The Influence of Perceived Coaching Behaviors and Perfectionism on Types of Motivation and Burnout

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THE INFLUENCE OF PERCEIVED COACHING BEHAVIORS AND
PERFECTIONISM ON TYPES OF MOTIVATION AND BURNOUT

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I dedicate this to my dad, Donald, who has taught me the true meaning of mental toughness, and to my mom, Mary, who has always been my biggest cheerleader. Thank you for encouraging me to chase my dreams.
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ABSTRACT

An examination of the relationships among perfectionism, perceived coaching behaviors, types of motivation, and burnout in Division I swimmers (N = 501) was conducted. Two conceptual models were hypothesized to account for the possible relationships among variables. Structural equation modeling analyses were conducted to examine the hypothesized models relationships among variables. It was determined that the hypothesized Model B fit best to the data provided by the Division I swimmers. Within Model B, socially prescribed perfectionism had a direct effect to the three forms of least self-determined motivation (i.e., amotivation, external regulation, introjected regulation). The excessive personal control subscale for perceived coaching behaviors also had a direct effect to amotivation and introjected regulation. Socially prescribed perfectionism correlated with all four perceived coaching behavior subscales (i.e., controlling use of rewards, excessive personal control, negative conditional regard, intimidation).

Only amotivation and the perceived coaching behavior of excessive personal control had a direct effect to burnout. The data presented supports previous research that has found amotivation to be a potential indicator of burnout (Cresswell & Eklund, 2005a; Cresswell & Eklund, 2005b; Lonsdale, Hodge, & Rose, 2009). However, the current study suggests that perceived coaching behaviors, specifically excessive personal control, might also influence the level of burnout an athlete is experiencing. Further research should be conducted to determine other possible precursors of burnout.
CHAPTER 1
INVESTIGATIVE RATIONAL

“Today, burnout is a syndrome verging on a trend. The smell of psychological wiring on fire is everywhere,” (Morrow, 1981). Twenty-nine years ago these words were published in Time Magazine, Essay: The Burnout of Almost Everyone. Although Morrow (1981) acknowledged there were no statistics on the prevalence of burnout and the lines between psychology and pop culture were beginning to blur, he relied on anecdotal evidence that air-traffic controllers, athletes, executives, teachers, and even housewives were experiencing symptoms of this syndrome.

It is still difficult to estimate the percentage of burnout occurrence among athletes because there are not any published epidemiological reports at this time (Eklund & Cresswell, 2007; Smith, 2007). Research suggests athletes can suffer from the aversive experience of burnout just as it occurs among nurses, doctors, and others in helping professions (e.g., Bakker, Schaufeli, Sixma, Bosveld, & van Dierendonck, 2000; Gopal, Glasheen, Miyoshi, & Prochazka, 2005; Keidel, 2002; Payne, 2001; van Dierendonck, Schaufeli, & Buunk, 1998). Individuals in a wide range of other occupations including fire fighters, police officers, clerical workers, public service workers, business employees and the general population have reported experiencing burnout (e.g., Halbesleben, Osburn, & Mumford, 2006; Maslach, 2003; Salmela-Aro, Näätänen, & Nurmi, 2004).

Identifying variables that influence this syndrome allows sport psychology practitioners to provide better assistance to those suffering from burnout. The benefits of research in this area include the identification of an individual being at risk for burnout, developing systematic interventions to treat burnout, and burnout prevention. With the development of research aimed at aiding in a proper prevention and remedy of burnout, children may remain in sport longer, and thus remain physically active. It is also possible, for example, that doctors and nurses may be able to better sustain their motivation for working in helping professions.

Sport psychology consultants and researchers have defined the problem, developed theories, and are now looking for solutions. The majority of articles on the topic of athlete
burnout have been published within the last 20 years (Smith, 2007). However, articles addressing the issues of burnout among helping professionals have been published since the mid 1970’s. The antecedents of burnout have been a matter of considerable interest to researchers studying this aversive experiential state. If a resolution to the burnout syndrome is developed, the dropout rates in sport or work might decrease, job satisfaction could increase, exercise adherence could increase, and the general well-being of people experiencing burnout could be restored.

The literature review provides an in-depth analysis of recent reputable research on burnout-related topics. An established definition of burnout is provided because burnout is complex, multidimensional, and easily confused with other terms. Due to many common misunderstandings, distinctions between burnout and depression, overtraining, dropout, and chronic fatigue syndrome are examined.

A detailed look at Self-Determination Theory, which is commonly employed to study athlete burnout, is provided. An explanation of Self-Determination Theory, as well as the self-determination theory sub-theories, cognitive evaluation theory and organismic integration theory, is included. Self-Determination Theory is widely accepted and has become the foundation for many burnout publications in the current sport psychology literature.

Recently, there has been scientific expansion into the study of the relationship between perfectionism and burnout. This area of research is provided to elucidate the connection between personality characteristics and burnout among athletes. These findings can shed light on potential directions for future research on athlete burnout.

Another potential precursor to the burnout syndrome might be athletes’ perceptions of their coaches’ behaviors. The coaches’ behaviors can indirectly influence athletes’ type of motivation (Horn, 2002). Current research is reviewed on how the athlete-coach relationship might impact athlete burnout.

Burnout research has been established over the years within helping professions. Current research with nurses and doctors is included to provide parallels and depth to the sport-related studies. The burnout research includes theories developed specifically for helping professionals and possible predictors of burnout for this population.

**Burnout Distinctions**

Burnout is a psychosocial construct that was first defined by Freudenberger (1975 as cited in Eklund & Cresswell, 2007) as exhaustion brought on by excessive demands of energy,
strength, or resources. Maslach and Jackson (1981, 1986) further developed Freudenberger’s construct into a syndrome that included chronic feelings of emotional exhaustion, depersonalization, and inadequate personal accomplishment (as cited in Eklund & Cresswell, 2007). A significant feature of Maslach and Jackson’s work was the development of burnout as a syndrome. A syndrome can be defined as, “…a constellation of symptoms that present defining features for a condition of some epidemiological significance” (Eklund & Cresswell, 2007, p. 622). Syndrome classification provides the groundwork for the scientific community to pursue a greater understanding of perplexing and problematic health conditions (Eklund & Cresswell, 2007).

The burnout syndrome has been examined in a variety of workplace settings, and has been found to be associated with decreased performance, low motivation, impaired health, personal dysfunction, insomnia, increased use of drugs and/or alcohol, and marital and family problems (Maslach & Goldberg, 1998; Maslach, Jackson, & Leiter, 1996). The athletic arena places many different demands and expectations on athletes than those experienced by individuals in the workplace environment. Nonetheless, the burnout syndrome has been found to be relevant in competitive sport environments, according to athlete interview data (Gould, Tuffey, Udry, & Loehr, 1996).

Raedeke and Smith (2001) based their conceptualization of athlete burnout syndrome on Maslach and Jackson’s (1981, 1986) syndrome construct. Burnout syndrome among athletes can be characterized by the continued experience of emotional and physical exhaustion, sport devaluation (e.g., a diminished belief in the benefits of sport involvement), and a reduced sense of accomplishment (Raedeke & Smith, 2001). For the duration of this paper, the term “burnout” is in reference to Raedeke and Smith’s (2001) conceptualization.

Throughout athletic culture, and even general society “burnout” has become an all-inclusive term spanning a variety of conditions including, as examples, depression, overtraining syndrome, dropout, and chronic fatigue syndrome (Eklund & Cresswell, 2007). The “everybody knows what it is” problem (Marsh, 1998, p. xvi) coupled with a wide assortment of definitions has led to difficulty in communication and confusion amongst researchers, athletes, coaches, and lay people (Eklund & Cresswell, 2007). The differences and similarities between burnout, depression, overtraining syndrome, dropout, and chronic fatigue syndrome are discussed to clarify the comprehensive definition of burnout used to guide this study.
Depression

Although there are many similarities in the symptoms of burnout and depression (Glass & McKnight, 1996), Cresswell and Eklund (2006) found evidence that sport-specific athlete burnout could be differentiated from general depression. According to the American Psychiatric Association (2000), a major depressive episode is defined as:

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

(1) Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, this may be characterized as an irritable mood.

(2) Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either a subjective account or observation made by others).

(3) Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. Note: In children, consider failure to make expected weight gains.

(4) Insomnia or hypersomnia nearly every day.

(5) Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).

(6) Fatigue or loss of energy nearly every day.

(7) Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).

(8) Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).

(9) Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

B. The symptoms do not meet criteria for a Mixed Episode (both manic and depressive symptoms at the same time).

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.
D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

E. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation (p. 168-169).

Athletes are not immune to depression. The antecedents of depression in athletes can, sometimes, stem from their sport involvements. After a cerebral brain concussion, athletes often report symptoms such as headaches, fatigue, and cognitive deficits, as well as psychiatric complications that include anxiety, irritability, and depression (Chen, Johnston, Petrides, & Ptito, 2008). The symptoms of depression in concussed athletes have been attributed to the loss of position on the team, lack of teammate support, an illusive timeline of recovery, and the injury being “invisible”. However, Chen et al. (2008) found that the depressed mood reported by concussed athletes might reflect an underlying pathophysiology consistent with a limbic-frontal model of depression. Thus depression symptoms experienced by concussed athletes might be minimized with anti-depression medication.

Not just male athletes who participate in collision sports develop the symptoms of depression. In a study conducted by Yang et al. (2007) 21 percent of 257 NCAA Division I student athletes at a mid-western university reported experiencing symptoms of depression. Most commonly, female athletes, freshmen athletes, or athletes with self-reported pain experienced the symptoms of depression. Individuals who might be prone to depression have been found to be more at risk to burnout, however, burnout tends to be situation-specific (Maslach, Jackson, & Leiter, 1997).

**Overtraining Syndrome**

Overtraining Syndrome (OTS) and major depressive disorder share numerous signs, symptoms, brain structures, neurotransmitters, endocrine pathway dysfunctions and immune responses (Armstrong & VanHeest, 2002). It is important to note that overtraining is a process, whereas OTS is an end point in this process (Uusitalo, 2006). OTS has been defined as underperformance and fatigue, often associated with frequent infections and depression (Budgett, 1998, Mackinnon, 2000). This is brought about from intense training and competition. Athletes
with OTS experience sleep disturbances, weight loss, anxiety, and irritability (Armstrong & VanHeest, 2002; Budgett, 1998; Mackinnon, 2000).

The symptoms of OTS remain frequent following two weeks of rest and the individual is not medically diagnosed with another disease (Meeusen et al., 2006). Therefore, a diagnosis can only be made retrospectively, making early recognition of OTS virtually impossible (Budgett et al., 2000; Meeusen et al., 2006). At times, OTS is diagnosed based on exclusion (Armstrong & VanHeest, 2002). Evidence has suggested that the signs and symptoms of OTS, including hormone concentrations, in endurance athletes differ from those of resistance-trained athletes (Fry & Kraemer, 1997; Fry, Kraemer, & van Borselen, 1994). The borderline between over diagnosis and under diagnosis is nearly impossible to determine (Meeusen et al., 2006).

Upper respiratory tract infections and other minor infections frequently reoccur when an athlete attempts to return to training without making a full recovery from OTS (Budgett, 1998). There is confusion as to whether athletes suffering from frequent respiratory infections, depressed mood, fatigue, and/or underperformance are all actually over trained because what is considered over trained for one individual might be under trained for another (Budgett et al., 2000). The definition of an over trained athlete can also vary based on sport, which can further complicate an OTS diagnosis.

Excessive training volume might affect the body differently than excessive training intensity (Armstrong & VanHeest, 2002). All athletes respond differently to training intensity, competition, and stress depending on their health and fitness throughout the season (Budgett, 1998). OTS leads to a decline in performance causing temporary withdrawal from competition and practice to become a necessity at times (Meeusen et al., 2006; Uusitalo, 2006).

OTS is the body’s attempt to cope with physiological and psychological stressors without sufficient rest (Mackinnon, 2000; Meeusen et al., 2006). The psychological stressors might include excessive expectations from a coach or family member, competitive stress, personality structure, social environment, relationships with family and friends, monotony in training, personal or emotional problems, and school or work related demands (Meeusen et al., 2006). Meehan, Bull, Wood, and James (2004) highlighted the role that both sport and outside stress may play in the development of OTS, suggesting that OTS develops as a result of an athlete’s inability to cope with prolonged stress.
All athletes in the Meehan et al. (2004) study reported demanding levels of training and high motivation toward competition, while also experiencing significant stress outside of their sport before OTS symptoms were presented. The types of coping mechanisms used varied among the participants. Three participants employed avoidance coping strategies, while the other two participants used a combination of avoidance and approach strategies. Athletes who used avoidance coping strategies involved themselves in new activities, unrelated to their sport. Athletes who use a combination of avoidance and approach strategies sought advice from other athletes experiencing similar situations, and also became involved in activities outside of their sport. The accumulation of stress that the participants experienced might have led them to develop intolerance to their normal training load, and ultimately the development of OTS.

The prevalence of OTS is thought to vary by sport and be the highest among athletes who compete in high endurance and high volume sports, such as swimming, triathlons, cycling, rowing, and distance running (Mackinnon, 2000). Meeusen et al. (2006) recommended that the regular monitoring of a combination of performance, physiological, biochemical, immunological, and psychological variables is the best strategy to identify athletes with OTS. Recovery from OTS is estimated from weeks to months of complete rest or greatly reduced exercise training (Mackinnon, 2000).

OTS is thought to be a precursor to failure adaptation (Tenenbaum, Jones, Kitsantas, Sacks, & Berwick, 2003b). Failure adaptation is a state in which an athlete has difficulty maintaining a balance between achieving a peak performance and avoiding OTS. During failure adaptation, an athlete is unable to cope with internal and/or external stressors. However, with the appropriate amount of recovery from an excessive training load and effective coping mechanisms, athletes have been able to overcome failure adaptation (Tenenbaum, Jones, Kitsantas, Sacks, & Berwick, 2003a).

While OTS is commonly mistaken for burnout, the signs and symptoms of OTS differ greatly from burnout. OTS is underperformance and fatigue, often associated with frequent infections and depression, which can only be diagnosed retrospectively. It is possible that an athlete with OTS might also be suffering from burnout, but the two diagnoses are mutually exclusive.

**Dropout**

Dropout and burnout are often considered to be one in the same, although this is not the
case. Athletes experiencing burnout syndrome do not always abandon their sport. Raedeke (1997) and Smith (1986) determined that dropout is one consequence of burnout, but not the definition of burnout itself. Bennie and O’Connor (2006) cited psychological (e.g. motivation, goals), social (e.g. socialization, support), economic (e.g. scholarships), educational (e.g. balancing studying and training), and political (e.g. selection criteria) as factors that influence elite level athletes’ decisions to continue or withdrawal from their sport. Other common reasons for dropout include conflict of interests with other activities, the large time commitment, lack of enjoyment, lack of recreational time, excessive pressure, and sport competence issues (Gould, Feltz, Horn & Weiss, 1982; Klint & Weiss, 1986; Seefeldt, Ewing, & Walk, 1992).

Bennie and O’Connor (2006) also indicated that most of the former athletes who participated in interviews had little or no self-belief in their ability to continue to the next level of competition. This was attributed to a lack of success during the transition phase from junior to senior level competition. Elite athletes reported that injury, coupled with a lack of coaching support, served as additional variables that influenced their decision to withdrawal from sport. Pelletier, Fortier, Vallerand, and Brière (2001) also found that athletes who withdrew from sport, perceived their coaches as less encouraging and supportive, and more controlling than athletes who were still competing.

Athletes can withdrawal from sport at any age. Butcher, Lindner, and Johns (2002) found that significant differences in the reasons for dropout varied according to the level and intensity of previous sport participation, as well as the developmental level of the participants. As the athletes aged, performance pressure and the need for time to study became more frequently cited as reasons for withdrawal, while lack of enjoyment was less frequently cited.

Often the pressure to perform is coupled with a fear of failure for athletes. Sagar, Lavallee, and Spray (2007) reported that an aversive consequence of failure for athletes was the loss of motivation and dropout. One athlete explained, “If you keep failing at an elite level it makes people quit...you lose motivation,” (Sagar et al., 2007, p. 1179). The feeling of a lack of motivation after failure induced thoughts of dropping out of the sport.

