1 were part of the reinforcement,
reinforcement plus technical instruction, mistake-contingent encouragement, and technical instruction for mistakes subscales. Therefore, Factor 1 was labeled “positive and informational feedback.” Factor 2 included items that were part of the punishment and punishment plus technical instruction subscales, creating a “punishment-oriented feedback” pattern. Finally, items that loaded highly on Factor 3 included both the non-reinforcement and ignoring mistakes subscales. The final factor, then, was termed “non-reinforcement/ignoring mistakes.” Based on the results of this factor analysis, the current study used three CFQ subscales that measured positive and informational feedback, punishment-oriented feedback, and non-reinforcement/ignoring mistakes.

Like the previously described questionnaires, the CFQ also demonstrated acceptable internal consistency across the three subscales. This is indicated by Cronbach’s alphas of .82 (positive and informational feedback style), .79 (punitive feedback style), and .76 (non-reinforcement and ignoring mistakes feedback style).

**Statistical Analyses**

Obtained data were analyzed using a series of procedures. First, a set of data screening procedures were conducted to examine the linearity and normality of all variables and to examine the descriptive profiles of athletes in the sample. Second, preliminary MANOVAs were used to determine if study participants’ responses differed as a result of selected demographic factors. Third, a repeated measures MANOVA was used to assess degree of change in athletes’ level of burnout from early to late season. Finally, a series of hierarchical regression analyses was employed to determine if the changes that occurred across the season in athletes’ burnout levels can be explained by their perceptions of their coaches’ leadership styles and feedback behaviors.
Chapter Four: Results

The purpose of the current study was to examine changes in level of burnout in collegiate athletes and to determine if perceived coaching behaviors and leadership styles serve as a predictive link to these changes. It was hypothesized that collegiate athletes who reported that their coaches exhibited an autonomy-supportive interactional style and who provided higher levels of training, instructional, encouraging, and supportive behaviors would show lower (or no) increases in burnout levels from early to late season. Additionally, it was hypothesized that those who thought that their coaches displayed a more controlling and autocratic interactional style and/or who provided higher levels of punitive and non-informational feedback behaviors would show increases in burnout across their competitive season.

To examine the primary study purpose, a variety of statistical procedures were used. The results of these analyses are presented in the following sections. In the first section, descriptive statistics are presented. Next, the results from correlational analyses are described followed by the preliminary results. Finally, in the fourth section, the main study analyses are presented.

Descriptive Statistics

Descriptive statistics for the three subscales from the burnout scale (see last four rows in Table 1) show that the means for all three subscales (reduced sense of accomplishment, emotional/physical exhaustion, and sport devaluation) fell below the midpoint (3.0 on a 5-point scale) at both waves of data collection (early and late season). However, the standard deviations and obtained ranges for the three subscales indicate considerable inter-individual variability in all scores. Thus, although the means for all subscales were relatively low (below the subscale midpoint), there were some athletes within the sample who scored low and some who scored high on all six of the burnout measures. Furthermore, examination of the descriptive data for the three change scores (Wave 2 score minus Wave 1) indicate that there was also variability between athletes in the degree to which their burnout scores changed from early to late season. Specifically, these three change scores ranged from a low of -2.40 to +3.00, suggesting that there were some athletes whose level of burnout in one or more of the sub-dimensions decreased from Wave 1 to Wave 2 while others increased over the season. Mean values for two of the three change scores (reduced accomplishment and sport devaluation) were positive, indicating that the athletes as a group increased in burnout levels from Wave 1 to 2. In contrast, the mean score for change in exhaustion was - .01, suggesting that the athletes as a group showed little to no change.
in this sub-dimension. Again, given the relatively large standard deviations as well as the obtained range for these change scores, it appears that there was considerable variability between athletes in the sample in the degree to which their burnout scores changed over the season. Additionally, examination of the distributions for the three change scores indicated that 30.2% of the athletes actually exhibited a decrease in reduced accomplishment over the season, while 15.1% stayed the same, and 54.7% show an increase. On the exhaustion subscale, 42.9% showed a reduction over the season, 16.7% remained the same, and 40.4% showed an increase. Finally, for the sport devaluation subscale scores, 34.9% showed a reduction from early to end of the season, 14.3% stayed the same, and 50.8% showed an increase in this sub-dimension over the season. Clearly, these values suggest college athletes differ considerably from each other in the degree to which their levels of burnout increase, decrease, or stay the same.