Early supplemental training for sport has also been linked to dropout among athletes. Wall and Côté (2007) found that hockey players who dropped out of the sport began off-ice training at a younger age and spent more time doing off-ice training than their counterparts. However, both groups (athletes who dropped out and those who remained competitive) played a
variety of sports when they were young and increased the number of sports they participated in throughout the sampling years. Both groups also spent the same number of hours engaged in active play and hockey-specific deliberate play. If sport specialization occurs at a developmentally inappropriate age, the physical (e.g. overtraining, injury), psychological (e.g. decreased enjoyment, burnout, depression, decreased self-esteem, fear of competition, sense of failure), and social (missed social opportunities, failure to develop transferable skills) disadvantages outweigh the benefit of increased skill level (Boyd & Yin, 1996; Fraser-Thomas, Côté, & Deakin, 2005; Hill, 1988; Hill & Hansen, 1988; Hollander, Meyers, & Arnold, 1995; Raglin, 1993).

Dropout is one consequence of burnout. In our society, however, dropout is commonly mistaken for burnout in athletes. Athletes choose to dropout of sport for various reasons, which can significantly vary based on the athlete’s age and skill level. One reason athletes might choose to dropout is because they are experiencing the symptoms of burnout.

**Chronic Fatigue Syndrome**

Phenomenological research supports the concept of a discrete fatigue syndrome that can be distinguished from depression and anxiety (Cho, Skowera, Cleare, & Wessely, 2006). Chronic Fatigue Syndrome (CFS) is characterized by a fatigue that is disproportionate to the intensity of effort that is undertaken, with significant loss of physical and social function that has persisted for six months or longer, and has no obvious cause (Fukuda et al., 1994; Shephard, 2001). Four of the following symptoms must also be present: sleep disturbances, concentration impairment, muscle pain, multijoint pains, headaches, postexertional exacerbation of fatigue, sore throat, and tender lymph nodes (Fukuda et al., 1994). Genetic studies provide evidence of CFS being a partly hereditary condition. However, environmental effects remain predominant in the research (Cho et al., 2006).

In elite athletes, overtraining and/or a negative energy balance can be precipitating factors for CFS (Shephard, 2001). A wide variety of other possible causes have been cited in the general population including psychological stress, disorders of personality and affect, dysfunction of the hypothalamic-pituitary-adrenal axis, hormonal imbalance, nutritional deficits, immune suppression or activation and chronic infection. None of these factors have been consistently observed throughout research.
CFS is estimated to affect 400,000 to 900,000 adults in the United States (Jason et al., 1999; Reyes et al., 2003). In the general population, there is a large overlap in the diagnosis of CFS and fibromyalgia, Sjögren's syndrome, and depression (Shephard, 2001). CFS is often diagnosed in athletes as OTS; however, overtraining factors can contribute to the manifestations of CFS. Sedentary individuals are also diagnosed with CFS.

Cairns and Hotopf (2005) reported that full recovery from untreated CFS is rare. For patients with CFS an improvement in symptoms is more commonly reported than a complete recovery. Athletes often experience disability or impairment of athletic performance (Shephard, 2001). However, many patients report residual symptoms or work disability during follow-up interviews (Cairns & Hotopf, 2005).

There is alarming evidence that childhood trauma is a risk factor for CFS (Heim et al., 2006; Heim et al., 2009). Participants with CFS reported significantly higher levels of childhood trauma (sexual abuse, emotional abuse, and emotional neglect) and psychopathological symptoms than the control group (Heim et al., 2009). People are six times more likely to be at risk of CFS if exposed to trauma, and the risk is further increased with the presence of posttraumatic stress disorder symptoms (Heim et al., 2006; Heim et al., 2009). Neuroendocrine dysfunction, a feature of CFS, is also associated with childhood trauma, which adds to the complexity of the syndrome (Heim et al., 2009).

Although depression, Overtraining Syndrome, dropout, and Chronic Fatigue Syndrome might be intertwined with burnout throughout the literature, they are all unfortunate negative consequences of sport participation that are identifiably distinct at some level. Depression is an experiential state, which can be influenced by a cerebral brain concussion, current life circumstances, or chronic pain. Depression also has a clinical diagnosis, which is often used by mental health practitioners to identify the experiential state of a client. Individuals who might be prone to depression have been found to be more at risk to burnout.

OTS is diagnosed when an athlete displays the symptoms of underperformance and fatigue, often associated with frequent infections and depression brought on by intense training and competition. Dropout is a consequence of burnout. There are myriad reasons athletes choose to withdrawal from sport, and the reasons tend to fluctuate based on developmental and athletic level. CFS is a sense of fatigue that is disproportionate to the intensity of effort that is
undertaken. Lay people, not just athletes, also suffer from depression, OTS, dropout, CFS, and burnout.

The common misconceptions of what burnout is, and is not, have been discussed. A detailed look Self-Determination Theory, which is commonly employed to study athlete burnout, is provided below. Within Self-Determination Theory, an explanation of the sub-theories cognitive evaluation theory and organismic integration theory are included, as well. Self-Determination Theory is the basis for the current study and considered the theoretical foundation for many published burnout studies.

**Self-Determination Theory**

Self-Determination Theory (SDT) is grounded in the concept that the innate psychological needs of autonomy, competence, and relatedness must be satisfied in order for an individual to obtain optimal functioning, social development, and personal well-being (Ryan & Deci, 2000b). Motivation requires energy, direction, and persistence, which are aspects of activation and intention (Ryan & Deci, 2000b). Different types of motivation based on different goals give rise to action (Ryan & Deci, 2000a). The most basic distinction between types of motivation are intrinsic motivation, in which one engages in an activity that this inherently enjoyable, and extrinsic motivation, in which one engages in an activity because it leads to an independent outcome (Ryan & Deci, 2000a).

Intrinsic motivation can result in high-quality learning and creativity (Ryan & Deci, 2000a). People might be intrinsically motivated to participate in some tasks, but not other tasks, and everyone is not intrinsically motivated to do one particular task. Intrinsic motivation is measured by self-report of interest and enjoyment in the task at hand, and the “free choice” measure, in which a participant chooses to return to an activity with no external motivation. Autonomy, competence, and relatedness are the key characteristics of intrinsic motivation, but not extrinsic motivation (Eklund & Cresswell, 2007).

Extrinsic motivation can vary greatly in the degree to which it is autonomous according to SDT (Ryan & Deci, 2000a). The primary reason people are willing to participate in inherently uninteresting activities, is that the activity is valued by significant others with whom they feel (or would like to) a deep connection, such as a family member, peer group, or society. According to Ryan and Deci (2000a), extrinsic motivation increases with each advancing grade in school.

An emphasis within one’s life on intrinsic goals is positively associated with mental
health, while extrinsic life goals have been found to be negatively associated with mental health (Deci & Ryan, 2000). The attainment of extrinsic life goals has little effect on well-being (once above the poverty line). Social context supportive of the psychological needs enhance intrinsic motivation, facilitate internalization of extrinsic motivation, which can result in a more autonomous orientation, and promote life goals that continually meet one’s basic needs. The meaning and desire of certain goals is culturally influenced, therefore, how goals relate to an individual’s well-being may vary across cultures (Ryan & Deci, 2000b).

Mullan and Markland (1997) reported that researchers (Fortier, Vallerand, Brière & Provencher, 1995; Pelletier et al., 1995; Vallerand et al., 1992) have found higher levels of intrinsic and identified regulation, and lower levels of external regulation in females, compared with males. Mullan and Markland (1997) also found that males and females reported having similar levels of self-determination during the preparation, action and maintenance stages of change; however, females had less self-determination during the contemplation stage of change when considering exercise than males. Individuals in the action and maintenance stages of change were more self-determined than those in the earlier stages of change.

When a behavior is self-determined, the regulatory process is a choice, and the individual perceives the locus of causality as internal. When behavior is controlled, the regulatory process is compliant and the individual perceives the locus of causality as external (Deci, Vallerand, Pelletier, & Ryan, 1991). SDT focuses on three primary psychological needs inherent to human life: competence, relatedness and autonomy. Motivation, performance and development maximized within social contexts provide individuals the opportunity to satisfy the basic psychological needs.

Competence is the perception of being effective in challenging endeavors (Deci & Ryan, 1985c). It involves understanding how to attain external and internal outcomes by being efficacious in performing the necessary actions (Deci et al., 1991). Relatedness is a feeling of connectedness and security with other people (Deci & Ryan, 1985c). Relatedness is also centrally important for internalization (Ryan & Deci, 2000b). Autonomy is self-initiation and self-regulation of one’s own actions (Deci et al., 1991).

Support for competence and relatedness facilitates internalization of a behavior (Ryan & Deci, 2000a). In addition, support for autonomy facilitates the integration of behavioral regulations. Internalization and integration are the processes through which extrinsically
motivated behaviors can become more self-determined. Support of one’s feelings of competence, relatedness, and autonomy are the basis for maintaining intrinsic motivation. While competence, relatedness and autonomy are the three key characteristics of self-determined motivation, people with self-determined motivation also display an internal locus of causality.

The term “locus of control” refers to an outcome believed to be contingent upon behavior, while the term “locus of causality” refers to a perceived source of initiation and regulation of behavior (Deci & Ryan, 1985b). The three locus-of-causality orientations include autonomy, control and impersonal. Autonomy is a sense of perceived internal locus of causality that is displayed by an individual with a high degree of self-determination with respect to extrinsic rewards. A person with a strong autonomy orientation would select a task that allows him/her to organize personal goals and interests, rather than react to controls and constraints. These people view extrinsic rewards as affirmations of their competence, but their goals and actions are not controlled by compensation. A high level of autonomy orientation leads to self-determined functioning (Deci & Ryan, 1985a).

The control orientation is evident when a person’s actions stem from controls in the environment or inside oneself (Deci & Ryan, 1985b). Highly control oriented people do things because they believe they “should”. These people rely on deadlines, surveillance, or imposed pressure to motivate themselves. Extrinsic rewards play a determinative role in control-oriented people’s behavior; therefore, status, pay, and prominence tend to determine the tasks chosen.

The impersonal orientation is a perceived lack of intentional control over behaviors (Deci & Ryan, 1985b). Impersonally oriented people believe they are unable to regulate their actions in order to produce the desired outcome. Highly impersonally oriented people view themselves as incompetent and unable to successfully master the task at hand. Because a task might be too difficult, these people view the result as independent of their behavior. Compared to autonomy and control oriented individuals, impersonally oriented people are the least self-determined. Depressive feelings about a current situation coupled with a strong anxiety in relation to entering new situations are often evidence of impersonal orientation.

Self-determination, in the forms of intrinsic motivation and autonomous internalization, can lead to beneficial outcomes for individuals and society (Deci et al., 1991). In order to enhance self-determination, Deci et al. suggested offering choices, minimizing controls, acknowledging feelings, and making information available that is crucial for decision making
and performing the task at hand. Improved self-determination in individuals can lead to employees feeling positive about the work they are doing and, therefore, more production in the workplace.

Ryan and Deci (2008) applied SDT to the domain of psychotherapy. Since SDT is grounded in the basic principles of motivation, it can be applied to all therapeutic techniques, regardless of how outcome focused the technique may be. Autonomy is a critical element of success in therapy, and therefore clients who experience more positive treatment outcomes will be likely to persist over time, when facilitated throughout treatment. By focusing on therapy as an active growth process and assisting clients’ in nurturing their psychological needs, the SDT approach brings elements from psychodynamic, humanistic, and existential theories into empirically supported practices.

The current research study and a plethora of previous research related to burnout have been heavily rooted in SDT. SDT is grounded in the concept that humans have innate psychological needs (e.g., autonomy, competence, and relatedness), and that these psychological needs must be satisfied in order for an individual to obtain optimal functioning, social development, and personal well-being (Ryan & Deci, 2000b). When these needs are not met, it is more likely that an individual will start to report the symptoms of burnout, which include emotional and physical exhaustion, sport devaluation, and a reduced sense of accomplishment. The sub-theories discussed will further link the SDT and burnout relationship.

**Cognitive Evaluation Theory**

Cognitive Evaluation Theory (CET) is a sub theory within the larger SDT framework that was developed to specify the factors in social contexts that produce variability in intrinsic motivation (Deci & Ryan, 1985c; Ryan & Deci, 2000a). CET was formulated to integrate results from initial laboratory studies on the effects of rewards, feedback, and other external events on intrinsic motivation (Ryan & Deci, 2000b). Interpersonal events that aid in the development of feelings of competence during action can enhance intrinsic motivation, according to CET (Ryan & Deci, 2000a).

The motivation for action is developed because the basic psychological need for competence is satisfied (Ryan & Deci, 2000a). The feelings of competence are not enhanced by intrinsic motivation unless one also has a sense of perceived locus of causality or a sense of autonomy. Ryan (1982) reported that ego-involved individuals were less intrinsically motivated
than task-involved participants, despite both experimental groups receiving equal amounts of competence feedback related to success. Controlling feedback, whether self-administered or administered by others, undermined intrinsic motivation relative to informational feedback. Self-determined behavior is necessary if intrinsic motivation is to be maintained or enhanced (Ryan & Deci, 2000a).

Deci et al. (1991) demonstrated that when students received rewards for participating in an interesting endeavor, they lost interest and displayed a decreased desire to work on the activity after the reward was terminated, compared to students who did not receive rewards for participating (Deci, 1971; Harackiewicz, 1979; Lepper, Greene, & Nisbett, 1973). When rewards were presented in a non-controlling style, and signified competence, intrinsic motivation could be maintained or enhanced (Deci et al., 1991). Being controlled by an external event tends to diminish an individual’s sense of autonomy, thus developing an external perceived locus of control, and decreasing intrinsic motivation. Although intrinsic motivation is often enhanced by positive feedback, when the feedback is presented in a controlling manner, intrinsic motivation decreases (Deci et al., 1991).

Organismic Integration Theory

The Organismic Integration Theory (OIT) is another sub-theory of SDT that was developed to detail the different forms of extrinsic motivation, and the contextual factors that promote or hinder internalization and integration of regulation (Deci & Ryan, 1985c). According to SDT, different motivations reflect differing degrees of internalized and integrated valuation and regulation of the extrinsically motivated behavior (Ryan & Deci, 2000b). All extrinsically motivated behaviors are instrumental to a consequence (Deci et al., 1991). The four types of extrinsic motivation identified by Deci and Ryan (1985c) are external, introjected, identified, and integrated forms of regulation (see Figure 1).

OIT outlines several forms of behavioral regulation, which vary in degrees of self-determination (Mullan & Markland, 1997). Internalization is most likely to occur when there is adequate support for feelings of autonomy, relatedness and competence, according to OIT (Ryan & Deci, 2000b). The classification of human motivation ranges from amotivation to intrinsic motivation (Ryan & Deci, 2000a). A new behavioral regulation can be adopted at any point along the continuum depending upon previous experiences and situational factors (Ryan, 1995).

Amotivation, defined as the state of lacking an intention to actively participate, is an
impersonal locus of causality (Ryan & Deci, 2000a). Amotivation is the antithesis of self-determination. An athlete can be amotivated without experiencing burnout (Eklund & Cresswell, 2007). However, a positive relationship exists between burnout and amotivation in athletes who choose to continue to participate in sport. Burnout is most likely to occur in athletes when basic psychological needs are unfulfilled.

External regulation refers to actions that have an external locus of initiation to the individual (Deci & Ryan, 1985c). Rewards, punishments, or threats stimulate the behavior. Introjected regulation involves internalized rules or demands that pressure an individual into action. Although introjected regulation is internal, it is considered more external control, rather than a self-determined form of regulation, because it involves coercion or seduction, not one’s true choice (Deci et al., 1991). Identified regulation occurs when an individual accepts the regulatory process and comes to value the behavior in which he/she identifies (Deci & Ryan, 1985c). The individual engages in the activity willingly because there is a perceived sense of choice and no external pressure.

Integrated regulation is the most developmentally advanced form of extrinsic motivation (Deci & Ryan, 1985c). Integrated regulation is fully incorporated with the individual’s values, needs, and identities. Although integrated regulation displays some qualities of intrinsic motivation, it is characterized by the behavior being personally imperative for a desired outcome, not interest in the activity itself (Deci et al., 1991).

Intrinsic motivation is the prototype for self-determination (Ryan & Deci, 2000a). Intrinsically motivated behaviors are carried out for the pleasure and satisfaction derived from the performance (Deci et al., 1991). Intrinsically motivated people engage in the behaviors for enjoyment, not material rewards or accolades.
Deci, Koestner, and Ryan (1999) conducted a meta-analysis that examined the effects of extrinsic rewards on intrinsic motivation. All of the studies had at least one experimental and one control group. The studies were also conducted in a laboratory or under controlled conditions. From the data provided, it was concluded that tangible rewards, engagement-contingent rewards, completion-contingent rewards, and performance-contingent rewards, which included treats, deadlines, directives, pressured evaluations, and imposed goals all had a significantly negative effect on intrinsic motivation.