Using cut-off criteria identified by other researchers for categorization of low and high levels of burnout in elite samples (e.g., Curran et al., 2011; Hodge, Lonsdale, & Ng, 2008; Raedeke, 1997), athletes in the current study were classified based on their subscale scores as either high in each dimension of burnout or low. The percentages of athletes in each of these categories are shown in Table 2. As indicated by these percentages, the number of athletes who scored high in the reduced accomplishment (score of 2.7 and higher) and devaluation (score of 3.0 and higher) dimensions of burnout did get larger from early to late season while the corresponding percentage who scored in the low category (scores 2.7 and below for reduced accomplishment and 1.6 for devaluation) got smaller. Interestingly, for the physical and mental exhaustion dimension, almost half of the sample scored in the high category at Wave 1 (43.7%) and similarly at Wave 2 (44.4%).

When looking at individual athletes’ scores across all three of the subscales, the data show that three participants at Wave 1 (2.4% of the sample) fell into the high category on all three dimensions of burnout. In addition, 15 participants (11.9% of the sample) scored high in two out of the three dimensions of burnout during the first collection phase. Later in the season, the number of participants scoring high on all three subscales increased to 10 athletes (7.9% of the sample), with a corresponding 14 athletes (11.1%) of the sample scoring high on 2 of the 3 subscales. Thus, at early season, 14.3% of the sample scored in the high category on at least 2 of the 3 sub-dimensions, and a corresponding 19% achieved this level at the end of the season.
Descriptive statistics for the objective and subjective measures of performance success were also computed (see Table 3). The mean scores (see last four rows in the table) for participants’ perceptions of personal performance (6.33) and team success (6.11) are above the midpoint (5.5 on a 10-point scale). This indicates that the athletes as a group perceived both their teams and themselves to be successful during the course of the season. However, again, the standard deviations and the range of scores indicate considerable variability between individual athletes in these success perceptions. Winning percentage for the most recent season and previous season were also obtained, and the mean scores were slightly higher than 50%, but with considerable variation evident in the standard deviation and range scores. Similarly, the two measures of conference finish (place for current season and previous season) also indicate some range between athletes and teams. Change score data (previous season minus current season) provide another measure of performance success in showing potential improvement or decline in outcomes from last season to the current one. Again, it appears that the athletes and teams in this sample varied in these outcome variables.

Descriptive data corresponding to athletes’ perceptions of their coaches’ leadership style and feedback behavior are presented in the last four rows in Table 4. Examination of these results indicate that athletes as a group scored slightly above the midpoint (4 on a 7-point scale) on the SCQ which measures perceived autonomy-supportive coaching style. Athletes also scored just below the midpoint (3 on a 5-point scale) on the LSS autocratic, democratic, and social support scales but above the midpoint on the LSS training and instruction and positive feedback scales. Finally, mean scores for the CFQ positive and informational feedback were above the midpoint while mean scores for the other two feedback subscales (punitive and non-reinforcement/ignoring mistakes) were below the midpoint. Again, however, the standard deviation and obtained range scores suggest that there was quite a bit of variability between athletes in their evaluations or perceptions regarding the type of leadership style and the type of feedback that their coaches provided.

Data obtained for all study variables were screened for linearity and normality (both univariate and multivariate). No deviations were found.

*Correlational Results*

A series of Pearson correlational analyses were conducted to examine the strength of the relationship between variables in the study. The results of these analyses (see Table 1) revealed
that the three burnout subscales had medium to large positive linear relationships with each other at the first collection point \((r \text{ values ranging from } .35 \text{ to } .52)\) as well as at the second collection point \((r \text{ values ranging from } .29 \text{ to } .51)\). Similarly, the three change scores (Wave 2 minus Wave 1) exhibited moderate correlation with each other \((.29 \text{ to } .47)\), suggesting that if individual athletes went up from early to late season in one dimension, they also exhibited a tendency to go up in the others. However, the relatively modest sizes of the correlations across all of the sub-dimensions of burnout provide support for the use of all three subscales rather than coalescing them into one or two scores. In addition, multicollinearity will not be an issue in the use of multivariate analyses.

The degree of correlation that existed between performance success variables measured late in the season was also assessed (see Table 3). These results show considerable correlation between the measures used to assess degree of success over the season. Of particular concern are the relatively high correlations between the six measures of objective/actual performance outcomes (e.g., many coefficients above .70). Such multicollinearity may interfere with the quality and accuracy of the main study analyses. Therefore, all of these variables cannot be used in the main study analyses. After inspection of all the coefficients, it appears that the two best measures to use to represent the constructs of seasonal performance success are the two perceived variables: perceived individual and perceived team success. These two variables were chosen for two reasons. First, perceived individual success shows generally lower correlation \((r = .36 \text{ and below})\) with all objective performance measures. This low correlation suggests that it measures a part of the construct of seasonal success that is unique. Second, the perceived team success variable shows moderate to high correlation with most of the objective performance measures, suggesting that it can adequately represent the part of the construct that is related to objective success. Thus, the two perceived variables appear to provide the best measure of the construct of performance success and will be used in all future analyses.