Rewards undermined people’s individual responsibility for motivating and regulating themselves (Deci et al., 1999). Tangible rewards were more detrimental for children, compared to college students, while verbal rewards augmented children’s motivation less than college students. Positive feedback enhanced free-choice behaviors and self-reported interest in the task. Deci et al. (1999) recommended using strategies that focus on optimizing the psychological needs associated with active engagement of the task within a specific performance setting, and therefore offering important alternatives to rewards and other social controls used to motivate behavior. Ryan and Deci (2000b) suggested that individuals who wish to motivate others in a way that fosters commitment, effort, and high-quality performance should satisfy the innate needs of autonomy, competence, and relatedness.

Cresswell and Eklund (2005a) studied changes in athlete burnout and motivation over a 12-week league tournament with professional New Zealand rugby union players. The athletes
filled out the Athlete Burnout Questionnaire (Raedeke & Smith, 2001), the Sport Motivation Scale (Pelletier et al., 1995), and demographic information before the tournament, during the tournament, and at the conclusion of the tournament. The results provided evidence of a variation in burnout across time. Motivation associated with high self-determination was negatively correlated with burnout, while motivation associated with low self-determination was positively correlated with burnout.

Cresswell and Eklund (2005a) found that aspects of the team environment coincided with players’ feelings of reduced accomplishment and physical and emotional exhaustion. However, athletes’ feelings of sport devaluation and physical and emotional exhaustion did not vary across time, when other variables (e.g. national domestic league experience, amotivation) were accounted for. Rugby players’ perceptions of physical and emotional exhaustion were also related to injuries, experience in the national domestic league, and win/loss ratio. For example, athletes who had more experience in the national domestic league reported more injuries and won more games, but reported higher levels of exhaustion. Cresswell and Eklund (2005a) cited SDT as a possible explanation for why some athletes might experience burnout without experiencing chronic stress.

In another study grounded in SDT, Cresswell and Eklund (2005b) examined the relationship among burnout and types of motivation, differing in degrees of self-determination, with amateur male rugby players. The athletes filled out the Athlete Burnout Questionnaire (Raedeke & Smith, 2001) and the Sport Motivation Scale (Pelletier et al., 1995). On the basis of structural equation modeling results, Cresswell and Eklund (2005b) reported that intrinsic motivation was negatively associated with burnout, while amotivation was positively associated with burnout. External regulation was not significantly correlated with burnout among the amateur rugby players. Sport devaluation was the most prominent indicator of burnout because it was the most relevant to this sample and in the New Zealand rugby cultural context. Cresswell and Eklund (2005b) again supported SDT as an explanation for burnout among athletes.

Lemyre, Treasure, and Roberts (2006) examined shifts along the self-determined motivation continuum and swings in positive and negative affect to predict athlete burnout. A team of NCAA Division I swimmers filled out a logbook each week recording how they felt on a series of positive and negative affect states. Every third week the athletes also completed a motivation questionnaire that assessed their current level of self-determination to participate in
swimming. Data were collected for the last 20 weeks of the competitive season.

Participants reported high levels of self-determination throughout the season; however, there were shifts in the quality of motivation related to burnout susceptibility (Lemyre et al., 2006). Athletes, who reported their motivation became less self-determined as the season progressed, scored significantly higher on all three dimensions of burnout compared to athletes with positive emotional trends. Lemyre and colleagues concluded that a shift in motivational focus over time and the development of a negative affect might be important precursors for burnout.

Lonsdale, Hodge, and Rose (2009) also examined the potential precursors of athlete burnout. Athletes who were affiliated with the Pacific Sport Canadian Sport Centres filled out an online survey after receiving an invitation via email. The athletes participated in 51 different sports, which included both team and individual sports. The online survey was comprised of measures for basic needs satisfaction, motivation, and athlete burnout.

Controlled extrinsic motivation scores were positively correlated with athlete burnout (amotivation = .72; external regulation = .47; introjected regulation = .51), while autonomous forms of extrinsic motivation were negatively correlated with burnout (identified regulation = -.43; integrated regulation = -.30; intrinsic regulation = -.59) (Lonsdale et al., 2009). Athletes who were motivated to achieve valued outcomes (autonomous extrinsic motivation) were less likely to report burnout symptoms compared to athletes who were only motivated by external demands or to avoid guilt or shame (controlled extrinsic motivation). Lonsdale et al. (2009) concluded that participation to gain extrinsic benefits might not lead to burnout if the athlete perceives the outcome to be personally rewarding.

The relationship between the athletes’ needs, exhaustion and devaluation were mediated by the athletes’ levels of self-determination (Lonsdale et al., 2009). A reduced sense of accomplishment and global burnout were only partially mediated by the athletes’ levels of self-determination. It is possible that the psychological processes responsible for reduced sense of accomplishment might be different from exhaustion and devaluation processes.

Lonsdale et al. (2009) results suggested that autonomy (-.43) and competence (-.54) were more strongly related to burnout than relatedness (-.29). Relatedness was only a significant predictor of exhaustion, while competence and autonomy predicted all three burnout symptoms and global burnout. Lonsdale et al. (2009) determined sport environments that promote needs
satisfaction appear more likely to promote self-determination, and thus prevent burnout.

SDT has been used in a myriad of burnout research. Certain types of motivation can act as precursors to burnout in athletes. Current research has found that intrinsic motivation was negatively associated with burnout, while amotivation was positively associated with burnout. Research has also supported this theory by determining that certain types of self-determined motivation have correlated with burnout symptoms. In the research presented, a lack of self-determined motivation is a potential predictor of burnout. The current study will further examine the relationship between athletes’ types of self-determined motivation and their levels of reported burnout.

Other theories used in burnout research include Social Exchange Theory and the Sport Commitment Model. A key point of Social Exchange Theory is that an athlete will only continue to participate in sport as long as he/she is getting something of value in return. Smith (1986) developed the model comprised of components for stress and burnout processes that are influenced by personality and motivational factors, which an athlete will weigh to determine the costs and benefits of continued sport participation. The research indicates that when social and psychological needs are met people report fewer burnout characteristics and are likely to continue participation (Guillet, Sarrazin, Carpenter, Trouilloud, & Cury, 2002; Halbesleben, 2006).

Sport commitment, might be considered the opposite of sport devaluation, a key component of burnout. Athletes are committed to sport because they want to be involved or because they feel pressure to be involved (Raedeke, 1997). Athletes who participate in sport for entrapment-related reasons can potentially experience burnout (Raedeke, 1997). Scanlan and colleagues proposed that commitment to sport participation is a function of an athlete’s enjoyment associated with their sport, the attractiveness of alternatives to their sport, personal investments in sport, and social constraints to continued participation (Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993; Scanlan, Russell, Beals, & Scanlan, 2003; Scanlan, Russell, Magyar, & Scanlan, 2009; Scanlan, Simons, Carpenter, Schmidt, & Keeler, 1993). Although Social Exchange Theory and the Sport Commitment Model are reputable theories, they fail to focus on the athletes’ type of motivation in the way self-determination theory comprehensively does.

**The Influence of Perfectionism on Burnout**
Perfectionism is considered to be a personality characteristic that reflects the compulsive pursuit of exceedingly high standards and the tendency to engage in overly critical evaluation of accomplishments (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991 as cited in Appleton, Hall, & Hill, 2009). Recently, the influence of perfectionism on burnout has been examined more closely through research. Stoll, Lau, and Stoeber (2008) determined striving for perfection, while training, predicted higher performance in the new task. However, negative reactions to imperfection predicted lower performance when athletes attempted the task for the first time. Over a series of trials, athletes with both high levels of striving for perfection and high levels of negative reactions to imperfection displayed the greatest performance increments. Stoll et al. suggested that perfectionism is not necessarily a maladaptive characteristic that undermines sport performance.

Dunn, Gotwals, and Causgrove Dunn (2005) reported that male intercollegiate student-athletes displayed higher levels of perfectionist tendencies in sport than female student-athletes but gender differences were not observed when the same participants judged their perfectionist tendencies in school or on a global basis. Dunn et al. suggested that individual differences in perfectionism could be attributed to the situational context of the achievement domains when judging perfectionist tendencies.

Gustafsson, Hassmén, Kenttä, and Johansson (2008) conducted in-depth semi-structured interviews with Swedish athletes who had quit their sport due to burnout. All participants were chosen because they scored high on the Athlete Burnout Questionnaire (Raedeke & Smith, 2001). The participants were between the ages of 22 to 26 years old and had dropped out of their sport an average of 2.4 years before the interview was conducted.

Multiple demands, “too much sport”, lack of recovery, and high expectations were found to be the primary causes of burnout (Gustafsson et al., 2008). High motivation, one-dimensional athletic identity, striving for self-esteem, high ego goals, feelings of entrapment, and perfectionist traits were also crucial contributors to athlete burnout. Six of the athletes interviewed described themselves as having maladaptive perfectionist traits. One athlete explained, “I’m very self-critical, I put up very high goals but I’m never satisfied when I reach them,” (Gustafsson et al., 2008, p. 811). Gustafsson et al. shed light on athletes suffering from perfectionist characteristics and the consequences they endured. From the research it was implied perfectionism could be a predictor of burnout in Swedish athletes.
Hill, Hall, Appleton, and Kozub (2008) examined the influence of self-oriented and socially prescribed perfectionism on burnout in elite junior soccer players. Hill et al. also investigated whether the association between perfectionism and burnout was mediated by unconditional self-acceptance. Male youth soccer players from United Kingdom Centres of Excellence completed a multi-sectional questionnaire that contained the Athlete Burnout Questionnaire (Raedeke & Smith, 2001), the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991), which assessed self-oriented and socially prescribed perfectionism, the Unconditional Self-Acceptance Questionnaire (Chamberlain & Haaga, 2001), and two items on satisfaction and perceived coach satisfaction.

Hill et al. (2008) observed positive relationships between socially prescribed perfectionism and ABQ subscales (i.e., physical and emotional exhaustion, reduced accomplishment, and sport devaluation). An inverse relationship was observed between self-oriented perfectionism and the three dimensions of burnout. However, self-oriented perfectionism displayed a positive relationship with burnout via unconditional self-acceptance. Also, athletes exhibited different patterns of burnout as a function of the type of dispositional perfectionism displayed. This supports a multidimensional conceptualization of perfectionism and highlights the importance of differentiating between specific dimensions of perfectionism.

Athletes who exhibited high levels of self-orientated perfectionism were higher in levels of satisfaction with goal progress (Hill et al., 2008). The findings of this study indicated that even though the self-critical processes were speculated to be responsible for some of the negative outcomes of self-oriented perfectionism, the processes could be moderated by other variables. The need to validate a sense of self-worth appeared to be an important active variability factor central to the construct and its association with maladaptive outcomes.

Appleton, Hall, and Hill (2009) examined the moderating influence of perceptions of goal progress and achievement goal orientations on the relationship between multidimensional perfectionism and athlete burnout. Male junior-elite athletes, who participated in soccer, cricket and tennis, completed a multi-section inventory. Results supported a positive association between socially prescribed perfectionism and the three dimensions of athlete burnout. The data suggested that when athletes exhibited characteristics of socially prescribed perfectionism, they might impede their sport performance and athletic development. Socially prescribed perfectionism was inversely related to both perceived satisfaction with goal progress and
perceptions of coach satisfaction. Thus, burnout may be inevitable under these circumstances because striving for achievement has been considered insufficient to gain external endorsement.

Appleton et al. (2009) stated that athletes with low self-oriented perfectionism and high ego orientation acknowledged perceptions of reduced accomplishment. Athletes with high self-oriented perfectionism and high ego orientation reported fewer perceptions of reduced accomplishment. Self-oriented perfectionism was inversely related to burnout, however socially prescribed perfectionism was an antecedent of athlete burnout. The data suggested that not all forms of perfectionism appeared to be inherently debilitating.

Appleton et al. (2009) found that athlete satisfaction and perceived coach satisfaction with goal attainment did not affect the relationship between self-oriented perfectionism and burnout. Perceptions of athlete and coach satisfaction were inversely associated with all burnout dimensions, and were found to be significant predictors of reduced accomplishment, independent of perfectionism. Appleton et al. (2009) suggested that greater variability in dissatisfaction with goal progress was necessary before determining whether perceived goal satisfaction would moderate the effects of self-oriented perfectionism on burnout.

Chen, Kee, and Tsai (2009) examined the influence of adaptive and maladaptive perfectionism on adolescent burnout in Taiwan. The results supported the dual model of perfectionism in that striving for perfection negatively correlated with the three dimensions of athlete burnout, and negative reactions to imperfection had an inverse correlation with athlete burnout, using a cross-sectional regression analysis. However, using a longitudinal analysis, striving for perfection and negative reactions to imperfection in June 2007 were not significant predictors of athlete burnout in September 2007. Chen et al. (2009) also reported that perfectionism is not necessarily maladaptive.

The data revealed both males and females had higher scores on sport-specific perfectionism than on school and global perfectionism (Chen et al., 2009). Chen et al. (2009) described perfectionism as a “double-edged sword” and encouraged athletes to embrace striving for perfection because it is essential to motivation, performance, and well-being as long as they do not become dissatisfied or frustrated with their imperfections. “Adaptive seeking high achievement could be promoted through positive reinforcement, while unrealistic goals and self-criticism should be minimized” (Chen et al., 2009, p. 198).

Most of the research reviewed supports the concept that perfectionism is not necessarily
maladaptive, but can be an antecedent to burnout. Although only correlational data is available at this time, in the dual model it might even be suggested that striving for perfectionism serves as a protective function. Further research must be conducted to clarify the relationship between perfectionism and burnout in athletes. Longitudinal studies could also shed light on the development of perfectionism in athletes over time and its effects. The current study will examine the complex relationship between perfectionism, motivation, and burnout.

**Coaching Influence on Burnout**

Athletes’ perceptions of coaching behaviors might be a precursor to the burnout syndrome. The current study will examine if the types of motivation described in SDT, particularly amotivation, external regulation, and introjected regulation, act as a mediator, or a partial mediator, between coaching behaviors and burnout. Research has not been conducted on the effect of perceptions of the coaches’ controlling use of rewards, negative conditional regard, intimidation and excessive personal control on athletes’ motivation or reported levels of burnout using a SDT perspective because the Controlling Coach Behaviors Scale was only recently published (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010).

Although there is no current research related to the Controlling Coach Behaviors Scale (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010), it is rooted heavily in SDT. SDT includes two interpersonal teaching (coaching) styles: autonomy-supportive and controlling (Deci & Ryan, 1985c). Autonomy-supportive instructors encourage athletes to self-initiate their athletic goals and create an environment for athletes to have options and make decisions. Autonomy-supportive instructors also enhance athletes’ self-determination because they contribute to the satisfaction of their psychological needs.

Controlling instructors or coaches manage their teams in an authoritarian manner and impose a preconceived way of thinking onto the athletes (Deci & Ryan, 1985c). These instructors are often coercive and pressure their athletes into practicing. When an athlete perceives the coach’s pressure as the origin of his/her own behavior, it can change the athlete’s perceived locus of causality from internal to external. Controlling instructors disregard athletes’ psychological needs, and reduce their sense of self-determination.

This line of thought is also expressed in Horn’s (2002) model of coaching effectiveness. The model has roots in many theories, including self-determination theory. In the model, Horn (2002) maintains that coaches’ behaviors can directly influence athletes’ perceptions,
interpretation, and evaluation of their coaches’ behavior, which in turn, influences athletes’ self-perceptions, beliefs, and attitudes. Athletes’ self-perceptions, beliefs, and attitudes can also influence athletes’ level and type of motivation, as well as athletes’ performance and behavior. The coaches’ behavior can also directly influence the athletes’ performance and behavior.

Black and Weiss (1992) examined the relationships between perceived coaching behaviors (e.g., praise, instruction, criticism), perceived swimming ability, and motivation (e.g., competence, enjoyment, effort) in age group swimmers. The athletes who reported their coaches gave more praise and information, following a good race, perceived higher levels of success, competence, motivation, and enjoyment, than their swimming peers. However, female swimmers did not perceive their coaches giving them praise as often as the male swimmers.

Black and Weiss (1992) also found coaches’ statements were considered to be negative by the athletes, even when the statements were informational. These statements had a detrimental effect on the athletes’ self-perceptions of motivation and ability. Coaches should be aware that if they are making an informational statement to an athlete that has a negative context, it could influence the athletes’ level of motivation and perceptions of their ability.

Weiss, Amorose, and Wilko (2009) also reported that positive and informational coaching feedback statements were significantly related to athletes’ perceptions of competence, enjoyment, and intrinsic motivation in female adolescent soccer players. The combined influence of feedback and a mastery motivational climate developed by the coach influenced the athletes’ psychosocial responses. The motivational climate might also influence how the coaching feedback is interpreted, which consequently influences the athletes’ psychosocial responses.