Results of the correlational analyses for all coaching behavior scales are presented in Table 4. As these results suggest, a number of high correlations (.70 and above) were found. Specifically, a particularly high correlation was found between autonomy support and all of the LSS subscales (absolute \(r\)-values ranging from .59 to .81), suggesting that the two scales may be measuring the same or very similar constructs. In contrast, generally moderate correlations were found between the three CFQ subscales and the Autonomy Support measures (absolute \(r\)-values
ranging from .36 to .61), suggesting that these two scales may be measuring somewhat different constructs. These correlational results are understandable based on the notion that the SCQ and the LSS have both been designed to measure coaches’ leadership styles while the CFQ was designed to measure the frequencies and types of feedback that coaches give to their athletes. Therefore, given the concern regarding high multicollinearity, a decision was made to delete the LSS subscale scores from all further analyses.

Preliminary Results

A series of preliminary analyses were conducted to determine if the sample of athletes differed in any important ways. First, a set of comparison procedures were used to determine if the 126 athletes comprising the main study sample (those who completed both Waves 1 and 2) differed in any way from the 90 athletes who completed only the Wave 1 self-report questionnaires. Chi-square analyses revealed that the two groups did not differ in chronological age, year in school, NCAA division (I versus III), or in level of athletic scholarship. Small chi-square differences were found for type of sport (e.g., there were 10 tennis athletes who were in the non-finisher group and 0 tennis athletes in the completion group). A one-way MANOVA was conducted to determine if the 126 athletes in the main study (those who completed both Waves 1 and 2) differed in their Wave 1 (early season) burnout scores from those athletes who only completed Wave 1 (n = 90). The dependent variables were the three burnout scores from Wave 1, and the independent variable was group. The results of this MANOVA revealed no significant differences between the two groups in early season burnout scores (p > .05).

Second, a 2 X 2 (Division by Time) repeated measures MANOVA was conducted to determine if athletes from Division I would differ from their counterparts at Division III in burnout scores over time. The results of this analysis revealed a non-significant Division main effect, Wilks λ = .95, F (3, 122) = 2.09, p = .11, η² = .05 and a non-significant Division by Time interaction effect, Wilks λ = .96, F (3, 122) = 1.71, p = .17, η² = .04. In contrast, the Time main effect was significant, Wilks λ = .84, F (3, 122) = 7.92, p = .00, η² = .16. Since this latter main effect is the primary focus of the study, it is examined later in this chapter.

Third, a 2 X 2 (Sport Type by Time) repeated measures MANOVA was conducted to determine if athletes from team sports (e.g., soccer, volleyball, field hockey, synchronized skating, basketball, softball, and lacrosse) would differ from their individual sport peers (e.g., tennis, swimming/diving, gymnastics, track and field) in burnout scores over time. The results of
this analysis revealed a significant Sport Type main effect, Wilks λ = .93, F (3, 122) = 2.97, p = .04, η² = .07 and a significant Sport Type by Time interaction effect, Wilks λ = .93, F (3, 122) = 3.10, p = .03, η² = .03. The Time main effect was also significant, Wilks λ = .86, F (3, 122) = 6.84, p = .00, η² = .14. Again, since this latter main effect is the primary focus of the study, it is examined later in this chapter.

As a follow-up to the significant Sport Type by Time interaction effect, the univariate F-values were examined. These showed no significant effects for either exhaustion (p = .28) or reduced accomplishment (p = .46). The F-value for sport devaluation approached significance, F (1, 124) = 3.84, p = .06, η² = .03. Examination of the mean values showed that the team sport participants exhibited a greater increase in sport devaluation scores across the season than did the individual sport athletes. The univariate F-values for the Sport Type main effect were also examined. None of these reached significance.

Given the sport type differences presented in the previous two paragraphs, another one-way MANOVA was conducted to compare the team and individual sport participants on the three burnout change scores (Wave 2 minus Wave 1). Again, the overall main effect was significant, Wilks λ = .93, F (3, 122) = 3.10, p = .03, η² = .07. Furthermore, the univariate F-values showed no significant differences between the two groups of athletes on either the reduced accomplishment change score (p = .46) or the exhaustion change score (p = .28). The devaluation change score approached significance, F (1, 124) = 3.84, p = .06, η² = .03. Examination of the plots verified that the team sport participants exhibited a greater increase in sport devaluation scores across the season than did the individual sport athletes.