Chelladurai (1984) investigated basketball, wrestling, and track and field athletes’ preferences for leadership behavior and found athletes’ satisfaction with leadership behavior increased as the coaches’ emphasis on instruction and training increased. Basketball players’ satisfaction with leadership also increased as the coaches’ democratic behavior, social support, and positive feedback also increased. Wrestlers’ satisfaction with leadership increased as the social support increased, as well. This study implies that different sports might require different coaching techniques in order for the athletes to be satisfied with the team leadership.

While coaches’ feedback can influence athletes’ motivation and leadership satisfaction, it has also been reported that athletes’ perceptions of their coaches’ communication style and behavior (e.g., praise/dispraise, autocratic decision making style, emphasis on winning, empathy)
might impact the occurrence of burnout and anxiety in the collegiate athletes (Vealey, Armstrong, Comar, & Greenleaf, 1998). Athletes who reported high levels of a reduced sense of accomplishment, sport devaluation, and emotional and/or physical exhaustion also reported their coaches were less empathetic, emphasized dispraise, used an autocratic coaching style, and placed a large emphasis on winning. Vealey et al. suggested the coaching behaviors that related to burnout also seemed to contribute to athletes’ perceptions of severe practice conditions. On the other side, athletes who perceived their coaches’ behavior was more empathetic, emphasized praise, and had a less autocratic style reported stronger perceptions of accomplishment and congruent coach-athlete expectations. It is possible coaches’ behaviors might influence athletes’ levels of burnout.

It is plausible that athletes’ perceptions of their coaches’ behaviors influence their motivation. The only known measure of perceived coaching behaviors using SDT has only recently been published. However, coaches’ behaviors can indirectly influence athletes’ type of motivation, and possibly burnout. In the proposed study athletes’ perceptions of their coaches’ behavior will correlate with the type of self-determined motivation and potentially the level of burnout.

**Burnout in Helping Professions**

There are a number of studies on burnout in helping professions that might have implications to sport contexts. Borritz, Rugulies, Christensen, Villadsen, and Kristensen (2006) investigated the impact of burnout on the number of sick days and the number of times human service workers fell ill in a one-year time span. This research was based on a larger ongoing prospective study. The number of sick days and the times ill throughout the year was measured based on self-report. Burnout was measured using the Copenhagen Burnout Inventory (CBI) that was developed specifically for the ongoing study on burnout, motivation, and job satisfaction (Borritz, Rugulies, Bjorner, Villadsen, Mikkelsen, & Kristensen, 2006). The CBI focused on exhaustion and its attribution to the person.

It was determined that burnout did correlate with both the number of sick days and the number of times a participant was ill throughout a year (Borritz et al., 2006). An increase of one standard deviation on the work-related burnout scale predicted a 21 percent increase in days taken off work due to illness, after adjusting for other possible influencing variables. A decrease in burnout predicted a decrease in sickness absence, as well. An increase of one standard
deviation on the CBI predicted a nine percent increase in the number of times a person would become ill within one year. The higher rate ratios for the number of days absent from work suggested that burnout had a stronger influence on the length of time sick, rather than the frequency of times a participant fell ill.

While service workers who reported symptoms of burnout were likely to miss more days of work due to illness than their co-workers, Payne (2001) investigated potential coping strategies for burnout, specifically with hospice workers. Payne (2001) also reported on the aspects of the nursing profession that were positively or negatively related to burnout. The burnout levels were low within the sample of hospice workers. The levels of emotional exhaustion and depersonalization were comparable with other hospice samples and work stressors were found to be the most important determinant of burnout within the sample. The greatest stressor reported by the hospice nurses was ‘conflict with other staff’.

Payne (2001) reported two coping strategies that were related to reducing burnout. The first was a problem-focused strategy, which consisted of planning and problem solving. The second was an emotion-focused strategy, which was the use of positive reappraisal or reframing. The evidence from this study suggested that although some problem-focused strategies were negatively related to burnout, other strategies were positively related, and the strategy may depend on the situation. Other suggestions for stress management included staff training to develop counseling skills to cope with stress, monitoring staff conflicts, and monitoring particularly vulnerable groups of hospice staff.

Keidel (2002) stated that certain personalities (e.g. overly contentious, perfectionist, self-giving) were more susceptible to stress and fatigue among hospice nurses. A main source of stress for nurses was the work environment (Keidel, 2002; Plante & Bouchard, 1996). Other factors that might act as a catalyst for burnout in nurses included the personal characteristics of the patient care staff, the primary caregiver, and the hospice patient (Keidel, 2002). These characteristics included culture, race, age, sex, sexual orientation, stage of the illness, spiritual beliefs, education and socioeconomic status.

The symptoms of burnout in nurses included emotional and physical fatigue, manifestations of physical symptoms, and patient care turnover (Keidel, 2002). The two methods suggested for coping with burnout included a direct approach and an indirect approach. Using the direct approach, a nurse could attempt to change what he or she was able to within the
situation and environment. On the other hand, a nurse might choose to accept and adapt to what he or she could not control, which was the indirect approach.

Nurses are not the only helping profession that suffers from burnout. Bakker, Schaufeli, Sixma, Bosveld, and van Dierendonck (2000) studied general practitioner doctors in the Netherlands over a five-year time period. From the data obtained, Bakker et al. (2000) developed a model that suggested repeated confrontation with demanding patients over an extended period of time might have caused perceptions of inequality among general practitioners, thus deleting emotional resources and initiating the burnout syndrome. Therefore, it was not the patient demands alone that might trigger burnout, but rather the perceived imbalance in the relationship between the patient and the general practitioner that could initiate burnout. The results also suggested that emotional exhaustion evoked a cynical attitude towards patients (depersonalization) and reduced feelings of competence.

Feelings of exhaustion might be a precursor of depersonalization and could be a direct cause of a decline in feelings of competence and work achievement (Bakker et al., 2000). Further, Bakker et al. (2000) stated that the general practitioners experiencing depersonalization in 1991 reported greater intensity and frequency of patient demands in 1996, when controlling for patient demands in 1991. This suggested that general practitioners, who attempted to gain emotional distance from their patients to cope with their exhaustion, could have induced demanding and threatening patient behaviors themselves.

Gopal, Glasheen, Miyoshi, and Prochazka (2005) studied the levels of burnout among medical students before and after they were restricted to an 80-hour workweek and no more than 30 hours of continuous patient care and education. The medical interns’ emotional exhaustion, depersonalization, and depression levels all decreased from 2003 to 2004 (Gopal et al., 2005). Their levels of personal accomplishment remained steady throughout the change in workload restrictions. The overall educational experience was negatively affected by the changing schedule.

Even though the residents in the Gopal et al. (2005) study had more time away from clinical responsibilities, they reported attending fewer conferences. The direct time the residents spent with the attending physicians did not increase during the transition either. Unfortunately, a side effect of work hour restrictions was the overall decrease in satisfaction with the training program. Although reducing work hours might decrease the levels of burnout among medical
residents, it may also affect education and quality of care for the patients.

Medical personnel are not the only people at risk of burnout while assisting the sick. van den Heuvel, de Witte, Schure, Sanderman, and Meyboom-de Jong (2001) identified which caretakers of stroke patients experienced the highest levels of strain and were at risk for burnout. The regression analysis showed that patient and caretaker characteristics, resource variables, and the use of active coping strategies influenced the caretakers’ strain, mental health and vitality. Women, younger caretakers, caretakers who were not in good physical health, and caretakers of patients with severe emotional, cognitive and behavioral consequences from a stroke experienced the most negative consequences from the caretaker role. The cognitive, emotional and behavioral changes in the patient had the strongest negative influences on the caretaker.

High confidence in knowledge, self-efficacy, satisfaction with social support and frequent use of coping strategies all had a positive influence on the caretaker (van den Heuvel et al., 2001). The duration of the caretaker role did not influence the caretakers’ strain, mental health or vitality. Individuals who recently became caretakers experienced similar levels of strain compared to those who had been a caretaker for a longer period of time. Young female caretakers of patients who suffered from severe consequences of a stroke were at the greatest risk for burnout. van den Heuvel et al. suggested that support programs for caretakers should be implemented that includes education about self-efficacy, development of coping strategies, and training to develop social support that could assist the caregiver.

From the data reviewed, it is clear athletes are not the only group of people who suffer from burnout symptoms. Service workers, hospice nurses, doctors, medical students, and caretakers have all reported symptoms of burnout. The research presented could be beneficial to consultants in identifying some of the antecedents of burnout and while working with people experiencing burnout, including athletes.

**Summary**

This literature review included an in-depth analysis of recent and established research on burnout related topics to provide background and depth to the current study. Because burnout is a complex, multidimensional and easily confused construct, an established definition of burnout was provided. Also, due to many common misunderstandings, distinctions between burnout and depression, overtraining, dropout, and chronic fatigue syndrome were examined.
A detailed look at Self-Determination Theory was integrated into this review. Within SDT, an explanation of the sub-theories, cognitive evaluation theory and organismic integration theory, were presented. Many current burnout publications subscribe to Self-Determination Theory as the foundation for research. The current research will be rooted in SDT, as well, with an emphasis on organismic integration theory.

Recently, there has been scientific expansion in the relationship between perfectionism and burnout. This area of research was provided to include the connection between personality characteristics and burnout among athletes. These findings could shed light on the future direction of burnout research and served as part of the inspiration for the current study.

Another potential precursor to the burnout syndrome could be athletes’ perceptions of their coaches’ behaviors. Researchers have reported that athletes’ perceptions of their coaches’ communication style and behavior might impact the occurrence of burnout and anxiety in the collegiate athletes. It is possible the athlete-coach relationship could influence athlete burnout, as well.

Researchers first used helping professionals as the potentially burnt out population in their studies. Current research with nurses and doctors was included in this literature review to provide parallels and depth to the sport-related studies presented. The burnout research included theories developed specifically for helping professionals and possible predictors of burnout for this population.

The research on burnout is extensive, however, there are still many questions left unanswered. There is a need for epidemiological reports on the prevalence of burnout, the identification of definitive causes of burnout, more effective ways to treat those suffering from burnout, and possible resolutions to this syndrome. Once accurate, scientific information is available to assist those suffering from burnout it is likely that more athletes, doctors, nurses, and others will remain proficient in their field for longer periods of time. The benefits of burnout research to individuals and society are numerous.

The purpose of this study is to examine the relationships among perceived coaching behaviors, types of motivation, perfectionism and burnout. Currently, there are not any published data on a conceptual model of these possible antecedents of burnout. However, the precursors of burnout have been a matter of considerable interest to researchers studying this aversive experiential state. If a resolution to the burnout syndrome is developed, the dropout rates in sport
or work might decrease, job satisfaction could increase, exercise adherence could increase, and
the general well-being of people experiencing burnout could be restored.

Hypotheses

To further the research of Cresswell and Eklund (2005b), Lonsdale et al. (2009) and
Appleton et al. (2009), an examination of the relationships among perfectionism, perceived
coaching behaviors, types of motivation, and burnout were conducted. Two conceptual models
are hypothesized to account for the possible relationships among variables.

Model A. (see Figure 2)

1. Athletes who rate their coaches high on the controlling use of rewards, negative
   conditional regard, intimidation, and excessive personal control subscales will report
   high levels of amotivation, external regulation, and introjected regulation.
2. Athletes who report high levels of socially prescribed sport perfectionism will also
   report high levels of amotivation, external regulation, and introjected regulation.
3. Athletes who report high levels of amotivation, external regulation, and introjected
   regulation will score high on all three levels of burnout (emotional/physical
   exhaustion, sport devaluation, and a reduced sense of accomplishment).
4. Athletes who report high levels of identified regulation, integrated regulation, and
   intrinsic motivation will exhibit lower scores on all three dimensions of athlete
   burnout.
Model B. (see Figure 3)

1. Athletes who rate their coaches high on the controlling use of rewards, negative conditional regard, intimidation, and excessive personal control subscales will be partially mediated by amotivation, external regulation, and introjected regulation with all three dimensions of athlete burnout (emotional/physical exhaustion, sport devaluation, and a reduced sense of accomplishment).

2. Athletes who rate their coaches low on the controlling use of rewards, negative conditional regard, intimidation, and excessive personal control subscales will report high levels of identified regulation, integrated regulation, and intrinsic motivation. These athletes will exhibit lower scores on all three dimensions of athlete burnout.

3. High socially prescribed perfectionism scores will be partially mediated by amotivation, external regulation, and introjected regulation with all three dimensions of athlete burnout.
Figure 3. Model B. A conceptual representation of the second hypothesis.
CHAPTER 2

METHODS

In the present study, athletes' perceptions of coaching behaviors, levels of perfectionism, types of motivation, and levels of burnout were examined. The relationship between perceptions of coaching behaviors, levels of perfectionism, and types of motivation were investigated. Further investigations included how these three variables interacted as possible antecedents of burnout in collegiate athletes during the swim season and after the completion of the competitive season.

Participants

The alpha level was set at .05 (Green, 1991). The power level was set at .80, which is commonly recommended in behavioral research (Cohen, 1988). Based on these values, it was determined that approximately 400 participants (males ≈ 200; females ≈ 200) were needed for the current investigation.

Division I collegiate swimmers were invited to participate in this study. All participants were currently competing for a collegiate team. They received a forwarded email message from their head coach about the study, sent by the principle investigator, requesting their completion of a questionnaire through an online survey website. Only the athletes who were 18 years of age or older, completed the survey.

Five hundred and seven Division I swimmers responded to the survey request. All survey participants were between the ages of 18 and 23 years old (M = 19.71, SD = 1.19). Six of the respondents were under 18 years old, so they were not routed to complete the survey. Athletes responded from the Mid-American Conference (n = 80), Big East Conference (n = 78), Atlantic Coast Conference (n = 145), Big Ten Conference (n = 94), Southeastern Conference (n = 50), Conference USA (n = 9), Big Twelve Conference (n =19), and the Pacific Ten Conference (n = 22).

Based on the mean age of the participants, it is not surprising that most of the swimmers were freshman and sophomores in college (n_{freshman} = 159, n_{sophomore} = 141, n_{junior} = 109, n_{senior} = 86, n_{5th year/masters} = 5). The majority of the swimmers identified with being female (n_{female} =
360, \( n_{\text{male}} = 140, \) I did not provide an indication of gender), which generally aligned with the NCAA report on participation rates that stated there were substantially more women than men who competed on Division I swim teams (DeHass, 2008).

The majority of the sample was Caucasian (\( n = 446 \)) and very few participants identified with any other ethnicity, or a combination of ethnicities (i.e., Black, Asian, Hispanic, Indian, Native American, Other). Swimming is generally not a very diverse sport, so it was expected that the vast majority of participants would be Caucasian. In terms of nationality, the overwhelming majority of participants were from the United States (\( n = 440 \)) but a balance of the athletes from 29 other countries added some international diversity to the sample.

The swimmers reported that they had been swimming competitively for an average of 11.61 years (\( SD = 3.28 \)) and the majority were on scholarship (\( n = 373 \)). Only a small number of swimmers reported swimming for another university before transferring to the school where they currently competed (\( n = 28 \)). A large majority of the athletes (\( n = 441 \)) also reported that they were not currently injured. The athletes who were injured most frequently reported shoulder, lower back, hip, and knee issues, which are all common injuries among swimmers.

The athletes had a window of about three weeks to complete the survey while in season. Because some coaches mentioned their athletes did not have the time to complete the survey due to many other athletic and university obligations and not enough questionnaires were completed to imply statistical significance, an out of season group was formed, as well. Athletes were given approximately three weeks to complete the survey upon completion of the competitive swim season. The slight majority of the athletes responded to the survey while still in season (\( n_{\text{in season}} = 280, n_{\text{out of season}} = 221 \)).

**Instruments**

Five inventories were included in the online survey. A demographic information questionnaire, the Athlete Burnout Questionnaire (ABQ), the Behavioral Regulations in Sport Questionnaire (BRSQ), the Controlling Coach Behaviors Scale (CCBS), and the Multidimensional Perfectionism Scale (MPS-H) were used to collect the data in this investigation.

**Demographic Information Questionnaire** (Appendix D). The inventory includes questions pertaining to the athletes’ age, year in college, ethnicities, and swimming background.