In summary, the statistical comparisons of the individual and team sport athletes did show some differences across the season in burnout levels. However, these differences were limited to the sport devaluation component of burnout (no sport type differences found on the other two subscales) and were generally only close to significant. Furthermore, the effect sizes were low. Thus, it was decided to conduct the main study analyses with all athletes combined. However, as will be noted in the discussion section, further examination of potential differences between sport types in regard to changes over the season in burnout levels is needed.

**Main Study Analyses**

**Changes in Burnout Levels Over Time**
To determine whether athletes in this study experienced changes from early (Wave 1) to late (Wave 2) season, a repeated measures MANOVA was used. The dependent variables included the three subscale scores from the burnout measure, and the independent variable was time (early and late season).

The results of this repeated measures MANOVA revealed a significant time main effect, Wilk’s $\lambda = .85$, $F(3,123) = 7.32$, $p < .00$, $\eta^2 = .15$, indicating that athletes’ scores on the three dimensions of burnout did change significantly over time. Furthermore, the $\eta$-value indicates that this is a medium effect (Cohen, 1988). As follow-up to this significant multivariate result, the univariate $F$-values were examined (see Table 5). These values show that scores on two subscales, reduced accomplishment and sport devaluation, changed significantly over time. Examination of the mean values (see Table 1) shows that athletes’ scores on these two subscales increased from early to late season. However, athletes’ scores on the emotional and physical exhaustion subscale did not exhibit a significant change across the season. As shown in Table 2, almost half of the athletes in this study sample scored in the high category on this dimension of burnout at the early season timepoint. So, perhaps the lack of significant change in physical and emotional exhaustion over the season is because athletes in this sample started out with relatively high scores. Certainly, this lack of change over the season is inconsistent with previous research (Cresswell & Eklund, 2005).

As indicated in Table 5, the $\eta^2$ values (far right column) provide a measure of the effect size. For the reduced accomplishment dimension, the results indicate a medium effect while the value for the devaluation subscale points to a smaller effect (Cohen, 1988). Thus, it appears that greater change occurred for the reduced accomplishment subscale.

**Predictive Link Between Perceived Coaching Behaviors and Burnout**

To test the main study hypothesis that coaching behaviors are related to or predictive of changes in athletes’ level of burnout across a season, a set of three hierarchical regression analyses were conducted. The dependent variables for these three analyses were the three end-of-season burnout subscale scores (reduced accomplishment, emotional/physical exhaustion, and sport devaluation). The predictor variables were the corresponding early season measure of burnout, the two perceived measures of performance success (perceived individual success and team success), and the four perceived coaching variables (autonomy support, positive and informational feedback, punitive feedback, non-reinforcement and ignoring mistakes).
For all three hierarchical regression analyses, the predictor variables were entered in three sequential steps. First, the three early burnout subscale scores were entered at Step 1, with the two perceived success variables entered at Step 2. Finally, at Step 3, all four of perceived coaching variables were entered as a group. Results for all three analyses can be seen in Table 6 and are summarized in the following section.

*Reduced Accomplishment*

For the first regression analysis that included the Wave 2 (end of season) reduced accomplishment as the dependent variable, the addition of the corresponding Wave 1 reduced accomplishment subscale as the sole predictor at Step 1 revealed a significant predictive effect ($R = .50; R^2 = .25, p < .00$). Examination of the beta weight ($\beta = .30, p < .01$) indicated reduced accomplishment as measured early in the season was, as would be expected, a positive predictor of reduced accomplishment as measured late in the season. At Step 2, the addition of the two perceived performance success variables indicated a significant effect ($R^2$ change = .30; $p < .00$). This result indicates that the two performance success variables did add a significant amount to the prediction of end of season reduced accomplishment above and beyond that provided by the early season measure of reduced accomplishment. Examination of the individual beta weights indicated that only perceived personal success was found to be a predictor of changes in reduced accomplishment across a season ($\beta = -.52, p < .01$). The negative sign indicates that athletes who perceived that they achieved higher levels of personal success over the season also showed lower levels of reduced accomplishment at the end of the season. At Step 3, inclusion of the four coaching behavior variables’ scores revealed a significant increase in variance explained ($R^2$ change = .04, $p < .05$), again suggesting that the set of perceived coaching variables contributed a significant amount of predictive value with regard to the dependent variable over and above that provided by the predictor variables inserted at the two previous steps. Inspection of the beta weights indicated that autonomy support was the only significant predictor of reduced accomplishment at the end of the season ($\beta = -.24, p < .01$). Again, the negative sign indicates that athletes who perceived that their coach used an autonomy-supportive leadership approach scored lower in reduced accomplishment at the end of the season. The overall model explained 57% of the variance in athletes’ scores on this burnout subscale as measured at the end of the season. This index of effect size is considered very large (Cohen, 1988).