**Athlete Burnout Questionnaire** (ABQ; Raedeke & Smith, 2001; Appendix E). The
ABQ is a psychometrically sound measure of athlete burnout. The 15-item inventory contains three subscales each comprised of five items: (a) reduced sense of accomplishment (e.g., “I am not achieving much in [sport]”), (b) emotional/physical exhaustion (e.g., “I feel physically worn out from [sport]”), and (c) devaluation (e.g., “I have negative thoughts towards [sport]”). For this investigation, “swimming” was substituted for “sport” to apply to the sample. Participants responded to each item using a 5-point Likert-type scale ranging from almost never (1) to almost always (5). The ABQ has demonstrated factorial validity (RMSEA < .08, CFI > .92, GFI > .8, NNFI > .9), internal consistency (α ranging from .84 to .91), and test-retest reliability (emotional/physical exhaustion = .92, reduced sense of accomplishment = .86, sport devaluation = .92). Cresswell and Eklund (2006) found support for convergent and discriminant validity of the subscales within the ABQ and the Maslach Burnout Inventory-General Survey (Maslach, Jackson, & Leiter, 1996). The reduced sense of accomplishment (.67), exhaustion (-.64), and devaluation (.73) subscale correlations were well within the acceptable range. The ABQ has been accepted as an appropriate measure to assess athlete burnout (Cresswell & Eklund, 2006; Raedeke & Smith, 2001).

Behavioral Regulations in Sport Questionnaire (BRSQ; Lonsdale, Hodge, & Rose, 2008; Appendix F). The BRSQ is a 24-item inventory that measures competitive athletes’ intrinsic motivation (e.g., “I participate in my sport because I find it pleasurable”), extrinsic motivation (e.g., “I participate in my sport because if I don’t other people will not be pleased with me”), and amotivation (e.g., “I participate in my sport but the reasons why are not clear to me anymore”). For this investigation, “my sport” was substituted with “swimming” when applicable. Participants responded to each item using a 7-point Likert scale ranging from not at all true (1) to very true (7). Internal consistency (α ranging from .93 to .79), test-retest reliability (amotivation = .83, external regulation = .79, introjected regulation = .87, identified regulation = .88, integrated regulation = .90, intrinsic motivation = .73), and the factorial validity (RMSEA < .08, CFI > .95, TLI > .95) support the BRSQ as a measure of the types of athlete motivation (Lonsdale et al., 2008). Factor merging analysis was used to investigate the discriminant validity between the BRSQ and the Sport Motivation Scale (Brier, Vallerand, Blais, & Pelletier, 1995). However, the discriminant validity of identified and integrated factors was not universally supported.

Controlling Coach Behaviors Scale (CCBS; Bartholomew, Ntoumanis, & Thøgersen-
The CCBS is a multidimensional measure designed to assess coaches’ controlling interpersonal style. The 15-item inventory measures the athletes’ perceptions of their coaches’ controlling use of rewards (e.g., “My coach only rewards/praises me to make me train harder”), negative conditional regard (e.g., “My coach pays me less attention if I have displeased him/her”), intimidation (e.g., “My coach threatens to punish me to keep me in line during training”), and excessive personal control (e.g., “My coach tries to control what I do during my free time”). Because there are many different coaches collegiate swimmers often train under (i.e., strength and conditioning coach, stroke coach, sprint/distance coach) the term “head coach” was used in the CCBS to orient the athletes toward a specific coach’s behaviors. Participants responded using a 7-point scale ranging from strongly disagree (1) to strongly agree (7). The CCBS has demonstrated acceptable factorial validity ($S$-$By^2 (84) = 120.94, p < .05, RCFI = .96, RNNFI = .95, SRMR = .06, and RRMSEA = .05), reliability (RHO = .93), internal consistency ($\alpha$ ranging from .74 to .85), and invariance across gender and sport type deeming it an acceptable measure (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010).

**Multidimensional Perfectionism Scale** (MPS-H; Hewitt & Flett, 1991; Appendix H). The version of the MPS-H used in the investigation had been previously adapted by Appleton, Hall, and Hill (2009) to encourage athletes to focus on their experiences in practice and competition. The 30-item inventory assessed self-oriented perfectionism (e.g., “It makes me uneasy to see errors in my performance”) and socially prescribed perfectionism (e.g., “Anything that I do that is less than excellent will be seen as poor performance by those around me”). Participants responded using a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). This measure has been found to have high internal consistency ($\alpha$ ranging from .86 to .87), test-retest reliability (socially prescribed perfectionism = .75, self-oriented perfectionism = .88), and convergent and discriminant validity, therefore deeming it an acceptable measure of perfectionism (Enns & Cox, 2002).

**Design**

The dissertation study was a non-experimental design with non-randomized selection. Participants completed a series of surveys online. The order in which the inventories appeared, except the demographic information questionnaire, varied for each team contacted to minimize order effects. There was a fairly equal completion of all four versions of the survey ($n_1 = 116, n_2$...
The participants were only asked to complete the survey one time and a control group was not required. Head coaches were contacted in the Mid-American Conference, the Big East Conference, and the Atlantic Coast Conference because of the primary investigator’s developed rapport with swimming coaches within these conferences. Additionally, head coaches in the Big Ten Conference, the Big Twelve Conference, Conference USA, the Pacific Ten Conference, and the Southeastern Conference were contacted after the collegiate season was completed.

Both males and females were recruited because previous research has found differences in self-determination between genders (Mullan & Markland, 1997). Differences between genders have also been reported with levels of perfectionism (Dunn, Gotwals, & Causgrove-Dunn, 2005). Although it was likely that gender differences would only be observed in the mean scores for perfectionism and motivation, and not the variable correlations, differences between genders were reported within the current research.

Procedure

After obtaining approval from the Florida State University Human Subjects Committee (Appendix A), and the NCAA athletics administration compliance office at Florida State University, all head swimming coaches in the Mid-American Conference, the Big East Conference, and the Atlantic Coast Conference were contacted by phone. After the competitive season was over, the head coaches from the Big Ten Conference, the Big Twelve Conference, Conference USA, the Pacific Ten Conference, and the Southeastern Conference were contacted as well, once receiving additional approval from the Florida State University Human Subjects Committee. The purpose of the phone call was to alert them of the upcoming email message they would be receiving and to obtain verbal confirmation that they would allow their athletes to participate in the study. An email message was then sent out to the Division I swimming head coaches. The email message contained a brief overview of the study, a direct link to the questionnaire, and instructions to forward the email onto their teams (Appendix B). Each team received one of four links to the survey in the email message. The four different links contained the same content, but the order in which the surveys appeared was randomized.

The athletes clicked on the link in the email that sent them to the consent page and then after completion, to the questionnaire via Survey Monkey (Copyright ©1999-2010, Menlo Park, CA). To signify their consent, the swimmers were asked to click on a bubble that stated, “I have
read the above information. I have asked questions and have received answers. I consent to participate in the study,” (Appendix C). Although it was expected that all the participants would be 18 years of age or older, given the timing of the email distribution was during the spring semester, the athletes were asked to click a bubble if they were over/under 18 years old on the consent page. Those who were younger than 18 years old were still included in a monetary lottery for their participation, but they were routed to a page that thanked them for their willingness to participate. They did not actually complete the questionnaire.

Those athletes who were 18 years of age or older were directed to the questionnaire, which took an estimated 15-25 minutes to fill out, based on the timing of the pilot study and non-participants completion of the survey. The survey was structured so that participants could choose to skip questions, but once they completed an inventory and advanced to the next page, they were not able to go back to the previously completed surveys. When the questionnaire was completed, the participant clicked “Done” to submit the data to the primary investigator.

The participants’ email addresses were requested on the consent page only to contact the winners of a monetary lottery. Immediately after the winners were drawn and contacted, the principle investigator destroyed the participants’ email addresses. The principle investigator did not cross-reference the consent form page with the data provided through Survey Monkey. The head swim coaches did not have access to the data, only the survey.

**Statistical Analyses**

The analyses of the data were conducted in four phases. The phases included descriptive statistics and correlations, scale evaluation analyses, measurement modeling, and structural equation modeling. In phases two and four the initial analyses were conducted on the in-season data, the out of season data, and then both data sets combined. In phase three analyses were conducted with the multi sample data.

The descriptive statistics and correlations were conducted using the Statistical Package for the Social Sciences (SPSS, Version 16, SPSS Inc., Chicago, IL, USA) to compute Cronbach’s Alpha for evaluating the internal consistency of response to items on the motivation, perfectionism, perceived coaching behaviors, and burnout subscales. Descriptive statistics, including means, standard deviations, and correlations were also calculated. The Pearson correlations indicated the extent of association between two variables. Cohen’s (1988) guidelines on effect sizes for correlation coefficients were employed to provide qualitative descriptors of
correlation magnitude. Specifically, correlations of .10, .30, and .50 were considered small, medium, and large, respectively.

The scale evaluation analyses were completed on each individual scale because the MDPS-H was initially tested using exploratory factor analysis and had only recently been adapted for athletes, the CCBS had only been tested in the initial study for the measure, the BRSQ is a relatively new model that has never been adapted specifically for collegiate swimmers before, and to add additional support for the ABQ. In order to discuss identification and fit of the full structural hypothesized models, a measurement model needed to be defined first (Anderson & Gerbing, 1988). Then finally structural equation modeling was conducted to test the hypothesized models.

Scale evaluation analyses, measurement modeling, and structural equation modeling were conducted with the aid of Mplus (Version 5.21, Muthén & Muthén, Los Angeles, CA, USA). Structural equation models contain linear models that have been measured and latent variables (abstract psychological variables such as “perfectionism” or “motivation”) that have a causal structure. There are four steps for structural equation modeling (Kenny, 2009). Step one is developing a theoretical model as a diagram. Step two is identifying that the model can be estimated with observed data. Therefore, there is a unique solution for the model’s parameters, which adds to the theoretical value. In step three, the model’s parameters are statistically estimated from the data. In step four, the estimated model parameters are used to predict the correlations between the measured variables and the predicted correlations, or covariances are compared to the observed correlations.

Figure 4 is an example of structural equation modeling (Kenny, 2009). X1 and X2 are exogenous (not caused) variables. For the proposed study, X1 was perceived coaching behaviors and X2 was sport perfectionism. X3 and X4 are endogenous (caused) variables. For this study, X3 was motivation and X4 was burnout. U1 and U2 are disturbances, which are unspecified causes of the effect variable.

The path coefficients were determined by beta weights. Path a was the direct effect of perfectionism on the type of motivation, while path b was the direct effect of perceived coaching behaviors on the type of motivation. Path c was the direct effect of perfectionism on burnout and path d was the direct effect of perceived coaching behaviors on burnout. Path e was the direct effect of motivation on burnout, controlling for the other variables.
Figure 4. Example of Structural Equation Modeling from Kenny (2009). This figure illustrates a path diagram for structural equation modeling.

The model fit was assessed using Chi-square ($\chi^2$), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). The goodness of fit was determined by the CFI and TLI close to .95 (above .90 is acceptable), RMSEA around .06 (.05-.08 is considered an adequate fit), and SRMR less than .08 (Hu & Bentler, 1999). Standardized and unstandardized coefficients were produced by the path outputs.

In order to respecify the latent variable model, the steps recommended by Kenny (2009) were followed. They include determining if the measurement model was consistent with the data, revising the measurement model, determining if the structural model was justified, and determining if the structural paths of the model were warranted. The Lagrange multiplier test was employed to evaluate if the model fit was improved by addition of pathways. The Wald test was also utilized to assess if dropping pathways significantly improved model fit.
CHAPTER 3

RESULTS

Descriptive Statistics

All of the Cronbach’s alpha levels were above the acceptable level of .70 indicating the subscales were reasonably reliable in their measurement of perceived coaching behaviors, motivation, perfectionism and burnout (see Table 1). The alpha levels for the ABQ ranged from .85 to .91, which was almost the same as the levels previously reported that ranged from .84 to .91 (Raedeke & Smith, 2001). Lonsdale, Hodge, and Rose (2008) reported that the BRSQ alpha levels ranged from .79 to .93, which was very close to the current alpha levels that ranged from .77 to .94. The alpha levels for the CCBS ranged from .83 to .92 in the current study, while previous reports had lower alpha levels ranging from .74 to .84 (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010). Hewitt and Flett (1991) reported alpha levels for the MDPS-H that ranged from .86 to .87, while the current data yielded very similar alpha levels ranging from .81 to .86.

The sample reported a mean self-oriented perfectionism score of 4.98 (SD = .82) on a 7-point Likert scale and a socially prescribed perfectionism score of 3.57 (SD = .72). The data were very similar to the findings of Appleton et al. (2009). It should also be noted that all of the participants reported having some characteristics of perfectionism on both dimensions. The standard deviation of the perfectionism scores were also low, compared to the rest of the standard deviations, indicating that the Likert scores were clustered closely around the mean, and therefore, the majority of the sample responded similarly to these measures.

The swimmers did not endorse that their coaches used intimidation, controlling use of rewards, or excessive personal control, according to the mean scores. However, the large standard deviations and the maximum scores indicated that it is possible some swimmers perceived their coaches behaviors to be more in line with the negative context of the three subscales. According to the mean score, it is likely that many swimmers perceived their coaches to display negative conditional regard. Because the standard deviation is large and the minimum and maximum scores reflect the full Likert scale range, athletes might have considered their coaches to display more or less negative conditional regard.
According to the mean scores, motivational regulations low in self-determination (i.e., amotivation, external regulation, introjected regulation) were not as highly endorsed as motivational regulations high in self-determination (i.e., identified regulation, integrated regulation, intrinsic motivation). The full range of Likert scores was observed for amotivation, external regulation, introjected regulation, integrated regulation, and intrinsic motivation subscales. According to the mean, and taking into account the standard deviation, the amotivation and external regulation scores were very low. The highest descriptive mean motivation score was observed on the identified regulation subscale. It appears in this sample motivation was commonly regulated by identifying with the value of the behavior.

The athletes also reported low levels of burnout, on average, for the reduced sense of accomplishment and sport devaluation subscales. The small standard deviations for the two burnout subscales indicated that very few of the participants reported experiencing high levels of sport devaluation and reduced sense of accomplishment as burnout indicators. However, the swimmers did report higher levels of emotional and/or physical exhaustion. Based on the small standard deviation, it is likely that many of the participants were experiencing high levels of emotional and/or physical exhaustion as a burnout indicator. According to Raedeke and Smith (2009), “Based on the two-thirds cutoff values, a general rule of thumb when using this approach to interpreting burnout scores would be that a score of about 3, corresponding to “sometimes” on the ABQ response set, or higher, signifies relatively high burnout,” (p. 49). The sample reported the lowest levels of burnout for the sport devaluation subscale, indicating that overall, there was not diminished belief in the benefits of sport involvement.

Gender differences were not reported because an ANOVA indicated there were not significant mean differences in the responses of male and female participants on all four measures. Although, it is possible there were relational differences among variables across gender, this was not examined further because gender moderation effects were not focused upon in the hypotheses. In future research gender differences should be examined more closely.
Table 1

*Descriptive Statistics for Burnout, Motivation, Perceived Coaching Behaviors, and Perfectionism Subscales*

<table>
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<th></th>
<th>Minimum</th>
<th>Maximum</th>
<th>Likert Scale Range</th>
<th>M</th>
<th>SD</th>
<th>Cronbach’s Alpha</th>
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<td>Emotional/Physical Exhaustion</td>
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<td>1.00-5.00</td>
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<tr>
<td>Self Oriented Perfectionism</td>
<td>2.07</td>
<td>6.80</td>
<td>1.00-7.00</td>
<td>4.89</td>
<td>0.82</td>
<td>.86</td>
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<tr>
<td>Socially Prescribed Perfectionism</td>
<td>1.73</td>
<td>5.73</td>
<td>1.00-7.00</td>
<td>3.57</td>
<td>0.72</td>
<td>.81</td>
</tr>
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</table>

*Note:* ABQ = Athlete Burnout Questionnaire; BRSQ = Behavioral Regulations In Sport Questionnaire, CCBS = Controlling Coach Behaviors Scale; MPS-H = Multidimensional Perfectionism Scale
Correlations

The relationships between the measures of motivation, perceived coaching behaviors, perfectionism and burnout subscales were estimated using Pearson Product Moment Correlations (see Table 2). The ABQ subscales, which included emotional and/or physical exhaustion, sport devaluation, and a reduced sense of accomplishment all yielded medium to large, positive, significant correlations with each other, according to Cohen’s (1988) previously mentioned guidelines on effect sizes for correlations. Emotional and/or physical exhaustion also significantly correlated with all other subscales, except self-oriented perfectionism. Socially prescribed perfectionism, as well as the three of the dimensions of perceived coaching behaviors (negative conditional regard, intimidation, and excessive personal control), and exhaustion produced a medium, positive, significant correlation.

As expected, the three motivation subscales low in self-determination (introjected regulation, external regulation, and amotivation) all generated medium to large, positive, significant correlations with exhaustion. Identified regulation and integrated regulation, which are motivation subscales higher in self-determination, had significant, small, negative correlations with exhaustion. And finally, intrinsic motivation, the most self-determined form of motivation, yielded a significant, medium, negative correlation with exhaustion.

The sport devaluation subscale of the ABQ followed trends similar to the exhaustion subscale, however, sport devaluation produced a significant correlation with all the motivation, perceived coaching behaviors, and perfectionism subscales. Socially prescribed perfectionism had a small, positive correlation with sport devaluation, while self-oriented perfectionism had a small, negative correlation with sport devaluation. Sport devaluation and amotivation had a large, positive correlation, while sport devaluation and external and introjected regulation had medium, positive correlations. Identified regulation and integrated regulation had medium, negative correlations with sport devaluation. And lastly, intrinsic motivation yielded a large, negative correlation with sport devaluation.

Reduced sense of accomplishment significantly correlated with all of the motivational subscales, like the burnout subscales previously mentioned. Also like the sport devaluation and exhaustion subscales, reduced sense of accomplishment had a large and positive correlation with amotivation. Introjected and external regulation correlated with reduced sense of accomplishment in the positive direction with a medium effect size. Reduced sense of
accomplishment yielded a medium and negative correlation with the three motivational subscales higher in self-determination (identified regulation, integrated regulation, and intrinsic motivation).

The controlling use of rewards subscale for perceived coaching behaviors did not significantly correlate with reduced sense of accomplishment. However, reduced sense of accomplishment had a significant, small, and positive correlation with intimidation, and a significant, medium, and positive correlation with negative conditional regard and excessive personal control. Reduced sense of accomplishment also had a significant, medium, and positive correlation with socially prescribed perfectionism, but a nonsignificant correlation with self-oriented perfectionism.

Socially prescribed perfectionism and self-oriented perfectionism had a medium, positive, and significant correlation. Socially prescribed perfectionism was also significantly correlated with all four subscales of perceived coaching behaviors. Socially prescribed perfectionism had medium to large, significant, positive correlation with the three motivation subscales low in self-determination (introjected regulation, external regulation, and amotivation). Socially prescribed perfectionism significantly correlated with identified regulation and intrinsic motivation in the negative direction with a small effect size, while integrated regulation did not significantly correlate with socially prescribed perfectionism.

Self-oriented perfectionism did not significantly correlate with amotivation and external regulation, however the subscale did yield a small, positive, significant correlation with introjected regulation. Small to medium, positive, significant correlations were observed between self-oriented perfectionism and identified regulation, integrated regulation, and intrinsic motivation. Small, positive, significant correlations were also observed between self-oriented perfectionism and the controlling use of rewards, negative conditional regard, and excessive personal control subscales for perceived coaching behaviors.

The intrinsic motivation, external regulation, and amotivation significantly correlated with all of the other motivational subscales. As expected there was a large, negative correlation between intrinsic motivation, which is the most self-determined form of motivation, and amotivation, which is the least self-determined form of motivation. Amotivation had medium, negative correlations with integrated and identified regulation and large, positive correlations with introjected and external regulation. External regulation and introjected regulation, which are
next to each other on the self-determined motivation continuum, had a large, positive, significant correlation. Identified regulation and integrated regulation, which are also next to each other on the self-determined motivation continuum, also had a large, positive, significant correlation.
Table 2
Correlations Among Motivation, Perceived Coaching Behaviors, Perfectionism and Burnout Subscales

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<tr>
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<tbody>
<tr>
<td>1. Intrinsic Motivation (BRSQ)</td>
<td>1.00</td>
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<tr>
<td>2. Integrated Regulation (BRSQ)</td>
<td>.601**</td>
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<td>3. Identified Regulation (BRSQ)</td>
<td>.504** .633**</td>
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<tr>
<td>4. Introjected Regulation (BRSQ)</td>
<td>-.315** -.020 -.069</td>
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<td>5. External Regulation (BRSQ)</td>
<td>-.405** -.162** -.194** .605**</td>
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<tr>
<td>6. Amotivation (BRSQ)</td>
<td>-.664** -.341** -.344** .575** .596**</td>
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<tr>
<td>7. Controlling use of Rewards (CCBS)</td>
<td>-.035 .078 .033 .178** .229** .105*</td>
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<tr>
<td>8. Negative Conditional Regard (CCBS)</td>
<td>-.186** -.073 -.071 .245** .247** .289** .301**</td>
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<tr>
<td>9. Intimiation (CCBS)</td>
<td>-.145** -.054 -.095* .195** .276** .264** .247** .573**</td>
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<td>10. Excessive Personal Control (CCBS)</td>
<td>-.292** -.123** -.175** .326** .339** .414** .251** .560** .533**</td>
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<tr>
<td>11. Self-Oriented Perfectionism (MPS)</td>
<td>.192** .285** .162** .184** .061 -.025 .136** .121* .059 .163**</td>
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<tr>
<td>12. Socially Prescribed Perfectionism (MPS)</td>
<td>-.218** -.027 -.145** .400** .497** .406** .191** .343** .324** .346** .341**</td>
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<tr>
<td>13. Exhaustion (ABQ)</td>
<td>-.489** -.181** -.220** .442** .400** .558** .191** .349** .335** .465** .050 .383**</td>
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<tr>
<td>14. Sport Devaluation (ABQ)</td>
<td>-.625** -.421** -.378** .346** .437** .675** .137** .333** .286** .438** -.105* .265** .556**</td>
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<tr>
<td>15. Reduced Sense of Accomplishment (ABQ)</td>
<td>-.392** -.300** -.348** .358** .314** .515** .077 .376** .248** .420** .016 .321** .400** .640**</td>
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** p < 0.01 (2-tailed)
* p < 0.05 level (2-tailed)
Scale Evaluation Analyses

Hypotheses regarding perfectionism, perceived coaches’ behaviors, motivation, and burnout were tested scale by scale using structural equation modeling. All indicators were run using Mplus (Version 5.21, Muthén & Muthén, Los Angeles, CA, USA) to determine the fit of the latent variables individually, before looking at the models as a whole. Although the chi-square test was significant ($\chi^2 = 3250.95$; $df = 105$), the relative fit indices suggested that the CCBS fit the data well (CFI = .97; TLI = .96; RMSEA = .05; SRMR = .05).

Unexpectedly, the ABQ did not fit as well as previously reported (e.g., Cresswell & Eklund, 2006; Raedeke & Smith, 2001). Although the chi-square test was again significant ($\chi^2 = 380.59$; $df = 86$), the relative fit indices suggested the ABQ adequately fit the data (CFI = .93; TLI = .91; RMSEA = .09; SRMR = .06) when the errors for questionnaire item 6 (i.e., “I don’t care as much about my swimming performance as I used to.”) and item 11 (i.e., “I feel less concerned about being successful in swimming than I used to.”) were allowed to covary, as suggested by the modification indices. The correlation of errors was justified because these items were indicators for the same subscale (i.e., sport devaluation) and shared very similar wording.

The BRSQ fit was adequate, although less than ideal (CFI = .89; TLI = .87; RMSEA = .07; SRMR = .05), while the chi-square test was significant ($\chi^2 = 4538.86$; $df = 253$). Items 14 and 15 both had extremely high loadings (above .85) on the extrinsic regulation subscale. Item 14 (i.e., “I participate in swimming because I feel pressure from other people to swim.”) was removed because modification indices suggested that the residual error should be freed to covary with residuals of another extrinsic regulation indicator (i.e., item 15: “I participate in swimming because people push me to swim.”) and an intrinsic motivation indicator (i.e., item 19: “I participate in swimming because I find it pleasurable.”). The fact that items 14 and 19 were indicators of different latent variables on opposite ends of the self-determination continuum added support for removing item 14 if only because it was interpretationally less complicated to remove item 14, rather than allow the errors to covary.

As expected, given the large number of items on the scale, the MDPS-H did not fit well (CFI = .59; TLI = .57; RMSEA = .10; SRMR = .14). It was decided the number of items used for the measure should be comparable to the other scales. Items were removed that: (a) were reverse scored, (b) had potentially confusing wording, and (c) were relatively ambiguous for the construct they were intended to measure. Using confirmatory factor analysis, the MDPS-H was
trimmed down to nine items to maintain a goodness of fit (CFI = .95; TLI = .93; RMSEA = .06; SRMR = .04), although the chi-square test was still significant ($\chi^2 = 743.73; df = 36$). The items included five items that measured self-oriented perfectionism (SOP) and four socially prescribed perfectionism (SPP) items.

1. When I am working on something, I cannot relax until it is perfect. (SOP)
8. Anything that I do that is less than excellent will be seen as poor performance by those around me. (SPP)
9. I strive to be as perfect as I can be. (SOP)
11. I strive to be the best at everything I do. (SOP)
19. I feel that people are too demanding of me. (SPP)
20. I must work to my full potential at all times. (SOP)
21. Although they may not show it, other people get very upset with me when I slip up. (SPP)
27. I set very high standards for myself. (SOP)
28. People expect more from me than I am capable of giving. (SPP)

All changes to the measures were calibrated using in season data and cross-validated using out of season data. Although not hypothesized in the current study to be a precursor to burnout, self-oriented perfectionism items were examined in these analyses for future research purposes.

Measurement Modeling

A multi-sample measurement model was run with all constructs allowed to fully correlated with one another and produced an acceptable fit with the whole data set ($\chi^2 = 2890.08; df = 1811; CFI = .92; TLI = .92; RMSEA = .05; SRMR = .07$). Subsequently, a multi-sample measurement model was run with factor loadings constrained to equivalence across samples. This model exhibited an acceptable fit as well, indicating that the constrained and unconstrained models fit the data equivalently ($\chi^2 = 2947.14; df = 1846; CFI = .92; TLI = .92; RMSEA = .05; SRMR = .07$). There was little to no difference in the loadings across the samples and the $\Delta \chi^2$ test between the constrained and unconstrained models was nonsignificant ($\Delta \chi^2 = 57.06; \Delta df = 35; p = .107$).

Structural Equation Modeling

Once all the loadings were found to be the equivalent, a higher order latent burnout variable based upon the three first order burnout variables was employed in the structural
analyses, which was consistent with Cresswell and Eklund’s (2006) analytic strategy. With the whole data set, the fit for Model A ($\chi^2 = 1935.59; df = 910; \text{CFI} = .90; \text{TLI} = .89; \text{RMSEA} = .05; \text{SRMR} = .07$) was within an acceptable range; however, the sport devaluation latent exhibited a negative (i.e., inadmissible) error variance. Once this error variance was fixed at zero, Model A yielded an acceptable fit with the whole data set ($\chi^2 = 1845.69; df = 911; \text{CFI} = .93; \text{TLI} = .93; \text{RMSEA} = .05; \text{SRMR} = .07$).

Model A, using the hypothesized variables and pathways, exhibited an adequate fit to the data in both sub-samples (See Table 3 and Figure 5). A significant direct effect from the perceived coaching excessive personal control subscale to amotivation was observed, but no other significant pathways were evident from the perceived coaching behaviors scale. A significant direct effect from socially prescribed perfectionism to amotivation, external regulation, and introjected regulation was also observed. A significant direct effect from amotivation to burnout was observed, while a negative direct effect was observed from introjected regulation to burnout with the in season data only. All exogenous variables (i.e., socially prescribed perfectionism and perceived coaching behavior latents) were significantly associated with correlations ranging from .26 to .62.
### Table 3
**Single Sample Structural Equation Modeling Results**

<table>
<thead>
<tr>
<th>Model</th>
<th>Category</th>
<th>$\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
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<tr>
<td><strong>Model A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1. In Season</td>
<td>1489.89</td>
<td>911</td>
<td>.93</td>
<td>.92</td>
<td>.05</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>2. Out of Season</td>
<td>1457.98</td>
<td>911</td>
<td>.91</td>
<td>.90</td>
<td>.05</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>3. All Data</td>
<td>1845.69</td>
<td>911</td>
<td>.93</td>
<td>.93</td>
<td>.05</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td><strong>Model B</strong></td>
<td></td>
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<tr>
<td>4. In Season</td>
<td>1459.47</td>
<td>906</td>
<td>.93</td>
<td>.92</td>
<td>.05</td>
<td>.07</td>
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<tr>
<td>5. Out of Season</td>
<td>1435.19</td>
<td>906</td>
<td>.91</td>
<td>.91</td>
<td>.05</td>
<td>.07</td>
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<tr>
<td>6. All Data</td>
<td>1797.65</td>
<td>906</td>
<td>.93</td>
<td>.93</td>
<td>.04</td>
<td>.06</td>
<td></td>
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</tbody>
</table>

*Note:* $\chi^2 =$ Chi-Square; $df =$ Degrees of Freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual
Figure 5. The structural equation model for Model A. Only the significant pathways are shown. The first number is the in season $\beta$ pathway and the second number, in brackets, is the out of season data $\beta$ pathway. NS signifies a nonsignificant pathway for the out of season data, when the in season $\beta$ pathway is significant. All exogenous variables were free to covary; all were significant but none are presented for the purposes of figure clarity.

The nonsignificant pathways for the Model A in season data ranged from -.15 to .21, while the out of season data ranged from -.10 to .16. There was a substantial range for the nonsignificant pathways. Most of the pathways were trivial in size, but some of these pathways were equivalent in magnitude to significant pathways. The perceived coaching behavior subscale of excessive personal control was close to being a significant indicator of introjected regulation in the in season data (.21). In this instance, the significance was a matter power, not a matter of size.

Unconstrained and constrained multisample analyses of structural pathways in Model A were also performed to determine if there were differences between the in season and out of season data (see Table 4). A chi-square difference test revealed significant differences ($\Delta \chi^2 = 127.78 > 99.62$, $\Delta df = 78$, significant at $p = .03$). This indicated some significant nonequivalence of pathways across the data from the two time periods.
Table 4

*Multi-Sample Structural Equation Modeling Results*

<table>
<thead>
<tr>
<th>Model</th>
<th>Unconstrained Model</th>
<th>Constrained Model</th>
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<tbody>
<tr>
<td>1.</td>
<td>2946.31 1821 .92 .91 .05 .08</td>
<td>3074.09 1899 .92 .91 .05 .08</td>
</tr>
<tr>
<td>2.</td>
<td>2890.08 1811 .92 .92 .05 .07</td>
<td>3022.64 1891 .92 .92 .05 .07</td>
</tr>
</tbody>
</table>

*Note:* $\chi^2$ = Chi-Square; df = Degrees of Freedom; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual

Model B, using the hypothesized variables and pathways, as well as the sport devaluation error variance fixed at zero, also exhibited an adequate fit to the data in both sub-samples and the total sample (See Table 3 and Figure 6). A significant direct effect was observed from excessive personal control, a subscale of perceived coaching behaviors, to amotivation and introjected regulation with the in season data. The direct effects from excessive personal control to amotivation and introjected regulation, although significant, were weak. Direct effects from socially prescribed perfectionism to amotivation, external regulation, and introjected regulation were observed. A significant direct effect from amotivation to burnout was observed, while a significant negative direct effect was observed from introjected regulation to burnout with the in season data only. Although perfectionism did not have a direct effect to burnout, the excessive personal control subscale yielded a small, but significant, direct effect to burnout with the in season data. All exogenous variables (i.e., socially prescribed perfectionism and perceived coaching behavior latents) were significantly associated with correlations ranging from .26 to .62.
Figure 6. Structural equation model for Model B. Only the significant pathways are shown. The first number is the in season $\beta$ pathway and the second number, in brackets, is the out of season data $\beta$ pathway. NS signifies a nonsignificant pathway for the out of season data, when the in season $\beta$ pathway is significant. All exogenous variables were free to covary; all were significant but none are presented for the purposes of figure clarity.

The out of season nonsignificant pathways for Model B ranged from -.10 to .23, while the in season pathways ranged from -.15 to .15. There was a substantial range for the nonsignificant pathways. Most of the pathways were trivial in size, but some of these pathways were equivalent in magnitude to significant pathways. Excessive personal control was close to being a significant indicator of amotivation in the out of season data (.23). In this instance, the significance was a matter of power, not a matter of size. Unconstrained and constrained multisample analyses of structural pathways in Model B were performed to determine if there were differences with the in season and out of season data (see Table 4). A chi-square difference test revealed significant differences ($\Delta \chi^2 = 132.56 > 101.88$, $\Delta df = 80$, significant at $p = .02$). This indicated some significant nonequivalence of pathways across the data from the two time periods.