*Emotional and Physical Exhaustion*
For the second regression analysis that included the Wave 2 emotional/physical exhaustion as the dependent variable, the addition of the exhaustion subscale from Wave 1 as the sole predictor at Step 1 revealed a significant predictive effect \( (R = .52; R^2 = .27, p < .01) \). The beta weight \((\beta = .45, p < .01)\) was positive indicating that high levels of exhaustion at the beginning of the season were predictive of high levels of exhaustion at the end of the season. At Step 2, the addition of perceived performance success variables indicated a non-significant effect \( (R^2 \text{ change} = .00, p = .96) \). At Step 3, inclusion of the four coaching behavior variables’ scores revealed a significant predictive effect \( (R^2 \text{ change} = .09, p < .00) \). Inspection of the beta weights indicated that both autonomy support \((\beta = -.28, p < .05)\) and punitive feedback \((\beta = .18, p < .05)\) were predictive of end-of-season emotional/physical exhaustion. Specifically, the negative beta value for autonomy support suggests that high levels of perceived autonomy support from the coach are predictive of lower levels of exhaustion later in the competitive season. The positive beta value for punitive feedback shows that higher levels of punitive feedback are indicative of higher levels of end-of-season exhaustion. The \( R^2 \) for the entire model was calculated to be .32, indicating that 32% of the variability in athletes’ Wave 2 (end of season) scores on this sub-dimension of burnout could be explained by the set of predictor variables. This can be categorized as a large effect size (Cohen, 1988).

**Sport Devaluation**

For the third regression analysis that included the end of the season sport devaluation subscale as the dependent variable, the addition of the devaluation score from Wave 1 as the sole predictor at Step 1 revealed a significant predictive effect \( (R = .53; R^2 = .28, p < .00) \). The positive beta weight \((\beta = .46, p < .01)\) indicated that higher levels of devaluation at the beginning of the season predicted higher levels of devaluation late in the season. At Step 2, the addition of perceived performance success variables indicated a non-significant effect \( (R^2 \text{ change} = .03, p = .08) \). Finally, the inclusion of the four coaching behavior variables’ scores revealed a significant predictive effect \( (R^2 \text{ change} = .09, p < .00) \). Again, the beta weights indicated that both autonomy support \((\beta = -.33, p < .05)\) and punitive feedback \((\beta = .21, p < .05)\) were significant predictors of athletes’ end of season devaluation scores. Specifically, higher levels of perceived autonomy support were predictive of lower levels of devaluation at the end of the season. Correspondingly, athletes who perceive that their coaches provided high frequencies of punitive feedback tended
to have higher levels of sport devaluation at the end of the season. The model in its entirety explained 37% of the variance in athletes’ Wave 2 scores, indicating a large effect size.
Chapter Five: Discussion

The overall aim of the current study was to examine levels of burnout in collegiate athletes. In particular, two more specific sub-purposes were identified. The first was to determine if athletes’ levels of burnout (as measured both globally and more sub-dimensionally) change from the beginning to the end of a collegiate competitive season. The second purpose was to determine if there is a predictive link between collegiate athletes’ perceptions of their coaches’ leadership styles and behaviors and changes that occur over the season in athletes’ level of burnout. It was hypothesized that collegiate athletes who perceive that their coaches exhibit an autonomy-supportive interactional style and who provide higher levels of training, instructional, encouraging, and supportive behaviors would show lower (or no) increases in burnout levels from early to late season. Correspondingly, it was hypothesized that athletes who perceive that their coaches exhibit a more controlling and autocratic interactional style and/or who provide higher levels of punitive and non-informational feedback behaviors would show increases in burnout levels from early to late season.

To assess the first study purpose, both univariate and multivariate procedures were used. These results clearly indicated that the collegiate athletes in this sample did show significant changes in levels of burnout over the competitive season. Specifically, as indicated in the descriptive frequency results, the number of athletes categorized as high in burnout across all three dimensions increased from early (n = 3 athletes representing 2.4% of the sample) to late season (n = 10 athletes representing 7.9% of the sample). These frequency results are consistent with that found by other researchers. Cresswell & Eklund (2005), for example, reported that approximately 6% of their fairly large sample of elite adult male rugby players from New Zealand scored high on all three subscales. However, the number of athletes in the current study who scored in the high category at the end of the season in each of the sub-dimensions (31.7% for reduced accomplishment, 44.4% for exhaustion, and 17.5% for sport devaluation) is somewhat higher than that reported by Cresswell and Eklund (19-25%). Future research is needed to determine if collegiate athletes in the United States do score higher on end of the season levels of burnout that do elite athletes in other contexts and/or countries.