Chi-square difference tests were conducted to evaluate whether there was a significant difference in fit between Models A and B in the data sub-samples and the total sample. The chi-square difference tests were significant (In Season: $\Delta \chi^2 = 30.42 > 11.07$, $\Delta df = 5$, significant at $p = .05$; Out of Season: $\Delta \chi^2 = 22.79 > 11.07$, $\Delta df = 5$, significant at $p = .05$; Whole Data Set: $\Delta \chi^2 =$
48.04 > 11.07, $\Delta df = 5$, significant at $p = .05$). Model B is a better fit than Model A in each instance. These results support the idea that perceived coaching behaviors, specifically excessive personal control, may have direct effects on burnout in addition to indirect effects through motivation.
CHAPTER 4
DISCUSSION

The purpose of the present study was to examine potential antecedents of burnout. Two models were developed to represent the possible contributions of perfectionism, perceived coaching behaviors, and motivation, to burnout. Athletes were invited to complete the survey during a three week period while they were competing in season. However, due to a low response rate, and the suggestions of some of the coaches, more athletes were asked to complete the same survey during another three week period upon the completion of the competitive swim season. The models were tested from the electronic responses of over 500 Division I swimmers, using structural equation modeling. The results indicated that Model B fit well and could potentially be used to further shed light on probable indicators of burnout.

Model A

For Model A it was hypothesized that athletes who rated their coaches high on the controlling use of rewards, negative conditional regard, intimidation, and excessive personal control subscales would report high levels of amotivation, external regulation, and introjected regulation. The only significant pathway within these variables was excessive personal control had a direct effect to amotivation. The model reinforces previous publications that speculated athletes’ perceptions of their coaches’ behaviors could influence their type of self-determined motivation (Deci & Ryan, 1985c; Horn, 2002). SDT states that controlling instructors or coaches are often coercive (Deci & Ryan, 1985c). When an athlete perceives the coach’s pressure as the origin of his/her own behavior, it can change the athlete’s perceived locus of causality from internal to external. Controlling instructors might disregard athletes’ psychological needs, and reduce their sense of self-determination.

It was also hypothesized that athletes who reported high levels of socially prescribed sport perfectionism would also report high levels of amotivation, external regulation, and introjected regulation. Socially prescribed perfectionism had a significant direct effect to all three motivational subscales, as predicted. Socially prescribed perfectionism was most strongly associated with external regulation. This could be because socially prescribed perfectionism occurs when an athlete wants to appear perfect for others and/or believes that other people expect
him/her to be perfect, which aligns with an athlete who is participates in sport for rewards, accolades, and other extrinsically motivated reasons. The data also indicates that socially prescribed perfectionism and burnout are associated with each other through amotivation, which supports Hill et al. (2008) and Appleton et al. (2009) who reported perfectionism is a predictor of burnout.

It was hypothesized that athletes who reported high levels of amotivation, external regulation, and introjected regulation would score high on all three dimensions of burnout (emotional/physical exhaustion, sport devaluation, and a reduced sense of accomplishment). However, only amotivation had a significant positive direct effect to the higher order latent burnout variable. Introjected regulation was also negatively associated with burnout, but the direct effect was fairly weak. This was supported by Cresswell and Eklund’s (2005a, 2005b) finding that amotivation was a significant indicator of burnout. Athletes who lack the motivation to participate in sport are more likely to score high on all three components of burnout.

Finally, it was hypothesized that athletes who reported high levels of identified regulation, integrated regulation, and intrinsic motivation would exhibit lower scores on all three dimensions of athlete burnout. As predicted high scores in identified regulation, integrated regulation, and intrinsic motivation significantly, negatively correlated with the three dimensions of athlete burnout. Previously, autonomous forms of extrinsic motivation have been found to negatively correlate with burnout, as well (Lonsdale et al., 2009). Athletes who participate in sport because they inherently enjoy the activity and do not feel pressure from others or are not looking for accolades, commonly associate with less feelings of a reduced sense of accomplishment, sport devaluation, and emotional/physical exhaustion.

Model B

For Model B it was hypothesized that athletes who rated their coaches high on the controlling use of rewards, negative conditional regard, intimidation, and excessive personal control subscales would be partially mediated by amotivation, external regulation, and introjected regulation with all three dimensions of athlete burnout (emotional/physical exhaustion, sport devaluation, and a reduced sense of accomplishment). Like Model A, the only perceived coaching behavior subscale to have a direct effect to motivation was the excessive personal control subscale, which had a significant pathway to amotivation. However, unlike Model A, Model B also had a significant pathway from the excessive personal control subscale
to introjected regulation. Although weak, there was a direct effect from excessive personal control to the higher order latent burnout variable, indicating that a coach’s perceived excessive personal control might influence an athlete’s level of burnout. The model continues to add reinforcement for previous publications that speculated athletes’ perceptions of their coaches’ behaviors could influence their type of self-determined motivation (Deci & Ryan, 1985c; Horn, 2002). Further, Model B provides support for the idea that collegiate athletes’ perceptions of their coaches’ communication style and behavior might impact the occurrence of burnout (Vealey, Armstrong, Comar, & Greenleaf, 1998). It is possible athletes’ perceptions of their coaches could have a direct effect on the athletes’ feelings of sport devaluation, emotional/physical exhaustion, and reduced sense of accomplishment.

It was also hypothesized that athletes who rated their coaches low on the controlling use of rewards, negative conditional regard, intimidation, and excessive personal control subscales would report high levels of identified regulation, integrated regulation, and intrinsic motivation. These athletes would exhibit lower scores on all three dimensions of athlete burnout. According to the correlational analysis, identified regulation, integrated regulation, and intrinsic motivation negatively correlated with the perceived coaching behaviors of controlling use of rewards, negative conditional regard, intimidation, and excessive personal control. The more self-determined forms of motivation also negatively correlated with the three dimensions of athlete burnout. Controlling use of rewards, negative conditional regard, intimidation, and excessive personal control all positively correlated with the three burnout subscales, as well. Athletes who reported more self-determined forms of motivation commonly associated with the idea that their coaches did not exhibit controlling behaviors. The athletes who were more self-determined also related to lower scores on the three dimensions of athlete burnout, similar to the findings of Lonsdale et al. (2009).

Finally, it was hypothesized that high socially prescribed perfectionism scores would be partially mediated by amotivation, external regulation, and introjected regulation with all three dimensions of athlete burnout. Socially prescribed perfectionism did have a direct effect to amotivation, external regulation, and introjected regulation. Amotivation (+) and introjected regulation (-) were also associated with the higher order latent burnout variable, but socially prescribed perfectionism did not directly indicate burnout. From the data it can be implied that perfectionism is an indicator of burnout via amotivation (Appleton et al., 2009; Hill et al., 2008).
However, unlike previous reports, perfectionism did not have a direct effect to burnout. The more socially perfectionist athletes did report that they were less self-determined, indicating that they participated in swimming for extrinsic reasons, or completely lacked the motivation to swim all together.

**Perceived Coaching Behaviors**

Athletes who perceived their coaches as using excessive personal control had a direct effect to the athletes’ amotivation, the least self-determined form of motivation. Therefore, controlling instructors disregard athletes’ psychological needs, and reduce their sense of self-determination (Deci & Ryan, 1985c). Horn (2002) stated that coaches’ behaviors can directly influence athletes’ perceptions, interpretation, and evaluation of their coaches’ behavior, which in turn, influences athletes’ self-perceptions, beliefs, and attitudes. From the current data, it can be suggested that perceptions of negative coaching behavior might influence the type of athlete motivation.

Although this study did not assess athletes’ perceptions of positive coaching techniques, intrinsic motivation was significantly negatively correlated with negative conditional regard, excessive personal control and intimidation subscales. This finding is inversely consistent with that presented by Weiss, Amorose, and Wilko (2009) who found that positive and informational coaching feedback statements were significantly related to athletes’ perceptions of competence, enjoyment, and intrinsic motivation. Black and Weiss (1992) also stated that athletes who reported their coaches gave more praise and information following a good race, perceived higher levels of success, competence, enjoyment, and motivation than their peers. The current study suggests that athletes who perceive their coaches as not having negative coaching attributes relate to self-determined forms of motivation, and thus score higher on the intrinsic motivation subscale. It can be suggested that this occurs because, according to SDT, coaches are enhancing the athletes’ feelings of autonomy, competence, and relatedness, thus increasing their intrinsic motivation.

The excessive personal control subscale had a direct effect to athlete burnout in Model B, indicating that the athletes’ perceptions of their coaches’ communication style and behavior might impact the occurrence of burnout in the collegiate athletes. These findings are consistent with that of Vealey, Armstrong, Comar, and Greenleaf (1998) who reported athletes with high levels of a reduced sense of accomplishment, sport devaluation, and emotional and/or physical
exhaustion also reported their coaches were less empathetic and used an autocratic coaching style. The current data also supports the Horn (2002) model of coaching effectiveness that states coaching behaviors can directly influence the athletes’ performance and behavior. From the present data it can be implied that some perceptions of negative coaching behavior can influence the level of burnout in athletes. Athletes who perceive their coaches as displaying excessive personal control were more likely to report higher scores on the three dimensions of athlete burnout.

**Perfectionism**

The overall mean perfectionism scores and standard deviations were similar to previous reports with male athletes (Appleton, Hall, & Hill, 2009; Hill, Hall, Appleton, & Kozub, 2008). Gender distinctions were not discussed in the current research beyond mean differences, but it is still possible there were differences among the variables, which would require further investigation. Dunn, Gotwals, and Causgrove Dunn (2005) reported that male intercollegiate student-athletes displayed higher levels of perfectionist tendencies in sport than female student-athletes but gender differences were not observed when the same participants judged their perfectionist tendencies in school or on a global basis. It should also be noted that all of the participants in the current study reported having some characteristics of perfectionism on both dimensions examined. However, unlike the study conducted by Gustafsson et al. (2008) where perfectionist traits were crucial contributors to athlete burnout, socially prescribed perfectionism did not have a direct effect to burnout in Model B. In the model, socially prescribed perfectionism had a direct effect to amotivation, external regulation, and introjected regulation. Amotivation was then a potential indicator between socially prescribed perfectionism and burnout. Athletes who reported high levels of socially prescribed perfectionism also reported high levels of amotivation, indicating that they were lacking motivation to actively participate in swimming. The athletes who scored high on amotivation, some of whom were perfectionist, indicated that they were experiencing burnout symptoms.

Appleton et al. (2009) and Hill et al. (2008) observed a positive association between socially prescribed perfectionism and the three dimensions of athlete burnout. Although socially prescribed perfectionism did not have a direct effect to burnout in the current study, socially prescribed perfectionism did significantly correlated with emotional and physical exhaustion, sport devaluation, and a reduced sense of accomplishment. This indicated that athletes with high
perfectionism scores associated with experiencing the symptoms of burnout. Socially prescribed perfectionism also significantly correlated with all four subscales for negatively perceived coaching behaviors. The data were supported by Appleton et al. (2009) who reported that socially prescribed perfectionism was inversely related to perceptions of coach satisfaction. In the current study, athletes high in socially prescribed perfectionism were likely to report their coaches exhibited negative behaviors related to training and competition.

**Motivation and Burnout**

In the current study amotivation had a direct effect to the higher order burnout latent variable. This was supported by Cresswell and Eklund (2005a) who also found amotivation to be associated with low self-determination and positively correlated with burnout. However, the present results yielded a difference in the in season and out of season data, unlike the Cresswell and Eklund (2005a) study that found athletes’ feelings of sport devaluation and physical and emotional exhaustion stable across a 12 week season.

Cresswell and Eklund (2005b) reported that intrinsic motivation was negatively associated with burnout, while amotivation was positively associated with burnout. In the current study intrinsic motivation was also negatively correlated with the three dimensions of athlete burnout and amotivation was positively correlated with athlete burnout. Amotivation also had a direct effect to athlete burnout in Model A and Model B. The swimmers who reported a lack of intention to actively participate in sport also scored higher on the three dimensions of athlete burnout. While Cresswell and Eklund (2005b) found external regulation was not significantly correlated with burnout among the amateur rugby players, in the current study with swimmers external regulation was significantly correlated with burnout, although not as strongly as amotivation. However, in both the hypothesized models external regulation was not a direct indicator of burnout. This indicated that the athletes who were motivated by rewards, punishments, or threats did not necessarily report they were experiencing the burnout symptoms of emotional/physical exhaustion, reduced sense of accomplishment, and/or sport devaluation.

Like the current research, Lonsdale, Hodge, and Rose (2009) found extrinsic motivation scores were positively correlated with athlete burnout while autonomous forms of extrinsic motivation were negatively correlated with burnout. Athletes who were motivated by rewards, punishments, or threats associated with the symptoms of burnout, while athletes who were motivated by their inherent sport enjoyment did not associate with the burnout symptoms. As in
Model B, global burnout was only partially associated with the athletes’ levels of self-determination. This indicated that factors, outside of motivation, could also influence athlete burnout. Unlike previous published reports, the current data offers that the excessive personal control subscale of perceived coaching behaviors might also have a direct effect to athlete burnout. It is possible that when a coach uses control to attempt to manipulate athletes, the athletes will be more likely to experience the burnout symptoms.

**Implications**

The implications of the study are three fold. First, socially prescribed perfectionism and perceived excessive personal control had a direct effect to amotivation and introjected regulation. Athletes who display perfectionistic tendencies to please others might be more likely to be low in self-determination and athletes who believe their coach is displaying excessive personal control might be more likely to be low in self-determination. Second, amotivation, in the positive direction, and introjected regulation, in the negative direction, were associated with burnout. Athletes who are very low in self-determination might be more at risk to burnout. Third, the athletes’ perception of the coach displaying excessive personal control had a direct effect to the level of burnout. Athletes who believe their coach is displaying excessive personal control, by expecting their whole life to center around their sport and/or control what they do during their time outside of training and competing, might be more likely to be susceptible to emotional/physical exhaustion, sport devaluation, and/or a reduced sense of accomplishment.

There are a few recent research studies on burnout interventions conducted specifically with athletes. Parallels can be drawn between the research and what might be a successful intervention with athletes. It is possible the following suggestions could be used as part of a burnout intervention program for athletes, based off of the current data.

Athletes can avoid burnout by maintaining or enhancing intrinsic motivation. Intrinsically motivated athletes play sports and compete for enjoyment, not material rewards or accolades. Athletes can remind themselves of why they started doing their sport when they were younger to enhance feelings of sport enjoyment. The athlete can also get a new coach or find a new team if they believe the coach is displaying excessive personal control. A coach might be displaying excessive personal control if he/she expects the athlete’s whole life to center around the sport, tries to control what the athlete does during free time, and/or tries to interfere in aspects of the athlete’s life outside of sport.
An athlete can also seek help if they feel they need to be “perfect” to please others. An athlete who feels that people are too demanding of him/her, believes other people get very upset with him/her when he/she slips up, insists his/her family expects him/her to be perfect, and/or thinks people expect more of the athlete than he/she is capable of giving might be high in socially prescribed perfectionism. It might be beneficial for an athlete who is high in socially prescribed perfectionism to seek the help of a sport psychology consultant, behavioral health counselor, or a psychologist so that together they can work on re-focusing on the sport itself, not just on being a perfect athlete.

Coaches can also assist their athletes in avoiding burnout by developing practices that enhance self-determination. Coaches can enhance self-determination by giving their athletes choices, minimizing controls, acknowledging the athlete’s feelings, and making information available that is crucial for decision making and performing the sport (Deci et al., 1991). The coach can also avoid displaying excessive personal control by encouraging the athletes to enjoy their free time away from practice. Finally, the coach can encourage an athlete to seek the assistance of a professional if he/she is participating in the sport to please others.

Research interventions for burnout have been limited, not due to a lack of interest, but rather because of the difficulties involved with developing an intervention. Opportunities for implementation and the obstacles that arise from longitudinal follow-up studies are two of the main setbacks researchers face when developing a burnout intervention. The use of previously published interventions developed for doctors, nurses, the general work force, and individuals in helping professions could be further adapted to assist the athlete population (Halbesleben, Osburn, & Mumford, 2006; Hätinen, Kinnunen, Pekkonen, & Kalimo, 2007; Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007; Salmela-Aro, Näätänen, & Nurmi, 2004; van Dierendonck, Schaufeli, & Buunk, 1998).

Limitations and Future Research Directions

This study was not without limitations. As with most survey studies, it was likely there was a nonresponse bias. Perhaps most of the athletes who were burnt out chose not to participate in the study or the vast majority of extrinsically motivated athletes in the population responded because there was the opportunity for a financial reward. Unfortunately, there is little that can be done to ensure a lack of nonresponse bias other than maintaining confidentiality, which was well ensured in the current study.
The data collection did not commence until the final month of the regular season for college swimming. This was an extremely demanding time for the participants both athletically and academically. Possibly due to the timing, the response rate was lower than anticipated because many coaches did not want to encourage any additional tasks for their athletes. Overall, it was a challenge to persuade the coaches to forward the email message containing the survey link to their athletes. In the future coaches should be contacted much earlier in the season, or even before the season begins, to introduce them to the study and motivate them to send the email message to their teams.

The initial low response rate led to the two groups of participants (in season and out of season), which could have influenced the data. It is hard to speculate if these two groups had genuinely different feelings about swimming, perfectionism, their coaches, and their type of motivation, or if the responses were influenced by the timing of the swim season in which they completed the questionnaire. A head coach admitted in an email, “I will pass this onto the ladies but not until after the [Conference] Championships. After reviewing the questions I feel that some could have self-doubt / doubt in their coach / negative feelings after answering them and I would like to control the timing of these reactions if possible.” It would have been possible to determine if the coach’s instinct was correct if the same athletes completed the survey during the swim season and after the completion of the season. Researchers should strive to obtain data from the same group of athletes before, during, and after the season in future studies.

Another limitation was the lack of male responses. Because there was a low response rate for males, gender distinctions were not discussed in the current research beyond mean differences. Although there are significantly more female Division I swimmers, than males, it would have been helpful if the response rate was closer to equal to more accurately determine if there were gender differences in the variables tested (DeHass, 2008). Specifically, it could have been possible men interpreted their coaches’ behaviors differently than the women, as was found in previous research (Black & Weiss, 1992). As previously mentioned, future studies should investigate gender differences among possible burnout variables.

In the email message it was mentioned that the individual conducting this study was a former swimmer. Participants were aware of where the principle investigator attended school, as well. Either one of these factors, or a combination of these factors, could have lead to participants enhanced social desirability response bias. Commonly, athletes want to appear
“successful” to other athletes. However, this information was included so that the athletes and coaches could easily relate to the researcher and would be motivated to complete the survey.

Finally, although there is a causational relationship implied through path analysis, it is necessary to keep in mind that the data were cross-sectional and the analyses were therefore correlational. It is possible there were other variables not accounted for that could have influenced the athletes’ levels of burnout. Future longitudinal studies that control for the athletes’ initial levels of perfectionism, motivation, and burnout, as well as their initial reaction to the coaches’ behaviors, could further clarify how different antecedents lead to burnout.

Researchers have made strides in developing rudimentary burnout interventions with helping professionals, however, it is clear there is still much more that needs to be done to develop effective interventions. These burnout interventions included developing goals and using counseling techniques (modification of self-talk, exploring/developing options, building positive relationships with co-workers, etc…) to assist the participants in combating burnout (Halbesleben, Osburn, & Mumford, 2006; Hätinen, Kinnunen, Pekkonen, & Kalimo, 2007; Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007; Salmela-Aro, Näätänen, & Nurmi, 2004; van Dierendonck, Schaufeli, & Buunk, 1998). Researchers should also be working to develop burnout interventions for teams and individual athletes because, at this time, there has not been any research published on the topic. The advancement of successful burnout interventions could assist athletes, helping professionals, and lay people maintain longer, more fulfilling careers.

Conclusion

This study examined potential antecedents of burnout. It was determined that the hypothesized Model B fit best to the data provided by over 500 Division I swimmers. Within Model B, socially prescribed perfectionism had a direct effect to the three forms of least self-determined motivation (i.e., amotivation, external regulation, introjected regulation). The excessive personal control subscale for perceived coaching behaviors also had a direct effect to amotivation and introjected regulation. Socially prescribed perfectionism correlated with all four perceived coaching behavior subscales (i.e., controlling use of rewards, excessive personal control, negative conditional regard, intimidation).

Only amotivation and perceived coaches’ excessive personal control had a positive direct effect to burnout. The data presented supports previous research that has found amotivation to be a potential indicator of burnout (Cresswell & Eklund, 2005a; Cresswell & Eklund, 2005b;
Lonsdale, Hodge, & Rose, 2009). However, the current study suggests that perceived coaching behaviors, specifically excessive personal control, might also influence the level of burnout an athlete is experiencing. The findings identified potential precursors of burnout, which could be used in the future development of systematic interventions to treat burnout. Further research should also be conducted to determine other possible indicators of burnout.
APPENDIX A

IRB LETTER OF APPROVAL

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 2/2/2010

To: Kelly Barcza

Address: 3550 Esplanade Way, Apt. 6208, Tallahassee, FL 32311
Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
The Influence of Perceived Coaching Behaviors and Perfectionism on Types of Motivation and Burnout

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.
The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 2/1/2011 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Robert Eklund, Advisor
HSC No. 2009.3820
Hi Coach _______.
I am currently a doctoral student at Florida State University working on my dissertation in sport psychology under the supervision of Robert C. Eklund, PhD. I have obtained a master’s degree in counseling from West Virginia University and a bachelor’s degree in psychology from Miami University, where I was a member of the women’s varsity swim team from 2001-2005. My study is looking at motivation, perfectionism, coaching environment, and attitudes towards swimming in Division I swimmers. In order to collect accurate data, my sample will consist of athletes who are currently competing. If you would please forward this email, including the following link, on to your entire team it would be greatly appreciated.

The athletes will only be asked to complete the questionnaire one time and their responses will remain confidential to the extent afforded by law. Please feel free to look over the questionnaire before forwarding it on to your team. Because I understand how valuable student athletes’ time can be, all swimmers who complete my questionnaire will be entered in a lottery to win $100. The athletes who complete the questionnaire within one week from today will be entered in an additional lottery for $50. If you or your athletes have any further questions, please contact me.

1. [https://www.surveymonkey.com/s/RPKXXT8](https://www.surveymonkey.com/s/RPKXXT8) or
2. [https://www.surveymonkey.com/s/TTLVMV9](https://www.surveymonkey.com/s/TTLVMV9) or
3. [https://www.surveymonkey.com/s/TTWKPYT](https://www.surveymonkey.com/s/TTWKPYT) or
4. [https://www.surveymonkey.com/s/NGDRKQ6](https://www.surveymonkey.com/s/NGDRKQ6)

Thank you,
Kelly Barcza
APPENDIX C

FLORIDA STATE UNIVERSITY BEHAVIORAL CONSENT FORM

The Influence of Perceived Coaches' Behaviors and Motivation on Perfectionism and Burnout

You are invited to participate in a research study of the influence of perceived coaches' behaviors and motivation on perfectionism and burnout. You were selected as a possible participant because you are a current Division I varsity swimmer. Read this form carefully and email any questions you may have before agreeing to participate in the study.

Kelly Barcza, doctoral student in Educational Psychology and Learning Systems under the supervision of Dr. Robert Eklund, is conducting this study. The purpose of this study is to examine associations among coaching environment, motivation, perfectionism and attitudes towards swimming. If you agree to participate in this study, I would ask you to do the following things: please fill out the questionnaire provided as openly and honestly as possible.

The study should take approximately 15-25 minutes to complete and has minimal risk. You might be asked to provide personal or sensitive information in the questionnaire. This could bring about a small amount of anxiety or feelings of uneasiness but no greater than you might experience in everyday life. You will be entered in a lottery, with a $100 prize, for your time and effort. If you choose to participate in the survey within one week of receiving the invitation, you will be entered in an additional $50 lottery. Your response might also help sport psychology consultants, counselors, and psychologists assist athletes suffering from burnout in the future.

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with your university or your coaches. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships or inclusion in the monetary lottery. No one, including your coaches or assistant coaches, will be permitted access to any completed questionnaire or consent form. The data collected will not be shared verbally, electronically or in any other way with the coaching staff.

FSU Human Subjects Committee Approved 2/2/10. Void after 2/1/11 HSC# 2009.3820
The records of this study will be kept private and confidential to the extent permitted by law. In any sort of report I might publish, I will not include information that will make it possible to identify a subject. Research records will be stored securely indefinitely without identifiers. Only the researchers will have access to the records. The researcher conducting this study is Kelly Barcza. You may email any questions you have now. If you have a question later, you are encouraged to contact Kelly at 614-736-5480 or kmub07u@fsu.edu. You may also contact her supervisor, Dr. Robert Ekholm at 850-644-2909 or erobert@fsu.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the FSU IRB at 2010 Levy Street, Research Building B, Suite 276, Tallahassee, FL 32306-2742, or 850-644-8633, or by email at humansubjects@magnet.fsu.edu.

You may print a copy of this information to keep for your records now.

Statement of Consent. Please click on the response that applies to you.
- I have read the above information. I have asked questions and have received answers. I consent to participate in the study. I am 18 years of age or older.
- I have read the above information. I have asked questions and have received answers. I consent to participate in the study. I am NOT 18 years of age or older.

Please type your email address and the current date in the appropriate boxes to be entered for the lottery. The email addresses will only be used to contact the winners of the lottery. The email addresses will not correspond with your responses ensuring confidentiality.

Email address

Date

FSU Human Subjects Committee Approved 2/2/10. Void after 2/1/11 HSC# 2009.3820
1. What gender do you most identify with?
   Female
   Male

2. How old are you?  

3. What year are you in college?
   Freshman  Sophomore  Junior  Senior  5th Year Senior/Master’s

4. What is your ethnicity? Click on ALL that apply.
   White/Caucasian  Black/African American
   Asian/Pacific Islander  Latino/Hispanic
   Indian  Native American
   Other

5. What is your country of origin?

6. How many years have you been competing in swimming?

7. Have you competed at the collegiate level at another school?
   Yes
   No

8. Are you a scholarship athlete?
   Yes
   No

9. Are you currently competing (in-season)?
   Yes
   No

10. What university do you currently swim for?

11. Are you currently injured?
    Yes
    No

12. If you are injured, please explain your current injury/injuries:
APPENDIX E

ATHLETE BURNOUT QUESTIONNAIRE

Please read each statement carefully and decide if you ever feel this way about your current sport participation. Your current sport participation includes all the training you have completed during this season. Please indicate how often you have had this feeling or thought this season by clicking on the bubble that corresponds with your response. There are no right or wrong answers, so please answer each question as honestly as you can. Please make sure you answer all items. If you have any questions, feel free to ask.

<table>
<thead>
<tr>
<th>Almost Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. I’m accomplishing many worthwhile things in swimming. 1 2 3 4 5
2. I feel so tired from my training that I have trouble finding energy to do other things. 1 2 3 4 5
3. The effort I spend in swimming would be better spent doing other things. 1 2 3 4 5
4. I feel overly tired from my swimming participation. 1 2 3 4 5
5. I am not achieving much in swimming. 1 2 3 4 5
6. I don’t care as much about my swimming performance as I used to. 1 2 3 4 5
7. I am not performing up to my ability in swimming. 1 2 3 4 5
8. I feel “wiped out” from swimming. 1 2 3 4 5
9. I’m not into swimming like I used to be. 1 2 3 4 5
10. I feel physically worn out from swimming. 1 2 3 4 5
11. I feel less concerned about being successful in swimming than I used to. 1 2 3 4 5
12. I am exhausted by the mental and physical demands of swimming. 1 2 3 4 5
13. It seems that no matter what I do, I don’t perform as well as I should. 1 2 3 4 5
14. I feel successful at swimming. 1 2 3 4 5
15. I have negative feelings toward swimming. 1 2 3 4 5
APPENDIX F

BEHAVIORAL REGULATIONS IN SPORT QUESTIONNAIRE

Below are some reasons why people participate in sport. Using the scale provided, please indicate how true each of the following statements is for you. When deciding if this is one of the reasons why you participate, please think about all the reasons why you participate. There are no right or wrong answers, so do not spend too much time on any one question and please answer as honestly as you can. Some items may appear similar but please respond to all the statements by clicking on the bubble that corresponds with your response.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Not True At All</th>
<th>Somewhat True</th>
<th>Very True</th>
</tr>
</thead>
<tbody>
<tr>
<td>I participate in swimming...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. because I enjoy it.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. because it’s a part of who I am.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. because it’s an opportunity to just be who I am.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. because I would feel ashamed if I quit.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. but the reasons why are not clear to me anymore.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. because I would feel like a failure if I quit.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. but I wonder what’s the point.</td>
<td>1 2 3 4 5 6 7</td>
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<td>8. because what I do in sport is an expression of who I am.</td>
<td>1 2 3 4 5 6 7</td>
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<td>9. because the benefits of swimming are important to me.</td>
<td>1 2 3 4 5 6 7</td>
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<td>10. because if I don’t other people will not be pleased with me.</td>
<td>1 2 3 4 5 6 7</td>
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<td>11. because I like it.</td>
<td>1 2 3 4 5 6 7</td>
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<td>12. because I feel obligated to continue.</td>
<td>1 2 3 4 5 6 7</td>
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<td>13. but I question why I continue.</td>
<td>1 2 3 4 5 6 7</td>
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<td>14. because I feel pressure from other people to swim.</td>
<td>1 2 3 4 5 6 7</td>
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<td>15. because people push me to swim.</td>
<td>1 2 3 4 5 6 7</td>
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<td>16. because it’s fun.</td>
<td>1 2 3 4 5 6 7</td>
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<td>17. because it teaches me self-discipline.</td>
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<td>18. because I would feel guilty if I quit.</td>
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<td>19. because I find it pleasurable.</td>
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<td>20. because I value the benefits of swimming.</td>
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<td>21. but I question why I am putting myself through this.</td>
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<td>22. because it is a good way to learn things which could be useful to me in my life.</td>
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<td>23. in order to satisfy people who want me to swim.</td>
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<td>24. because it allows me to live in a way that is true to my values.</td>
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APPENDIX G
CONTROLLING COACH BEHAVIORS SCALE

Please indicate how much you agree or disagree with each statement.

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<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Slightly Disagree</th>
<th>Neutral</th>
<th>Slightly Agree</th>
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1. My head coach tries to motivate me by promising to reward me if I do well. 1 2 3 4 5 6 7
2. My head coach only rewards/praises me to make me train harder. 1 2 3 4 5 6 7
3. My head coach only uses rewards/praise so that I stay focused on tasks during training. 1 2 3 4 5 6 7
4. My head coach only uses rewards/praise so that I complete all the tasks he/she sets in training. 1 2 3 4 5 6 7
5. My head coach is less friendly with me if I don’t make the effort to see things his/her way. 1 2 3 4 5 6 7
6. My head coach is less supportive of me when I am not training and competing well. 1 2 3 4 5 6 7
7. My head coach pays me less attention if I have displeased him/her. 1 2 3 4 5 6 7
8. My head coach is less accepting of me if I have disappointed him/her. 1 2 3 4 5 6 7
9. My head coach shouts at me in front of others to make me do certain things. 1 2 3 4 5 6 7
10. My head coach threatens to punish me to keep me in line during training. 1 2 3 4 5 6 7
11. My head coach intimidates me into doing the things that he/she wants me to do. 1 2 3 4 5 6 7
12. My head coach embarrasses me in front of others if I do not do certain things. 1 2 3 4 5 6 7
13. My head coach expects my whole life to center on my sport participation. 1 2 3 4 5 6 7
14. My head coach tries to control what I do during my free time. 1 2 3 4 5 6 7
15. My head coach tries to interfere in aspects of my life outside of swimming. 1 2 3 4 5 6 7
## APPENDIX H

### MULTIDIMENSIONAL PERFECTIONISM SCALE

The following items are statements concerning personal characteristics that some people demonstrate when they are training or competing in swimming. Please indicate the extent to which you personally agree or disagree with each statement by clicking on the appropriate response.

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<td>25. My parents rarely expected me to excel in all aspects of my life.</td>
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<td>26. People expect nothing less than perfection from me.</td>
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<td>27. I set very high standards for myself.</td>
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<td>28. People expect more from me than I am capable of giving.</td>
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<td>29. I must always be successful in activities that are important to me.</td>
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<td>30. People around me think that I am still competent even if I make a mistake.</td>
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REFERENCES


Kelly M. Barcza

Kelly Barcza was born in 1983 in Columbus, Ohio, where she resided with her parents, Mary and Don, and younger brother, Ryan, until attending college in 2001. She graduated from Miami University in 2005 with a Bachelor of Arts degree in Psychology. Kelly was a four-year varsity member and team co-captain of the Miami University women’s swim team. Under the advisement of Edward E. Jacobs, Ph.D., she obtained a Master’s degree in Counseling in 2007 from West Virginia University. Kelly enrolled in the Sport Psychology doctoral program in the College of Education at Florida State University in the fall of 2007. Her research interests include perfectionism and burnout in athletes. Kelly has also been a sport psychology consultant for various varsity athletic teams while at Florida State University.