To further examine changes in burnout over the season, this study also used repeated measures multivariate procedures. Obtained results revealed that the three scores as a group did change significantly. However, examination of the univariate results showed athletes’ scores on
only two of the subscales (reduced accomplishment and devaluation) increased significantly. In contrast, their scores on the exhaustion subscale did not change from early to late season.

It should also be noted that the dimension of burnout that exhibited the most change was the one corresponding to athletes’ sense of reduced accomplishment. At the first collection phase, 19.8% of the participants reported high levels of reduced accomplishment. This percentage increased to 31.7% at Wave 2. Furthermore, the results of the repeated measures MANOVA revealed that athletes’ scores on this sub-dimension had the greatest effect size, indicating, again, that this dimension showed the greatest amount of change across time.

Similar to the reduced accomplishment dimension, the percentage of athletes reporting high scores in sport devaluation also increased across the season. Early season reports showed that 10.3% of the sample scored in the high category in sport devaluation, while 17.5% landed in this category at the end of the season. Although this lack of a caring attitude toward one’s sport can be attributed to a number of things, the correlational analyses (see Table 1) did indicate that early season devaluation and late season exhaustion have the strongest positive relationship to late season devaluation. Thus, athletes who showed higher levels of physical and mental exhaustion at late season correspondingly also scored highly at the end of the season on sport devaluation.

One finding that is surprising, however, is that the exhaustion dimension did not show an increase from beginning to late season. At the first collection phase, nearly half of the participants (43.7%) could be classified as experiencing high levels of emotional/physical exhaustion. At the end of the season, the percentage of athletes high in exhaustion had increased by less than a percent (44.4%). Though the increase was slight and not significant, what is interesting is the starting percentage of those high in exhaustion. It was the highest of the three dimensions of burnout. There could be a number of reasons for this, but it could potentially have to do with the population used in the study. One can speculate that the nature of being a collegiate athlete does not provide adequate time for rest and recovery both emotionally and physically. The lack of an honest “break” or a true off-season could explain the feelings of exhaustion early in a season. Clearly, this is an interesting finding that may be specific to this particular study sample (collegiate athletes in the United States). Further research on this issue would be important. In addition, the impact of what appears to be high levels of emotional and physical exhaustion for many of the athletes in this sample at the beginning of the competitive
season on other aspects of their mental health (e.g., perceived quality of life, motivational orientation, sport commitment) will need further study.

The results summarized in the previous paragraphs regarding the increases that were observed in this study to occur from early to late season in two dimensions of burnout are consistent with previous longitudinally-based studies on burnout (e.g., Balaguer et al., 2012; Isoard-Gautheur et al., 2012, 2013; Quested & Duda, 2011). Given that the previous studies were conducted primarily with younger athletes, the results of the current study extend this research to a different or unique sample (college athletes).

The second purpose of this study was to determine whether athletes’ perceptions of the type of leadership styles and behaviors their coaches exhibited would serve as predictors of athletes’ levels of burnout at the end of the season. To assess this purpose, hierarchical regression analyses were used so that the hypothesized impact of perceived coaching behaviors and styles could be assessed after the variability explained by other (possibly confounding) predictors was accounted for. For the three hierarchical analyses, the dependent variables were the Wave 2 (end of season) sub-dimensions of burnout. At Step 1 of the regression analysis, the corresponding Wave 1 (early season) burnout dimension was entered. This possible predictor variable was entered because it was assumed that athletes’ Wave 2 scores would be dependent on (or linked to) their Wave 1 scores. At Step 2 of each analysis, the two measures of performance success were entered. This included athletes’ perceptions of their team’s success as well as their perceptions of their own individual success. Finally, at Step 3, the four coaching variables were entered.

The results of these hierarchical regression analyses revealed overall support for all three regression models. That is, the set of predictors included could explain a significant amount of the variation between athletes in their end of the season levels on all three sub-dimensions of burnout. However, differences were found across the three sub-dimensions in the predictors that were significant. For reduced accomplishment, all three sets of predictors were significant. Examination of the beta weights showed that athletes’ end of the season reduced accomplishment was positively predicted by beginning of season reduced accomplishment, perceived personal performance success, and the coaches’ autonomy-supportive behavioral style. So, athletes who scored lower on the end of the season measure of reduced accomplishment were those whose levels of reduced accomplishment were low at the beginning of the season, and who
perceived a high level of personal performance accomplishment, and who perceived that their coaches’ used an autonomy-supportive style. It is important to keep in mind that the measure of perceived coaching behavior contributed a significant amount to the prediction of athletes’ end of season sense of reduced accomplishment over and above that explained by early season level of reduced accomplishment and perceived personal accomplishment. Thus, the added value of the coaches’ role was statistically supported.

The second hierarchical regression equation for end of season exhaustion again identified early season exhaustion as a primary, and positive, predictor. At Step 2, perceived performance success was not significant, but the set of coaching behaviors was. In particular, coaches’ autonomy-supportive style was predictive of low levels of end of season exhaustion while coaches’ use of punitive-oriented feedback was a positive predictor of athletes’ level of exhaustion at the end of the season. Again, then, coaches’ behaviors do serve as a significant predictor of athletes’ levels of exhaustion at the end of the season even when early season scores are controlled.

Similar to the second equation, the third one that focused on athletes’ feelings of sport devaluation at the end of the season revealed that early season devaluation scores were positively related. Perceived performance success was not predictive while coaches’ behaviors were. As in the second equation, the results of the third indicated that an autonomy-supportive coaching style was negatively related to athletes’ end of season feelings of sport devaluation while a punitive feedback style was positively predictive of the same thing.

Thus, in relation to the second study purpose, the results of this study do provide support for the idea that coaches’ leadership styles and behaviors are linked to their athletes’ feelings of burnout. In particular, coaches’ use of an autonomy supportive style and the degree to which they use punitive feedback seem to have the greatest influence on collegiate athletes’ burnout levels at the end of the season. Autonomy-supportive coaches are those who are perceived as explaining and justifying their decisions, encouraging individuals to participate in decisions, providing appropriate information, and minimizing external pressures and demands (Bartholomew, Ntoumanis, & Thogersen-Ntoumani, 2010). Additionally, they provide opportunities for choice by their athletes, recognize the feelings and experiences of their athletes, and minimize the use of pressures and demands (Black & Deci, 2000). Within this particular study, a negative relationship between burnout and autonomy-support exists. It was found that
the athletes who believed their coaches exhibited little autonomy-support and more of a controlling style experienced higher levels of burnout at the end of the season. These results are similar to that found by Altahayneh (2013) who studied burnout in collegiate athletes in Jordan. Those study results revealed that athletes who recorded higher scores on burnout dimensions appeared to view their coaches as more autocratic, providing less training and instruction, less social support, and less feedback. This study’s finding concerning autonomy-support as a predictor for burnout is not a new one, but it does add depth to what is already known about burnout as a whole.

The second aspect of coaching behaviors that impacted burnout levels was punitive feedback. Punitive feedback is understood as a response to an athlete’s performance failure and is intended as punishment (Horn, 2008). For example, a coach can provide corrective feedback in addition to insulting the player’s ability, which would be considered punitive feedback. The current study found that punitive feedback was predictive of the exhaustion and devaluation dimensions of burnout late in the season. Continued punitive feedback throughout a season can wear on an athlete, and according to the results of this study can lead to exhaustion (likely more emotional than physical) and less investment in one’s sport. Similar to the current study, Vealey et al. (1998) found that dispraise was positively related to emotional exhaustion and depersonalization. Additionally, Price and Weiss (2000) found that coaches who provide less positive feedback are more likely to have athletes who report higher levels of negative psychological responses, including global burnout.

Previous studies that examined athletes’ burnout from an SDT (Deci & Ryan, 1985; 2000; Ryan & Deci, 2000) perspective have suggested that athletes who perceive that their coaches use an autonomy-supportive style have lower levels of burnout, and the current study supports this idea as well. As hypothesized, those athletes who perceived their coaches to be more autonomy-supportive experienced less of an increase (or no increase) in their levels of burnout. Autonomy-supportive and controlling coaching is characterized by opposing feedback styles, and in this study feedback was predictive of late season burnout. A high level of punitive feedback is characteristic of a non autonomy-supportive coach and found to be positively correlated to burnout in this study.
Study Limitations

The results of the study have provided some interesting results, but limitations did exist. Though a benefit to the study, the specificity of the student-athlete population could also be considered a limitation. The study involved collegiate athletes from selected sports, which does not make the findings generalizable to all college athletes due to the exclusion of other sports. As mentioned before, a variety of sports were represented, but there was an imbalance between team and individual sports. Further research including athletes from individual sports rather than team sports may be needed in order to identify any differences between the two and the athletes’ burnout levels. In addition to sport selectivity, the population only included female athletes. Without male athletes in the participant sample, it makes it difficult to claim that the results of this study would be the same across genders.

Secondly, an argument can be made that the use of self-report questionnaires to measure burnout and coaching leadership style and behavior could be a limitation. As with all self-report measures, there is always the issue of honesty in the responses recorded. It is possible burnout levels and coaching behavior could have been measured observationally rather than based on perceptions. A main purpose of the current study was to see if there was a change in athletes’ level of burnout from early to late season, which required obtaining perceptions of burnout more than once in the season. Unfortunately, these measures could only be taken twice. Ideally, burnout would have been measured more than two times during the season, but the difficulty of having the athletes participate even twice is evident by the total study’s sample (N = 228) versus those who completed both Wave 1 and Wave 2 questionnaires (N = 126).

Future Research Directions and Practical Application

As noted by others (Goodger et al., 2007; Hodge et al., 2008; Kelley, 1994; Vealey et al., 1998), more longitudinal studies are needed to understand the facets of burnout in sports. This study meets those demands, but the changes in burnout that were found suggest more longitudinal studies are required. Replication of the current study is needed in order to support the findings. Future research should consider including both male and female collegiate athletes and a larger number of individual sports. Broadening the type of collegiate athletes in the study will help to make the findings more generalizable. Specifically, exploring the existence of changes in burnout levels in individual sports in comparison to team sports in greater depth is needed. The current study included both team and individual sports, but the total sample is not
large enough and does not include a diverse enough individual sport sample to make a direct comparison.

Collection procedures for this study occurred at two points, early and late competitive season. The evaluation of burnout levels in this study did not include a midseason measure, which, if included, would provide a more detailed understanding of the progression of burnout. Further, utilizing an ethnographic approach could possibly provide researchers with an even deeper understanding of changes in burnout across a season. Specifically, identifying fluctuations in burnout levels multiple times throughout the entire preseason and competitive season looking closely at each individual athlete on one particular team would elicit rich data though it would involve few participants. Case studies, like these, focusing on particular athletes high in burnout would be helpful in trying to develop future intervention strategies. Future burnout research should consider the use of other types of measurement. For example, one could consider measuring burnout physiologically rather than using self-report measures. Certainly the exhaustion dimension of burnout could be measured within a team through the use of fitness testing that is sport specific. Coaching behaviors could be measured using observational measures, like the CBAS, which might minimize possible biases.

A corresponding issue to consider is that previous researchers and scholars (e.g., Cresswell & Eklund, 2005; Gustafsson et al., 2008; Raedeke, 1997) have suggested that emotional and physical exhaustion may be the most central and/or the first dimension of burnout to develop. The findings of the current study suggest that this is not the first dimension to change over time. In fact, there was not a significant change in the level of exhaustion across the season, but the number of participants reporting “high” levels of this exhaustion was far greater than the other two burnout dimensions at both Wave 1 and Wave 2. It may be a phenomenon unique to the collegiate athlete population, but this theory requires further exploration especially within longitudinal studies.

Practically speaking, the results of this study support what previous research has suggested. First, this study demonstrates that burnout does increase across the season. Coaches need to be made aware of the three dimensions of burnout and understand that their leadership style and how they give feedback can impact the severity of these changes. Knowing that burnout is more than just a physical syndrome of sport participation may broaden coaches’ sensitivity to the subject making them more likely to identify when one of their athletes may be
in danger of experiencing burnout. Second, the type of feedback coaches give to their athletes is critical to the manifestation of burnout. It is common for coaches to have a tendency to give feedback one particular way, but it may not be the best for their athletes’ well-being. Mistake contingent feedback should be corrective rather than punishing. Coaches should avoid punitive feedback, which can help minimize the chance of increases in burnout dimensions. Lastly, coaches should be autonomy-supportive rather than controlling. They should aim to develop a sport that promotes perceptions of autonomy and choice for all athletes. In order for this to happen, coaches must be educated on what both coaching styles look like in action and should be made aware of the effect both styles have on athletes. Attending to the leadership style, sport climate, and type of feedback one provides his or her athletes and gearing them toward more autonomy-supportive may minimize the rapid development of burnout.
References


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Table 2 Categorization of High and Low Burnout Scores (Waves 1 and Wave 2)

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Note: Remaining percentage of athletes in each burnout sub-dimension scored in the medium or moderate range and are not reflected in the above table.
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* p < .05
** p < .01
### Table 5 Burnout Repeated Measure MANOVA

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Table 6 Hierarchical Multiple Regression Analyses by Burnout Subscale

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